RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. XLIX NO. 9 P.O. BOX 3454, TUSTIN, CA 92781-3454 September 2008

The Prez Sez.....

by Willie N8WP

Meanwhile, Back East…

Lobsters are afraid, VERY afraid

The Vice Prez Sez.....

by Nicholas AF6CF

The OCARC 75th Anniversary party is this month, so don't miss it. See Page 3 for details.

Then the yearly radio auction is coming up in another month on Oct 17. See Page 8 and OCARC WEB for details. We need members to send a list of equipment to draw people to the Auction.

This is hurricane season, and my thoughts are with everybody in Houston, Texas and other states that are suffering its effects. As usual, Ham Radio is providing a significant role in providing communications for the affected areas, while the normal phone services are lost, cell phone towers are down or sites are flooded, and even city and county services are either down or overloaded. Ham Radio continues to be a community service resource for both health-and-welfare and emergency communications.

Be prepared and
Be Well,
DE AF6CF

September Meeting

At out September meeting OCARC is going to hold a re-union for former members, and you are invited. The meeting will be really informal and give us all a chance to renew acquaintances and make new ones. Snacks will be provided.

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The next general meeting will be:

Friday, September 19th @ 7:00 PM

We will be meeting in Room 208
In the east Red Cross Building

ORANGE COUNTY AMATEUR RADIO CLUB
www.W6ZE.org

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Monthly Events:

General Meeting:
Third Friday of the month
at 7:00 PM
American Red Cross
601 N. Golden Circle Dr.
(Near Tustin Ave. & 4th St.)
Santa Ana, CA

Club Breakfast:
First Saturday of the month
at 8:00 AM
Jagerhaus Restaurant
2525 E. Ball Road
(Ball exit off 57-Freeway)
Anaheim, CA

Club Nets (Listen for W6ZE):

7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
Rick KF6UEB, Net Control

28.375 ± MHz SSB
Wed- 7:30 PM - 8:30 PM
Bob AF6C, Net Control

146.55 MHz Simplex FM
Wed- 8:30 PM - 9:30 PM
Bob, WB6IXN, Net Control

VISIT OUR WEB SITE

http://www.w6ze.org

for up-to-the-minute club information, the latest membership rosters, special activities, back issues of RF, links to ham-related sites, vendors and manufacturers, pictures of club events and much much more.

Club Dues:

Regular Members ...$20
Family Members* ...$10
Teenage Members ..$10
Club Badge** $3

Dues run from January thru Dec and are prorated for new members.
*Additional members in the family of a regular member pay the family rate up to $30 per family.
**There is a $1 charge if you'd like to have your badge mailed to you.

SEPTEMBER 19th, 2008
SPECIAL EVENING EVENT at 1900 Hrs

Attention Members and Friends!!!

This year is the OCARC's 75th anniversary and we are planning a special event celebration at the September general meeting.

There will be chatting, dissertations, exhibits and **FOOD** for everybody, so mark your calendars to make sure that you don't miss this event.

OCARC 75th Anniversary Program:

1) September Date and Place
The Reunion will take place on Friday September 19, 2008 at the Red Cross Building.

2) Catering
Pizza and soft drinks will be served at no cost to members and visitors.

3) Dissertation from Club Historian
The club historian will prepare a speech about the club and either himself or a speaker will read it.

4) Exhibits
Old Radio Receivers & Transmitters. We will have a Transmitter/Receiver, Magazines and books from the 1933 era.

5) Teleconference w/Remote members
Members unable to attend personally will check in via Skype audio/video.

6) Time Capsule for 100th Anniversary
All the Magazines, books, pictures, etc and maybe the Transmitter/Receiver from 1933 along with an attendance list and certificate will be placed in a Time Capsule to be stored at a designated place, not to be opened until the 100th Anniversary party in September 2033.

All present, members and past members are invited to share an evening of nostalgia, friendship and fun.

DO NOT MISS THIS MEMORABLE OCCASION!!!

QST QST ----------→ UPCOMING EVENT ←----------QST QST

OCCARO On-foot Foxhunt at Bonelli Park

Our next southern California on-foot radio foxhunting session will be Saturday, September 20 at Bonelli Regional Park. It will be a special "welcome home" session for ARDF Team USA, which participated in the World ARDF Championships near Seoul, Korea during the first week of September. George Neal KF6YKN was bronze medal winner on two meters in the M50 category at these championships.

This event will feature transmitters on two meters for both beginners and experts. A ham radio license and knowledge of radio equipment are not required. Experts will be on hand to teach the basic techniques of on-foot radio direction-finding (RDF). An optional 80-meter fox transmitter will also be on the air.

Transmitter hunting begins at 10 AM. You may start the courses at any time up until 1 PM. All courses close at 3 PM. There are picnic tables and BBQ grills nearby, so you can bring your lunch or cook up something if you wish.

The beginner course and the 80-meter transmitter hunt will be free of charge. The advanced ARDF training will use electronic registration/ scoring ("e-punch") so a $5 per entry (individual or group) donation is requested to defray the cost of the full-color orienteering map and e-punch equipment.

Trails are primitive in some areas of the park, so wear sturdy shoes. All ages are welcome, but young children must be accompanied by an adult at all times.

Bonelli Regional Park is near Raging Waters, Brackett Field, and Puddingstone Reservoir. From the 57/210 freeways, take the Via Verde exit and go east through the entrance to the park. There is a per-vehicle entry fee. Go approximately 1/4 mile beyond the entrance and turn left into the parking lot for the bike rental stand. Look for the orange-and-white orienteering flag directing you to the starting site. A map to the site is at <www.homingin. com>.

If you have them, bring a handi-talkie, receiver, or scanner covering the two-meter band for each person who will be going ARDFing. If you have directional antennas, attenuators, or other on-foot RDF equipment, be sure to bring it too. Make sure all batteries are fresh. For those with no radio gear, some extra ARDF receiver/antenna sets will be available. Also be sure to bring anything you'll need while going after those radio foxes, such as munchies, bottled water and sunscreen. For map plotting, bring your own compass, protractor and pencil.

Talk-in on 146.970 MHz simplex. Send questions by e-mail to the undersigned.

73
Joe Moell K0OV
homingin@aol.com
www.homingin.com

Upcoming OCARC Events!!!

OCARC POTLUCK

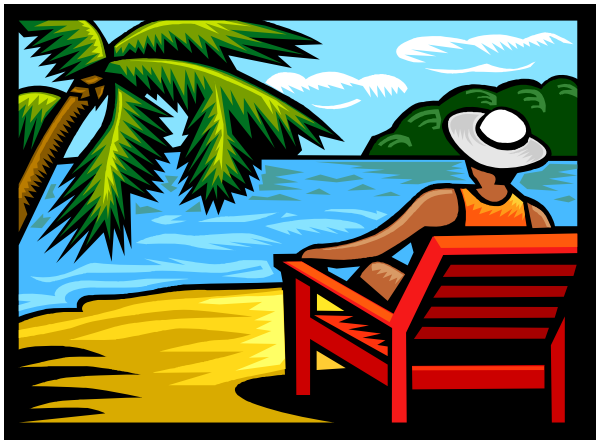
October 25!

