RF

ORANGE COUNTY AMATEUR RADIO CLUB, INC.

VOL. LI NO. 12 **P.O. BOX 3454, TUSTIN, CA 92781-3454** **December 2010**

The Prez Sez.....

By Kristin K6PEQ

Prez Says:

This year went by in a flash! We had a great field day, great speakers, and a lot of fun volunteering at different events and entertaining meetings. The holiday party had a big turn out and Jagerhaus treated us well, like always. I am looking forward to the next year where our club can continue to grow and develop to meet the needs of our members. We have some new board members who have some great ideas and I can't wait to see what is in store. My job was made easy this year with the help of a phenomenal board. It was a privilege working with you. I want to thank you for letting me serve you as president and hope you have a Happy Holidays!

73,
Kristin, K6PEQ

In This Issue: **Page**

The next general meeting will be on:

Friday, Jan. 21st
@ 7:00 PM

As usual, we will be meeting in the east Red Cross Building, Room 208. The speaker will be Scott KC6MMF, who will speak on the **Winlink System** and its relevance to Amateur Radio.

Don't miss this highly informative and very interesting presentation!

ORANGE COUNTY AMATEUR RADIO CLUB
www.W6ZE.org

2010 Board of Directors:

President:
Kristin Dankert, K6PEQ
(714) 544-9846
K6PEQ@w6ze.org

Vice President:
Paul Gussow, W6GMU
(714) 624-1717
W6GMU@w6ze.org

Secretary:
Kris Jacob, KC6TOD
(562) 619-8870
KC6TOD@w6ze.org

Treasurer:
Ken Konechy, W6HHC
(714) 744-0217
W6HHC@w6ze.org

Membership:
Loran Dargatz, AF6PS
(714) 777-9018
AF6PS@w6ze.org

Activities:
Dan Dankert, N6PEQ
(714) 544-9846
N6PEQ@w6ze.org

Publicity:
Robbie Robinson, KB6CJZ
(714) 978-8049
KB6CJZ@w6ze.org

Technical:
Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

Directors-At-Large:
Nicholas Haban, AF6CF
(714) 693-9778
AF6CF@w6ze.org

Larry Mallek, K6YUI
(714) 533-0887
K6YUI@w6ze.org

2010 Club Appointments:

W6ZE Club License Trustee:
Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

Club Historian:
Bob Evans, WB6IXN
(714) 543-9111
bobev@netzero.net

RF Editor (rotating):
Nicholas Haban, AF6CF
(714) 693-9778
AF6CF@w6ze.org

WEB Master:
Ken Konechy, W6HHC
(714) 744-0217
W6HHC@w6ze.org

Assistant WEB Master:
Bob Eckweiler, AF6C
(714) 639-5074
AF6C@w6ze.org

ARRL Awards Appointee:
Arnie Shatz, N6HC
(714) 573-2965
N6HC@aol.com

Larry Beilin, K6VDP
(714) 557-7217
K6VDP@aol.com

OCCARO Delegate:
Steve Brody, N1AB
(714) 974-0338
stevebrody@sbcglobal.net

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

Club Nets (Listen for W6ZE):

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

7.086 ± MHz CW **OCWN**
Sun- 9:00 AM – 10 AM
John WA6RND, 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 Jan 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 $1.50 charge if you'd like to have your badge mailed to you.

Heathkit of the Month #24:
by Bob Eckweiler, AF6C

Heathkit

The Heathkit QF-1 Q-Multiplier

Introduction:

In the fifties and into the sixties many of the less expensive general coverage receivers lacked decent selectivity. A typical fifties single conversion receiver has a bandwidth of 6 KC* at -6 dB and a whopping 30 KC at -60 dB.

An improvement found on the better single conversion receivers is the crystal filter. This filter should not be confused with today's sealed lattice crystal filters. These filters typically consisted of a single crystal at the IF frequency. The circuit included a rotary switch (often six-position) and a phasing capacitor control. The switch offered an “Off” position where the filter is out of the circuit and five "Selectivity" positions, each more selective than the last. Position five of the selectivity could offer 100 CPS at -6 dB and 7 KC at -60 dB. Modern sealed lattice crystal filters have much steeper skirts (A typical CW filter might be 400 Hz at -6 dB and only 2KHz at -60 dB.) And that is at an IF frequency over seven times higher.