QTH: Dan (N6PEQ) and Kristin's (K6PEQ) home

When: October 25th, 11 a.m. until ?

What to Bring: You, a friend or significant other and a food item. If you are unable to attend a meeting to sign up for food but would like to attend the potluck, please e-mail Kristin-K6PEQ at k6peq@w6ze.org.

We will be providing hamburgers and hot dogs. We hope you will be able to come and have fun!



Attention Members!!!

Do you know a fellow ham that would be interested in joining OCARC? Do you have a friend that is curious about ham radio and wants to learn more about our hobby? Why not invite him or her to one of our exciting monthly meetings?!?! The meetings are fun, informative and entertaining. Check out the upcoming events page in this newsletter to see the exciting speakers we have lined up for the next couple of months. Don't forget about the great raffle prizes too. So bring a visitor to one of our meetings, and help **your** club expand!

Make sure to inform your friends of our club's website, which is always kept up to date. Information on club meetings, activities and our newsletter archive make it a worthwhile site to surf! http://www.w6ze.org

AUCTION !!!
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AUCTION !!!

It's that time of year again. The OCARC annual ham radio auction is Friday, October 17th at 7:00pm.

Bring your gear to sell. Come bid on other equipment.

This is always a fun event. Bring your ham radio friends too!!!

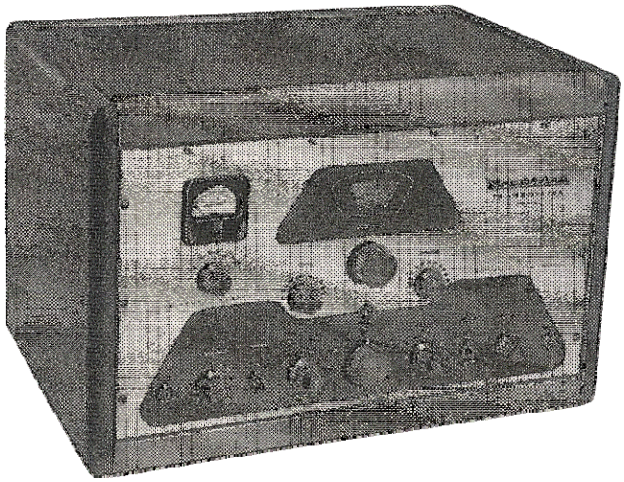
Please visit the OCARC website (www.w6ze.org) for a map and auction rules.

The Orange County
Amateur Radio Club "OCARC"
P.O. Box 3454
Tustin, CA 92781
Web: http://www.w6ze.org
Email: ocarc_info@w6ze.org

Heathkit of the Month - September 2008
The DX-100 AM/CW Transmitter
by: Bob Eckweiler, AF6C

This past April the Heathkit DX-40 amateur transmitter was featured in this column. Also discussed were the DX-20, DX-35 and DX-60 family models. They all were either strictly CW or AM/CW using controlled-carrier modulation (low-level screen-grid modulation). Each larger numbered model ran a tad more power, with the DX-60 running 90 watts input on CW. These transmitters were very popular with novices and new hams between the fifties and mid-seventies.

Original DX-100 from a 1956 Heathkit ad.



The Heathkit DX-100:

Heathkit also made a much higher performance big brother transmitter in the DX series, the DX-100. The DX-100, was introduced in 1955 for $189.50. It produces 150 watts input on AM and 180 watts input on CW. AM mode features high-level plate modulation to produce a more efficient AM signal than controlled-carrier modulation. The transmitter has a built-in VFO, or it can be crystal controlled. It covers 160 meters through ten meters including the eleven meter band, which was a ham band back in 1955. The DX-100 is a battleship of a transmitter and can easily qualify as a boat-anchor; yet AM-ers still use and covet it today.

What makes the DX-100 such a battleship? First, it weighs in at a solid 100 pounds. Much of that is from the iron of two massive power transformers, two power supply chokes, and a big modulation transformer. Put all that in a large 20-7/8" W. x 16" D. x 13-3/4" H. heavily TVI shielded steel rack cabinet that is a kit unto itself. Oh, also stuff in a pair of finals with a pi-network, two modulator tubes, four power supply rectifier tubes, a voltage-regulator tube and six other tubes needed to get the transmitter to work. Add nine massive 16" guns on three triple-gun turrets ... - no wait, that's the wrong battleship!

The Power Supplies:

The Heath DX-100 has two separate built-in power supplies. The low voltage (LV) supply transformer powers the RF stages up to the final amplifier, as well as the audio stages up to the modulator. It uses a 5V4G rectifier tube in a capacitor input filter with a hearty choke for good regulation and a solid 350 volts output. An OA2 voltage-regulator tube, driven by the low-voltage power supply, provides a constant 105 volts to the electron-coupled VFO for stability. A small 6AL5 rectifier tube takes voltage off a tap from the LV transformer to provide negative 75 volts bias power for the clamp circuit and final amplifier.

A 12 volt center-tapped filament winding on the LV transformer supplies filament power to all the six and twelve-volt filaments. The need for 12 volts is driven by the choice of the 1625 modulator tubes. All the six-volt filaments are driven from one leg of the grounded center tap except for the finals which are driven off the other leg. The two modulator tube filaments and the modulator driver are driven directly across the 12 volt line. The HV and LV rectifier tube filaments are driven by two separate 5-volt windings on the LV transformer.

The high-voltage supply that powers the final amplifier and modulator uses a separate 1,800 volt center-tapped transformer and a 5.5 henry choke in a choke input filter arrangement with 63 µF of output capacitance to provide a well regulated 740 volts. Rectification is provided by two 5R4GY heavy-duty rectifiers in parallel. (The silicon diode rectifier was still a some years from becoming practical!)

The Modulator and Audio Stages:

During World-War II many ARC-5 (SCR-247N) transmitters were built for the war effort. They flew in Navy and Army fighters and bombers. The HF transmitters use a pair of 1625 tubes in the final RF amplifier. After the war these tubes were plentiful and very inexpensive. They are identical to the 807 except that they have a 12-volt filament and use a different tube socket (seven-pin vs. five-pin). Heath chose to use a pair of 1625s as their modulator tubes. The tubes run in push-pull class AB_2 and can produce about 85 watts of audio power.

The audio preamplifier is designed for a high-impedance crystal microphone, such as the then very popular Astatic D-104. Two sections of a 12AX7 twin-triode provide audio amplification and also set the audio response to 300 - 3000 cycles per second, ideal for AM communications audio. The second triode section's output is fed into a 12BY7 audio driver tube that is coupled to the grids of the two 1625 modulator tubes through an interstage transformer. The 1625 tubes vary the voltage on the plates and screens of the RF final tubes through the modulator transformer.

If you want to use the DX-100 to drive an external plate-modulated RF power amplifier, the DX-100 may be easily adapted to provide 85 watts of 500-ohm audio output. This is sufficient to drive most plate-modulators designed for a 1KW AM amplifier – the maximum power permitted for radio hams at the time the DX-100 was in production.

RF Stages:

The built-in electron coupled VFO used in the DX-100 is nearly identical to the Heathkit VF-1 VFO that was available for the other DX-series rigs. VFO output frequencies for the bands are: 1750 - 2000 KC (covering 160M and 80M) 7000 - 7425 KC (covering 40M, 20M, 15M, and 10M) and 6740 - 6807.5 KC (covering 11M).

The VFO is followed by a buffer / crystal oscillator stage that uses a 12BY7 tube. In the VFO mode this circuit isolates and amplifies the VFO signal. If the user has selected a crystal instead, this stage acts as a crystal oscillator. Up to four internally mounted crystals or the VFO may be selected by a front panel control. Crystal frequencies in the ranges of the VFO output may be used for the given bands. In addition crystals in the 3500 - 4000 KC range may be used for the appropriate bands.

The RF buffer stage also acts as a frequency multiplier depending on the band. On 160M and 80M the buffer output is untuned. It is tuned to 40M for operation on 40M, 20M and 15M and it is tuned for 20M for operation on 11M and 10M.

The output of the buffer is fed to the RF driver stage that uses a 5763 tube. This stage acts as a multiplier when required for a given band. The driver output is coupled to the final amplifier by a low-pass PI network. The PI network has fixed loading and a tap on the coil is switched by the band-switch. Driver tuning is adjustable from a control on the front panel. A front panel potentiometer adjusts the drive level by adjusting the driver tube screen voltage.

The Final Amplifier:
The final amplifier uses two very popular 6146 tubes driven in parallel in class-C. No frequency multiplication is done in the final amplifier. The final amplifier is coupled to the antenna using a Pi network output. On CW the plate and screen voltages are supplied directly by the HV power supply. On AM the modulation transformer is switched into the HV circuit modulating both the final screen and plate voltages. The screen grid voltage is dropped through a resistor and is also connected to a clamp tube. This tube conducts heavily if the drive to the final is lost, preventing excessive plate current and damage to the final tubes.

Keying Circuit:
The keying circuit of the DX-100 uses conventional cathode keying. Only the VFO and buffer / crystal oscillator stages are keyed.

Meter Circuit:
A single 0 - 1 ma meter with appropriate printed scales monitors the transmitter via a front panel selector switch. The switch has five positions:

- [RF] **Driver** [plate current] 0 - 50 ma.
- [RF Final] **Grid** [current] 0 - 10 ma.
- [RF Final] **Plate** [current] 0 - 500 ma.
- [RF Final Plate] **Volts** 0 - 1,000 volts.
- **Mod**[ulator plate current] 0 - 500 ma.

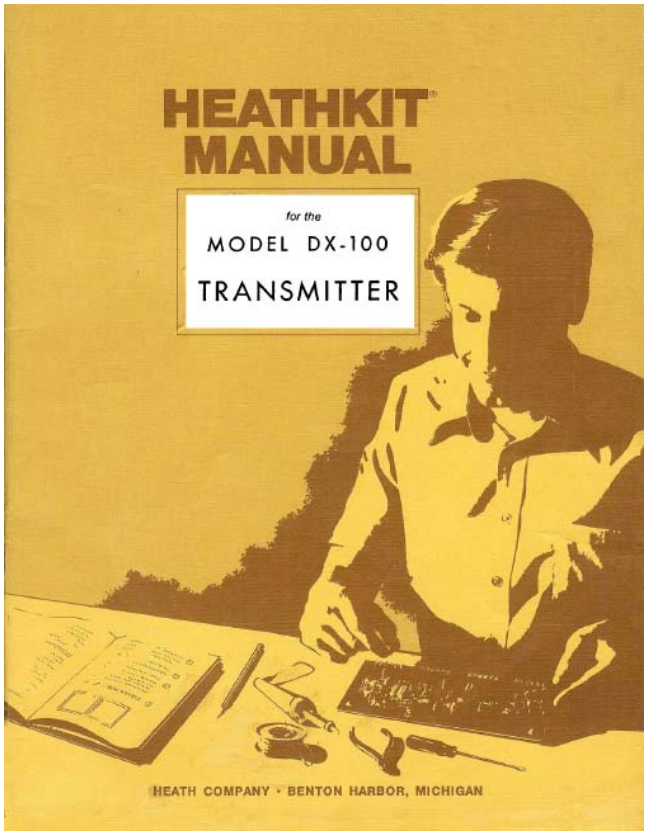
Front Panel:
Controls are staggered in two rows across the upper and middle, with a third row along the bottom of the front panel. Two of the bottom controls have concentric shafts for dual purposes:

Top Row (left to right):
- On the left is the meter.
- On the top center is the lighted VFO **Frequency** dial window. Arcane by today's standards but quite a technical achievement in the fifties.
- On the right is the Heathkit logo and model nomenclature.

Staggered Middle Row (left to right):
- Directly under the meter is the meter selection switch.
- Just left of middle is a large **Driver** tuning knob.
- In the middle is a large VFO **Frequency** knob that moves the dial in the window.
- Directly below the VFO knob is the plate HV on indicator lamp.
- Just right of middle is a large plate **Amplifier** tuning knob.

Bottom Row (left to right):

- **Mike** conn. (Mate: Amphenol 75-MC1F)
- **Audio Gain** potentiometer
- **Power** (**Off** / **On** toggle switch)
- Left Concentric controls:
  - **Xtal** 1 - 4 - **VFO** (Outer)
  - Final Grid **Drive** (inner)
- **Band** selector (**160** - **10**)
- Right Concentric controls:
  - Plate **Loading - Fine** (Outer)
  - Plate **Loading - Coarse** (inner)
- **Plate** HV (**Off** / **On** toggle switch)
- **CW** / **Phone** mode switch
- **Key** Jack.



DX-100 Tube Lineup (15 total)**:**

• HV Rectifier:	2 x 5R4GY
• LV Rectifier:	5V4G
• Bias Rectifier:	6AL5
• VFO Voltage Regulator:	0A2
• Speech Amplifier:	12AX7
• Audio Driver:	12BY7
• Modulator:	2 x 1625
• VFO:	6AU6
• Xtal Osc / Buffer:	12BY7
• RF Driver:	5763
• Final Clamp:	6AQ5
• RF Finals:	2 x 6146

The DX-100 was manufactured from 1955 to 1957 when it was replaced by the DX-100B. No DX-100A ever was manufactured.

The DX-100B:

In 1957 Heathkit began production of the DX-100B. Single Sideband was beginning to become popular, and perhaps one of the biggest reasons for changing the DX-100 to the DX-100B was to make a rig that would work with a planned sideband adaptor being designed at Heath.

DX-100B. Photo by Mark, K3MSB
(Used with permission)

The DX-100B is nearly identical to the DX-100, with the following changes:

The two dual concentric controls on the front panel have been eliminated. The left outer concentric switch that selected one of four internal crystals or the VFO was moved to inside the cabinet, and the number of crystal sockets decreased from four to one. The left inner dual concentric control, (Final Grid Drive) took over the full spot on the front panel.

The right dual concentric control that was composed of an outer Coarse and inner Fine Plate Loading control on the DX-100 is now a single control with a geared drive hooked to a larger variable load capacitor.