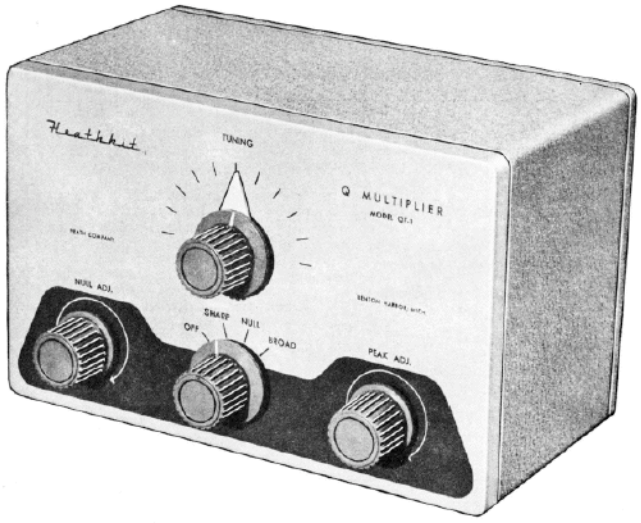
Another way selectivity was improved in the old days was to reduce the frequency of the IF. The National NC-300 and the Heathkit RX-1 Mohawk have second IF frequencies of 85 and 50 KC respectively. At these low IFs it is easier to improve selectivity. The trade off is that image rejection is poor if the receiver is single conversion. At 85 KC an image just 170 KC could easily make it through the receiver. The solution was to go to double conversion, with a high frequency IF to reduce images and a low IF to provide better selectivity. The NC-300 and Mohawk have first IF frequencies of 2,215 and 1,682 KC respectively.

For the 50’s - 60’s ham with a single conversion receiver with a 455 KC IF (such as the National NC-88, the Hammarlund HQ-129X, or the Heathkit AR-3) poor selectivity and crowded bands presented a challenge. Bob knows! *The NC-88 was his receiver during his novice days.*

A solution to poor selectivity is the Q-Multiplier. This regenerative device hooks up to the mixer of a receiver and allows an improvement in selectivity as well as gain, or the ability to notch out an interfering heterodyne or other narrow band signal.

The Heathkit QF-1 Q-Multiplier:

The Heathkit Q- Multiplier was first introduced in late 1955 as a way to improve the selectivity of many receivers of the day (especially on the Heathkit AR-3). It was designated the QF-1 and sold for $9.95. The small unit measures 7-3/8" W x 4-11/16" H x 4-1/8" deep, weighs 1-1/2 lbs. and has four controls on the front panel:

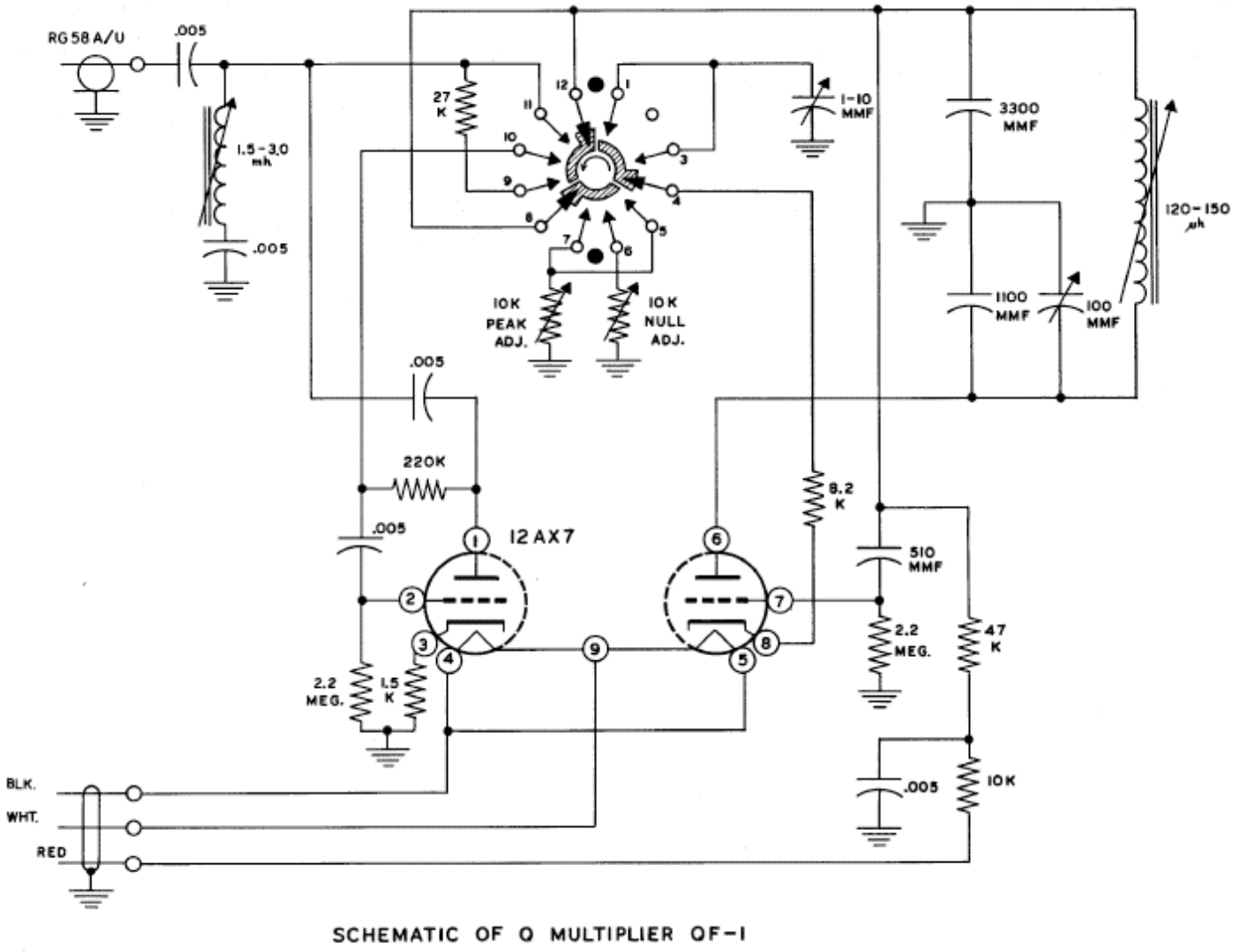


Heathkit QF-1 Q-Multiplier

Front Panel Controls:

Top Row:
- Passband **Tuning** (Vernier capacitor)

Bottom Row (left to right):
- **Null Adj.** (potentiometer)
- Function: **OFF, Sharp, Null, Broad** (rotary switch



SCHEMATIC OF Q MULTIPLIER QF-1

- **Peak Adj.** (potentiometer)

On the rear there are two cables coming out through two grommets. One cable is for power: The QF-1 derives its power from the receiver (6.3VAC @ 300 ma and 150 - 250 VDC @ 2 ma) to power the one tube, a 12AX7 dual triode. The second cable is a short length of RG-58 coax cable that connects internally to the receiver. That connection is to the plate of the mixer for the 455 KC IF or the plate side of the first 455 KC IF transformer. The QF-1 kit came with an octal plug and socket and an RCA plug and jack to make the power and IF connections respectively if the receiver lacks them.

The instructions suggest you check the receiver's 455 KC IF alignment first and, if you use the RCA connector, to realign the first IF to compensate for the added length of RG-58 cable to the RCA connector. The length of IF cable between receiver connector and the Q-Multiplier is compensated for inside the QF-1.

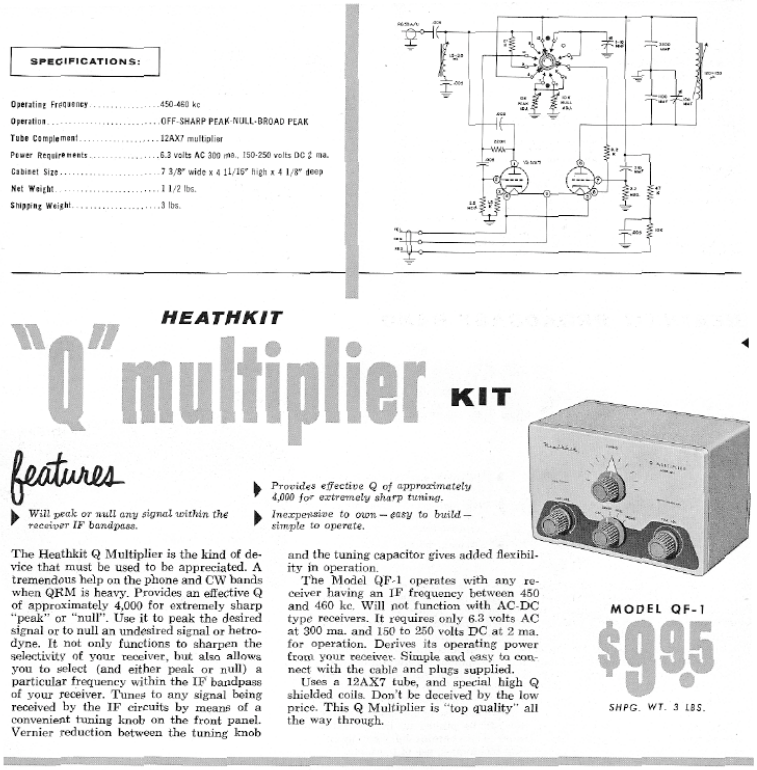
How the QF-1 Works:

In the Sharp mode the QF-1 acts as a very high "Q" tuned circuit in parallel with the first IF transformer. A parallel circuit has high impedance at the tuned frequency and lower impedance as the frequency moves away from resonance. Since the "Q" is very high, the slope of resonance is steep and signals are rapidly attenuated as their frequency deviates from the QF-1's center frequency. This high "Q" is achieved by a high "Q" coil that is significantly enhanced by a regenerative circuit using the

first triode section of the dual triode tube. The "Q" is may be increased up to around 4,000. The gain of the signal is also increased in the bandpass. The actual "Q" may be adjusted by the Peak Adj. control, thus adjusting the bandwidth (and the gain).

In the Broad mode a resistor is switched in allowing a higher gain at a broader bandwidth. Otherwise it is identical to the Sharp mode.

In the Null mode the second section of the dual triode tube acts as an inverting circuit that changes the high "Q" circuit across the IF transformer from a parallel into a series impedance. A series resonant circuit has a low impedance at resonance, shunting any signal to ground that is at its resonance point. Signals off the resonance are passed through the normal receiver IF bandpass. the Null Adj. control adjusts the "Q" of the null.



SPECIFICATIONS:

Operating Frequency ..... 450-460 kc
Operation ..... OFF-SHARP PEAK-NULL-BROAD PEAK
Tube Complement ..... 12AX7 multiplier
Power Requirements ..... 6.3 volts AC 300 ma., 150-250 volts DC 2 ma.
Cabinet Size ..... 7 3/8" wide x 4 11/16" high x 4 1/8" deep
Net Weight ..... 1 1/2 lbs.
Shipping Weight ..... 3 lbs.

HEATHKIT

"Q" multiplier KIT

features

- Will peak or null any signal within the receiver IF bandpass.
- Provides effective Q of approximately 4,000 for extremely sharp tuning.
- Inexpensive to own — easy to build — simple to operate.

The Heathkit Q Multiplier is the kind of device that must be used to be appreciated. A tremendous help on the phone and CW bands when QRM is heavy. Provides an effective Q of approximately 4,000 for extremely sharp "peak" or "null". Use it to peak the desired signal or to null an undesired signal or hetrodyne. It not only functions to sharpen the selectivity of your receiver, but also allows you to select (and either peak or null) a particular frequency within the IF bandpass of your receiver. Tunes to any signal being received by the IF circuits by means of a convenient tuning knob on the front panel. Vernier reduction between the tuning knob and the tuning capacitor gives added flexibility in operation.

The Model QF-1 operates with any receiver having an IF frequency between 450 and 460 kc. Will not function with AC-DC type receivers. It requires only 6.3 volts AC at 300 ma. and 150 to 250 volts DC at 2 ma. for operation. Derives its operating power from your receiver. Simple and easy to connect with the cable and plugs supplied.

Uses a 12AX7 tube, and special high Q shielded coils. Don't be deceived by the low price. This Q Multiplier is "top quality" all the way through.

MODEL QF-1

$9.95

SHPG. WT. 3 LBS.

QF-1 ad from the *Heathkits for 1956* Catalog

The HD-11 and GD-125 Q-Multiplier:

Heathkit replaced the QF-1 with the HD-11 in 1961 ($14.95), and the GD-125 in 1966. The GD-125 stopped production in 1971. The later two units had some minor circuit variations and one big addition; they included the power supply so no power connections to the receiver were needed with these units. The minor changes were in the Peak Adj. and Null Adj. circuit values. The last unit also omitted a small trimmer capacitor. The HD-11 looks almost identical to the QF-1 in size. The graphics on the front are green instead of gray and the front panel sports a neon pilot light. The GD-125 is in a totally restyled low-profile case.