The rack-like DX-100 cabinet was replaced with a lighter one-piece prebuilt cabinet. The top of the new cabinet has a trap door that allows access to the Xtal/VFO switch and crystal socket. Crystal use was evidently waning in popularity because of the stable VFO.

The knobs were updated slightly; they now feature a triangle instead of a line as their pointer.

The DX-100B chassis came already punched and ready for the additional connectors and wiring to support the Heathkit SB-10 Single Sideband Adapter. This adapter could also be used with the earlier DX-100 model, but required drilling and punching of the chassis for the necessary connectors. SSB was quickly becoming the mode of the future and many hams updated their DX-100 series transmitters to use the SB-10 adapter.

Although the DX-100B was only available until 1960 it was also quite popular. Units can be heard in operation today on many of the AM nets on the lower bands. The DX-100B remained for sale for over a year after its replacement was introduced attributing to popularity of this transmitter.

Observations:

In 1960 I was leant a DX-100 to play with by a fellow ham, Marty Brody - K2MDL. My experience at the time was with a DX-40. The DX-100 ran cleanly and the quality of my audio reports were excellent. With three times the audio power in the AM sidebands I also found it easier to make and keep contacts when the band conditions weren't favorable. The rig worked well on CW too, though I can't say I noticed many difference over the DX-40, except the obvious thrill of knowing you have the additional power. VFO stability was great by 1960 standards! When I had to give the DX-100 back it was a sad day!

Conclusion:

The Heathkit TX-1 Apache replaced the DX-100B. Completely restyled outside, the TX-1 has an updated audio section that uses clipping, a modulator that uses modern EL-34 tubes and, when built, is fully wired for the SB-10 SSB adapter.

Perhaps in a future column we'll discuss the Apache TX-1 and Mohawk RX-1 companion receiver. I never did buy a DX-100, though I did upgrade to the TX-1 Apache in 1961.

Here is an offering written by Corwin Miller, describing a Disneyland Experience:

A Small Victory

by

Corwin Miller

KE6YHX

After attending the OCARC meeting this August, and listening to the provocative lecture by Art Goddard, W6XD, one fateful experience comes to mind. First, a little background...

I have been a long-time visitor and twelve-year annual passholder of Disneyland. The event that got me to get my license and into Ham Radio was in 1995, on a visit to Disneyland. As we were entering through the main gate, my mom and I noticed a visitor with a radio on the back of his belt. As usual, my mom was very sociable and inquired as to the type of radio. The visitor told us that it was a Ham Radio and that there was a Disneyland repeater, and that he often brought his Ham Radio into Disneyland. I knew about Ham Radio since my teens, when my brother, Don, gave me his Gordon West Radio Amateur's 21-Day Novice FCC License Preparation Course kit, and loaned me his HT he used for hang gliding to listen to, but I hadn't gotten my license until that fortunate visit to Disneyland. That same year I met the Disneyland guest, I bought an up-to-date license study kit and noted the test locations at Ham Radio Outlet.

Shortly thereafter, I took the Novice exam at the Anaheim EOC, passed the written and code
tests, got my Novice license, and a few months later passed my Technician Element and got my Technician Plus license. Later, I got a few family members to get their Ham licenses, and ever since then we have brought our HTs to Disneyland to communicate when we got split up or went on different rides.

One day in June, 2007, my mom, my niece and I went to the Disneyland Resort and we decided to split up, the two of them went to see a movie at the Downtown Disney AMC Theatre, and I went on to go into Disneyland. As usual, we brought our HT Ham Radios. Since we were so close to it, I tried to go in at the Monorail entrance, where apparently security was tighter. But the security group, headed by their supervisor would not allow me in with my Ham Radio. They said it was against the rules. I could not go back to the car to leave it there because my mom had the key, and she and my niece were already inside the theatre. So I went to the main entrance where the lockers were and attempted to enter, but was stopped there by the Disneyland Cast as well and was shown to the lockers, which I discovered were outside the baggage check. I then paid $11 for locker rental, left my HT in the locker, and went in. One Cast Member suggested that I go to Guest Relations and speak with them about it.

So I went to Disneyland City Hall, and after consulting her supervisor, the representative told me that it was okay to bring in a Ham Radio, as long as it was a small handheld.

So I then got a hand stamp, left by the main gate, got my HT from the locker, and went to go back into Disneyland. I was stopped by a single security guard after entering the baggage
check. So I informed him that I was a licensed Ham Radio operator, gave him my call sign, told him the name of the representative at Guest Relations, and that she told me that it was okay to enter with my radio. After showing the guard the frequency my radio was on, and again the name of the representative, he let me pass. Later, my mom and niece entered through the Monorail entrance, but they had to leave their radio in the car.

That night, I wrote a letter to Disneyland Management explaining our experience, mentioned the Disneyland Special Events Station, WD6MM, and inquired how it and its purpose relates. In the response, a member of Disneyland Guest Communications apologized for the unfortunate experience, informed me that certain types of Ham Radios were allowed in, and that he had spoken with the leadership team to try to avoid such an experience in the future. We have had no trouble since then. Count this as one small victory for Ham Radio!

73, Corwin Miller KE6YHX

A HISTORY OF THE ORANGE COUNTY AMATEUR RADIO CLUB - Part 7

by Bob - WB6IXN, Club Historian

***** A NEW ERA – cont'd *****

The 1968 Christmas Party was held at Buffalo Bills Family Restaurant, Chapman & Main, Santa Ana. Max, W6DEY, was Santa Claus.

In 1969 Jerry VerDuft, WA6ROF [now ADØA], was elected president. The May general meeting was held at the Heathkit Co. store on Ball Road, Anaheim. The OCARC Field Day site was just above Pacific View Memorial Park Cemetery near Big Canyon Reservoir off of Jamboree Road. Ken Konechy, W6HHC, was editor of "RF". And Jack Hollander, UDC, was writing the "DX from Orange County" column for "RF".

In 1970, Jack Hollander, WB6UDC [now N6UC], was elected president. In Field Day performance, OCARC placed 6th in the 5A group with a score of 11,777, a gain over our 1969 performance. The Field Day site was located in Lemon Heights off Camden Drive.

Our 1972 president was Ron Cade, WA6FIT [now W6ZQ]. In late '72 or early '73, we once more changed our meeting site to Mercury Savings & Loan, 1095 Irvine Blvd., Tustin, CA., where we continued to meet until 1984. The 1972 Field Day was held at Los Alamitos Air Station (Navy).

In 1973, Bob Eckweiler, WB6QNU [now AF6C], was elected president. Field Day was held at the Marine Corps Lighter-Than-Air Station in Santa Ana, near the MARS station area. The MARS station allowed OCARC to put antennas on their three 150-foot self-standing towers. Hence, 2M FD operations were outstanding that year.

In 1974, Ken Konechy, W6HHC, was elected president. Once more, Field Day operations were held at the Marine Corps Air Station in Santa Ana. We made 1601 contacts for a total of 3452 points.

In 1975, Art Sheldon, WA6LHB [now K7ZE], was elected president. Again, Field Day was held at the Marine Corps Air Station (H) in Santa Ana. We made 2053 contacts for a total of 4934 points!

El presidente for 1976 was Martin Raymond, WB6PEX. Again, Field Day was held at MCAS(H), Santa Ana. We made 1914 contacts for a total of 4496 points. The annual Christmas dinner was held at the Crossroads Restaurant in Fountain Valley. Fried & Sandy, WA6WZO & WA6WZN, took reservations for the dinner.

In 1977, OCARC elected Fried Heyn, WA6WZO, president. Nate Hooker, WA6MPI, did a fine job with the ham radio classes. The Club thanked Bob Eckweiler, WB6QNU, for his continued Call Book service at his home. The Orange County Council of Radio Organizations, OCCARO, was reactivated. At the DX Convention, OCARC was represented by WA6WZO, WA6WZN, WA6FIT [now W6ZQ], WA6IRR, WA6MO, WA6KFJ, WB6UDC/N6UC, and KC6TC. Ernie, WA6FOW, was NetControl fer the OCARC 2m Nets. Rick, WA6ULV, and Jim, WB6NVO, were instructors for the OCARC Novice classes. Field Day was again held at MCAS, Santa Ana, with Bob, QNU, in charge as FD chairman. 2610 FD QSOs were recorded for a total of 5,812 points!

Salt-water fishing trips, T-Hunts and auctions were other events enjoyed by Club members from time to time.

Mildred Maxson, W6PJU, a club old timer since World War II and also a life member of OCARC, became a Silent Key on July 15,

1977. She was a member of: QCWA, YLRL, ARRL, North County YLRC, and, Colegas y Amigos in Mexico. We will always miss Mildred's well written articles of Maxson's travels which were always welcome reading in past "RF" newsletters.

The following members attended the Southwestern Division Convention held at Santa Maria: WA6WZO/WZN, Fried & Sandy; W6DEY, Max; WA6FIT, Ron; WA6MOK, Jay; KFJ, Kathy; W6IBR, Al; WA6FOW, Ernie; W6RE, Alex; and RXR, Ken.

On Sept. 23-26, Frank, WA6VKZ; Terry, WB6IHZ; Gene, WB6YCY; and Joel Victor, harmonic of Vic, WA6RNA, all hike to the 10,000 ft. level of Mt. San Gorgonio and set up two portable stations for 2 meters & HF. W6ZE was listed 9th in the nation for Field Day in our class in QST!

(to be continued next month
…Bob Evans, WB6IXN, Club Historian.)

Here follows an article written by Arend, PA2AWU. He is a member of PA6Z, a Dutch HF Contest Group in Eastern Holland:

Just an article about a Cubical Quad. The Giant antenna under the beam antennas !

As HF Contest group PA6Z, we are on the run to improve our results. On the national HF multi-op stations list, we now take a stable third place. The numbers one and two, PI4COM and PI4CC are rather a couple of years longer on the HF air. They are well situated nearby the Dutch North Sea coast. We need some more routine, I guess.

Our 40 meter antenna is only a Phased Vertical, pointing East or West, each with 36 radials. But in my opinion, antennas need to be high in the air, so we need a rotatable Cubical Quad!
We finally found 10 meter long fibreglass angle rods for a reasonable price in England. The boom aluminium was bought 10 miles away from here and I brought it yesterday with an old blanket on the roof of my Volvo V70. (Was only on a highway for 6 miles ☺).

The boom diameter will be 70 mm, almost 3 inches. Our goal is maximum gain; front/back ratio isn't of too much importance to us.

I feel fortunate to know a professional antenna simulator man only a couple of miles away from here. We had a talk by telephone (about antenna simulations, of course) and he suggested building first a two meter model and do some measurements. Five hours later it was built.

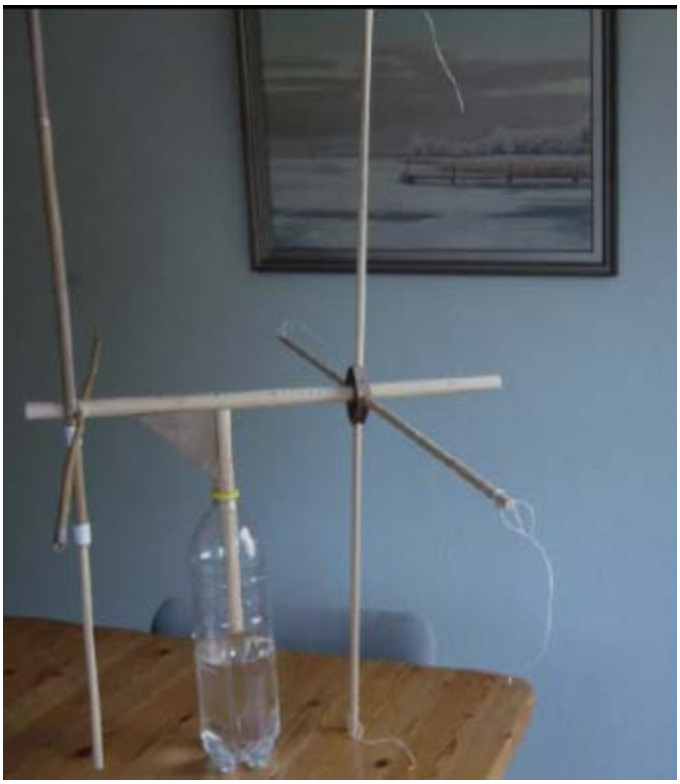


Photo 1: 2 meter model Cubical Quad. Reflector distance adjustable.

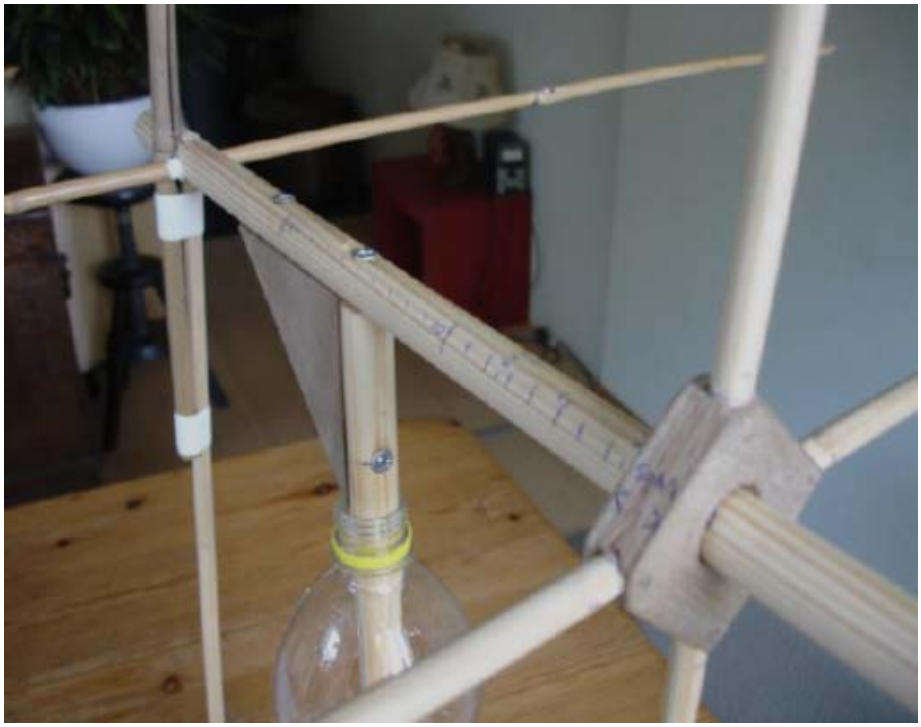


Photo 2: Model 2 element Cubical Quad. Boomlength adjustable.

Scaling factor used for modelling is 7,075 MHz. : 144.5 MHz. = 0,048961938

6 mtr boom scaled: 29,4 cm. Radiator must be 4*52,1 cm and Reflector: 4* 54,4 cm.

This is easier to do measurements with, instead of a 40 mtr version!
boom: 6 mtr. Radiator: 4 * 10,649 meter and Reflector: 4* 11,114 meter.

Simulation in MMANA-Gal (shareware), quad centre on 20 mtr height: Freq=7,075 MHz. R=107,5 Ohm. jX=0. Gain=11,43 dBi. FB=16,89 dB. Results include ground gain.
Free space: Gain: 5,12 dBd. FB=16,55 dB. (No ground gain of course).

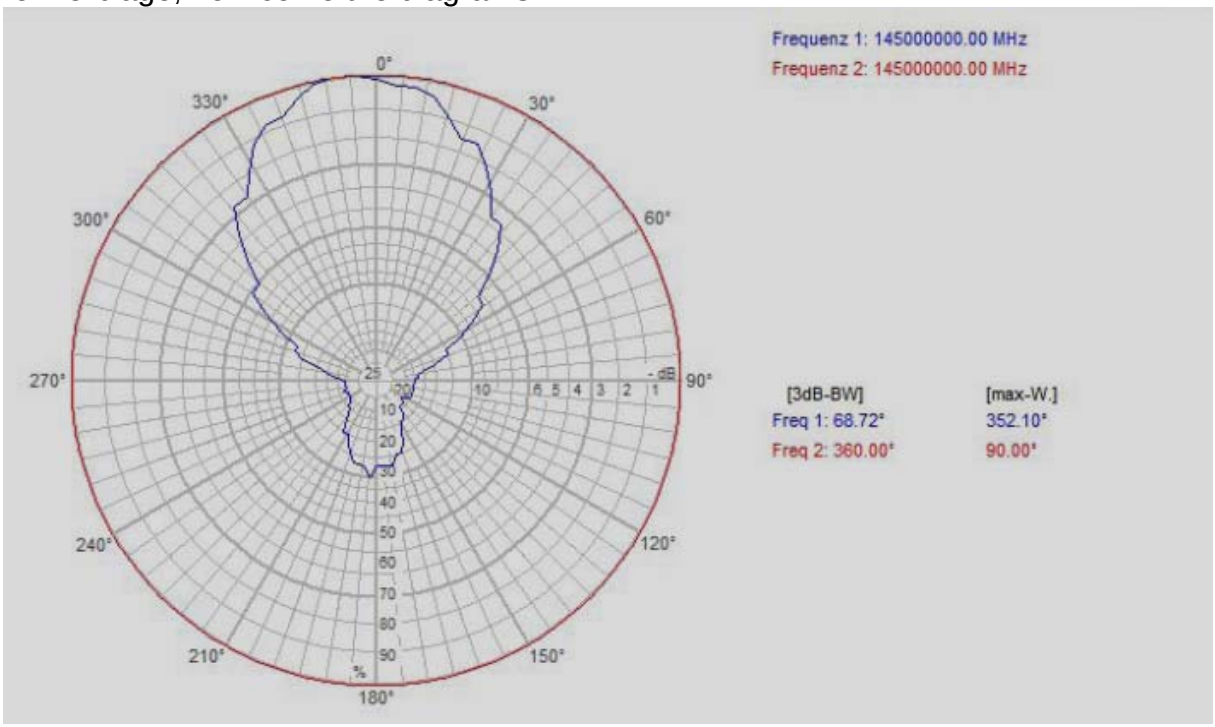
We want maximum gain, as mentioned before; f/b is of less importance.
A f/b of 16.6 dB isn't impressive. This could be made by shortening the boom to, for instance, 4 meter, but we found a 6 meter boom comfortable to use. The gain almost doesn't change when the boom length is varied. De opening angle, in theory and measured, was about 70 degrees!

Our measurement antenna location: tx: a 6 el horizontal 2 mtr beam at 2.5 mtr height and 3 wavelength distant of the 2 element CQ.

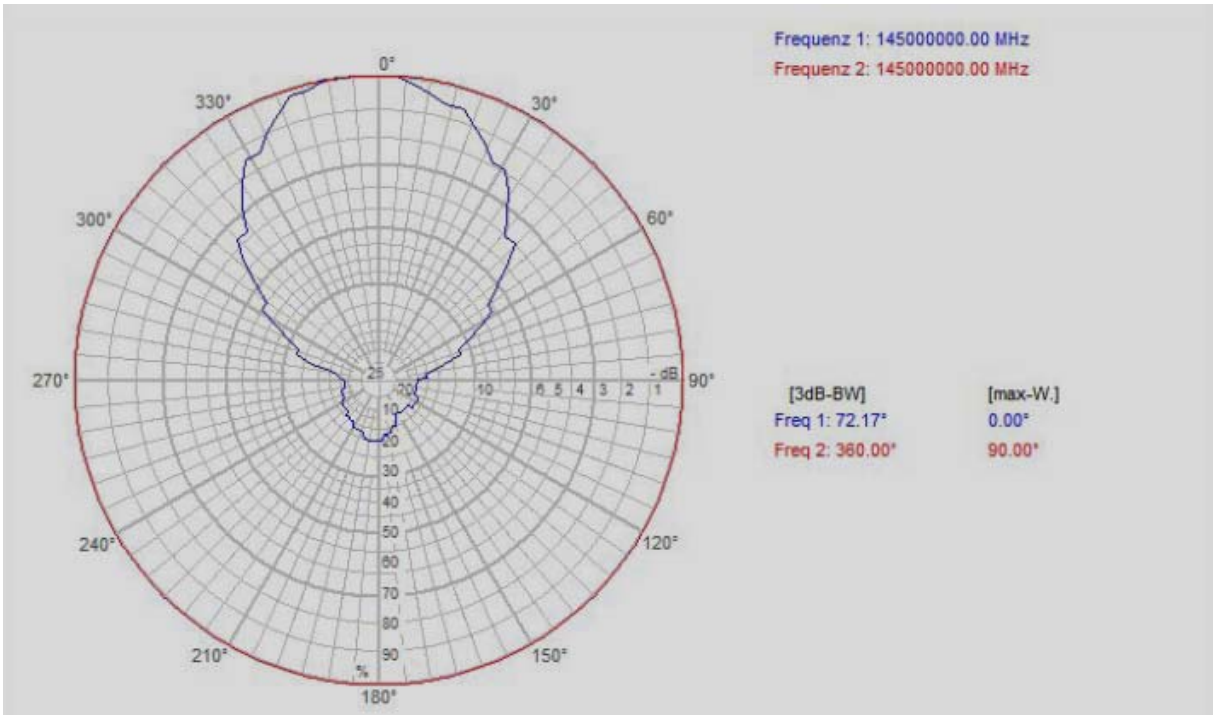
A balun direct at the feed point of the CQ is absolutely necessary! Otherwise the pattern will be asymmetrical, a disaster!
The impedance at the feed point of this model didn't introduce any trouble while making our measurements.

The model showed its maximum gain at around 145 MHz. The 3 db points were 2.5 MHz. higher and lower. 145 MHz divided by 20 (scaling factor from 2 mtr to 40 mtr ☺) leaves a bandwidth of about 250 KHz on 40 meter. Gain is broad and flat.

So much for verbiage, now come the diagrams:



Radiation pattern 1: Measurment model on 145 MHz. Spacing elements: 29,4 cm. Opening angle: 68,72 degrees



Radiation pattern 2: Measurement model on 145 MHz. Spacing elements: 19 cm. Opening angle 72,17 graden

Spacing: 19 cm is on 40 mtr a boom length of about 4 mtr. We aim for gain! So no more attention to that.

Our simulated calculation agreed with our measurement results. The 40 meter 2 element Cubical Quad will show a gain of about 11.40 dBi and a f/b ratio of at about 16.9 dB. Balun filter in the feed point is the rule, otherwise the diagram will be skewed and that is not what we want!

We didn't use an impedance transformer; still the reflection loss was only 20 dB. The professional said to me that, in his opinion, what is gained by using an impedance transformer is lost again by the loss of transforming.

Well, this shows a promising result! I cannot wait to start building the 40 meter Diamond Quad!

Arend, **PA2AWU**, member **PA6Z HF Contest Group**.

OCARC SPECIAL SERVICE CLUB CERTIFICATE

TechTalk # 72

Digital TV Converter Box and Coupon

by

Larry McDavid W6FUB

At a recent Fullerton Radio Club meeting, my Show-and-Tell was a digital TV converter box I recently bought. I pointed out that there are now many models of these boxes available and that they are not all created equal! Here are some important points to consider when searching for converter boxes:

1. All the boxes have minimum required features so all will receive a digital signal from an off-the-air (usually an outside, roof mounted) TV antenna and convert it to our now-standard NTSC analog RF signal, outputting that signal on either Channel 3 or Channel 4. In this minimal design, all the boxes are essentially equal.

2. But, using your old analog TV's antenna input and setting that TV permanently on Channel 3, means that every digital TV signal you receive will be down-converted to the low-bandwidth and high-noise capability provided by Channel 3; you'll get a poor quality picture, but it will work.

3. Many of these converter boxes also offer Composite Video on an RCA connector and left and right channel line-level sound output. This is surely a significant improvement over using the Channel 3 RF output. Your TV must have Composite Video and line-level audio inputs, of course.

4. But, even better video quality is available if your TV has a S-Video input connector. The S- Video connector is a small, round four-conductor connector that separates the chrominance and luminance video signals. In Composite Video, these two signals are combined and must be separated within the TV itself but the signal losses resulting from sending both through the shielded cable and making the separation in the TV definitely degrades the video quality. So, I wanted a converter box that provided S-Video output as well as Composite Video and line-level audio outputs.

5. It is generally understood that *all* analog TV stations will stop transmitting on February 17, 2009. This is not entirely true. All *major, wide-area* TV stations are *required* to stop transmitting analog TV in February, but there are low-power, local-only TV stations (Low Power, Class A and Translator stations) that are allowed (not required) to continue transmitting analog TV signals. This was allowed by law because the high cost of changing transmitters, antennas and --in many cases-- antenna towers for digital broadcast is very expensive and these little (often non-profit) TV stations could not afford the investment required for digital TV. So, there will be a few stations that will continue to transmit analog NTSC TV after February 17.

The problem is that most of the digital TV converter boxes will not pass any analog TV signal from the antenna along to the TV, so the boxes prevent reception of the low-power stations. Those stations are screaming about this problem!

Fairly recently, several converter boxes have been redesigned for "Analog Pass-Through" to allow the option to pass these local analog TV

signals through the box and on the old analog TV. Some folks might actually watch these local, often private, TV stations and the only way to do so without changing cables every time that is desired is to use a converter box that offers "Analog Pass-Through."

6. So, I sought a digital TV converter box that provided both S-Video output and Analog Pass-Through. Fortunately, I found one locally that offers both, as well as remote control for channel selection and option setting. That is, I found *one* that will do both.

7. I bought an Apex DT250 “Digital TV Converter Box with Analog Pass-Through” from Best Buy. These are selling fast and I had to wait for the next delivery to Best Buy to get one.

8. Many popular electronics stores sell various models of converter boxes, but as I pointed out, they are not all created equal! And there is a surprising range of prices. I have seen boxes priced from $59.95 to $119.95. Why? A very good question indeed. You can choose to support your retailer selling the higher priced boxes if you wish, but you don't need to do so. The converter box I identified above sells for $59.95 at Best Buy.

9. Our federal government decided that folks should be partially reimbursed for the cost of these boxes if they really need one. "Really need one" means they receive TV *only* from an off-the-air antenna and don't already have a digital TV or cable TV or satellite TV in their home. This reimbursement is offered as a $40 instant rebate coupon that all retailers are required to accept; the coupon is actually a debit card that looks like a credit card. Thus, if the converter box is priced at $59.95 and you present the coupon, you will pay $19.95 for the box (and, tax on $59.95!). You can get one or two such coupons per household merely by asking for them.

10. How do you get the coupon? Simple! There is an on-line Internet website that asks some questions and requires your name and address. If you meet the requirements, you will receive one or two (your choice) coupons by mail. Mine took about four weeks to arrive.

11. Let me point out that if you already have cable TV or satellite TV or one of the new digital TVs, you don't qualify for *any* rebate coupons. You are asked these two questions early-on in the website form. If you answer that you have even just one TV in your home that currently can receive digital TV, you won't get a coupon. Read the questions on the website form carefully.

12. What website? You can Google search for "Digital TV Converter Coupon" or you can visit:

http://www.ntia.doc.gov/dtvcoupon/

Click the big red box in the upper right of this webpage to access the form to request the coupons.

HIGH DEFINITION TV

Finally, let me point out that *Digital TV* is not necessarily *High Definition TV* and that you won't get HDTV out of one of these converter boxes--just a digitally-converted, standard- definition TV signal.

If you want to enjoy the pleasure of high definition TV on a 16x9 wide screen TV, you will need to buy a new TV set! The video (and, audio) quality improvement is rather astounding. The 16x9 aspect ratio of the new TV sets makes watching DVDs much more enjoyable as there will be no black bar at the top and bottom. And, most of the new high definition TV sets are flat screen LCD or plasma sets, surely a vast improvement over the old CRT vacuum tube displays. These new sets are selling like hot cakes at CostCo and Sam's Club.

WATCHING DVDs

There is only one more topic I want to present. If you have a large collection of standard DVDs, there are now low-cost DVD players that will "up-convert" the video on the standard DVD to near-HDTV quality. The quality is surely not BlueRay high-definition quality but the improvement offered by the "up-converting" DVD players is immediately noticeable. Why is this possible? Essentially, the resolution recorded on standard DVD media is actually better than your old analog TV can display and the resolution is *downgraded* before being sent to an analog NTSC TV!

To take advantage of these "up-converting" players, you must have a high definition TV that also has HDMI input connectors. HDMI connectors combine high-definition digital video signals with 5-channel digital audio signals in one cable and one small connector somewhat similar to a computer USB connector. The HDMI connectors are now standard on all high definition TVs; many sets have two HDMI inputs and some have as many as four. This allows you to connect a cable TV or satellite TV set-top box and an "up-converting" DVD player simultaneously to the TV and select which to view from the TV remote control. What is "low-cost?" I bought an up-converting DVD player for $49; CostCo has several models from $59 to $99. Look for the "Up-Converting" specification marking on the player.

There is no mystery about high definition TV but there is much confusion. The change from analog to digital TV *will" happen on February 17, 2009 and you should be ready for it. My recommendation is to go buy a new flat-screen HDTV. You don't need to subscribe to cable or satellite to get high definition TV! In Los Angeles, every major TV station, and most of the smaller stations as well, already transmit off-the-air (meaning outside TV antenna) digital TV signals. I commanded my new HDTV to search for digital signals and it found 36 signals from my years-old outside TV antenna. You will get excellent HDTV with a reasonably good outside antenna; there are special newer "HDTV Antennas" offered but try your old outside antenna first; likely, it will work fine.

There is a lot more to understand about selecting, installing and using HDTV in your home. I've touched on a few critical aspects above. But, it is not difficult--just look at the stream of folks pushing new flat screen TVs out of CostCo and Sam's Club! HDTV prices have fallen significantly from 3-4 years ago. A big change is coming on February 17, 2009 and you really need to be ready for it if you watch any TV!

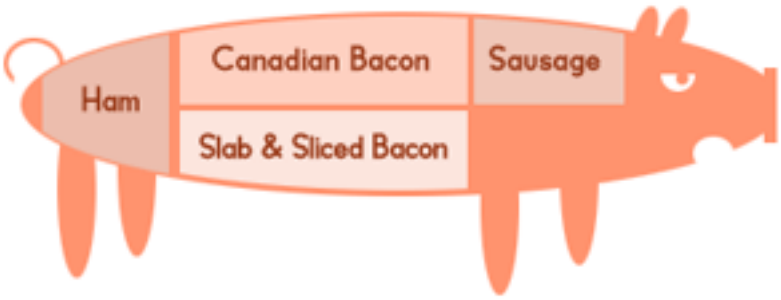
Best wishes,

Larry McDavid W6FUB

Anaheim, CA (20 miles southeast of Los Angeles)

Ham Cuisine

by Kristin, K6PEQ



Black Bean Pork Chili

Ingredients:

1 pound lean ground pork
1 medium red OR green bell pepper, chopped
1 medium onion, chopped
4 cloves garlic, minced
1 1/2 teaspoons ground cumin
2 15-oz. cans black beans, rinsed and drained
1 14 1/2-oz. can diced tomatoes, undrained
1 cup water
2 teaspoons dried oregano, crushed
1/2 teaspoon salt
1 teaspoon lime juice
Shredded Cheddar cheese
Nonstick cooking spray
Flour tortillas (optional)

Directions:

Coat heavy, large covered pot with nonstick cooking spray. Heat over medium-high heat. Add pork, bell pepper, onion, garlic and cumin. Cook and stir until pork is brown and vegetables are tender, stirring occasionally. Drain off fat. Stir black beans, undrained tomatoes, water, oregano and salt into mixture in pot. Bring to boiling; reduce heat. Simmer, covered, for 30 minutes. Uncover; simmer about 15 minutes more or until desired consistency. Stir in lime juice. Ladle into soup bowls. Sprinkle each serving with Cheddar cheese. Serve with tortillas, if desired.

Serves 4 to 6.

OCARC

Board Meeting Minutes

2008-09-06

The OCARC Board meeting was held at the JagerHaus Restaurant in Anaheim at 8:15AM on Saturday, 2008-09-06. There were a total of 13 members and visitors attending. There was NOT a quorum of directors present, with only the four following officers present: Nicholas-AF6CF, Ken-W6HHC, Rich-KE6WWK, and Bob-AF6C.

DIRECTOR REPORTS:

- **Vice President -** Nicholas AF6CF reported that the following programs are planned:
  - September is OCARC Club Reunion
  - October is OCARC Auction
  - November is Clipperton Island DXpedition
  - January is the new Digital Radio DVD
- **Treasurer** – The treasurer sent a report that the club had $3,165 in the bank.

OLD BIZ:

- **RF NewsLetter "Rotating" Editors**
  - Sept is Paul W6GMU
  - October is Kristin K6PEQ
  - November is Nicholas AF6CF
  - December is Bob AF6C
- **OCARC Club Reunion Planning**
  - The club reunion of all present and past members is planned for Friday, Sept 19th.
  - Kristin-K6PEQ is in charge of food.
  - Wayne-W6IRD is in charge of old radios display.
  - Ken-W6HHC is in charge of SKYPE connections to far-away members.
  - The club's historian, Bob-WB6IXN, will present or display some club history.
  - A club time-capsule will be prepared.
  - Invitations to past members will be sent out this week.
- **OCARC On-Line Registration**
  Bob-AF6C reported that the updated online Membership Registration form is now on the WEB site.

NEW BIZ:

- **OCARC Auction**
  Nicholas-AF6CF discussed preparations for the club Radio Auction in October. Rich-KE6WWK will prepare Auction fliers and distribute them to HRO.

- **Nomination Committee**
  The OCARC for 2009 Officers will be held at the November General Meeting. Nicholas-AF6CF appointed Rich-KI6RBT to be chairman of the nominating committee. Ken-W6HHC volunteered to assist Rich-KI6RBT.

- **OCARC Christmas Party**
  The OCARC Christmas Party is planned for Friday, Dec **12th**, and will replace the general meeting in December. The Krn-W6HHC confirmed that the reservation has been made for the JagerHaus Restaurant.

GOOD OF THE CLUB:

- **Golden Guardian Emergency Drill**
  Rich-KE6WWK reported that a state-wide emergency drill called Golden Guardian is planned for Nov 13-16. The City of Orange RACES group, called COAR, will be participating. For more details go to www.GoldenGuardian.org

- **Special Service Club**
  Ken-W6HHC displayed the Special Service Club certificate that OCARC had received from the ARRL. (see a PIX of certificate on page **21**)

Submitted by: Ken Konechy W6HHC
Secretary

Please support the companies who support OCARC!

Make sure to thank them for their support of the OCARC when you order from them, or when you see them at a convention!

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Amateur Radio Equipment for DXers!
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ADI