Operation:

Operating the QF-1 Q-Multiplier takes some practice, especially in Null mode. It helps to have a stable receiver as a drifting signal will need to be retuned precisely by the receiver tuning or you will also need to retune the Q-Multiplier.

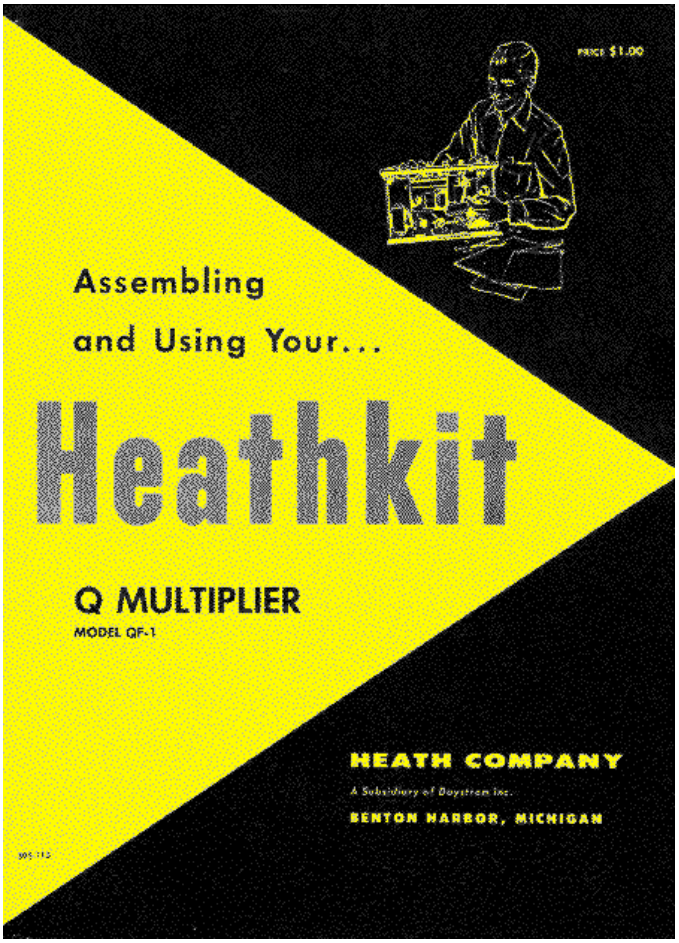
The vernier Tuning control tunes the Q-Multiplier across the receiver pass band. It is smooth and easy to adjust in most cases. If the heterodyning oscillator in the receiver is lower than the received signal frequency then the QF-1 tunes the IF backwards. On some receivers the relationship between the oscillator and signal frequency changes with band, which makes tuning work normally on some bands and backwards on others. This can make tuning the Q-multiplier confusing.

In the Sharp mode adjusting the Peak Adj. control changes the selectivity from broad to very sharp. As the selectivity increases so does the gain. If you go too far the unit will break into oscillation, were you should then back off until the point the oscillation stops for highest selectivity. You may then tune across the passband of your receiver with the vernier tuning control.

The Null mode is even sharper than the peak. Tuning is critical and requires a lot of practice to become usable in normal operation. However once it is learned it can really be effective

in nulling out heterodynes and nearby unwanted CW signals.

The Broad mode is identical to the sharp mode except that a resistor is switched in that brings the "Q" down, resulting in easier tuning and higher gain for a given bandwidth. This mode may also be used as a tunable BFO by increasing the Peak Adj. control to just beyond the oscillation point.



QF-1 Q-Multiplier Manual Cover

Receiver Modification:

Most receivers need some modification to use the QF-1 Q-multiplier. If the receiver has an auxiliary connector that provides B+ and 6.3VAC filament power you are halfway there. If not then you must tap into the receiver power supply and wire the needed voltages to a connector you install on the back apron of the receiver. the alternative is to build a separate power supply to power the QF-1. Many people have built a power supply right into the QF-1; there is plenty of room.

The other modification is a connection, using a short piece of RG-58 or similar coax cable, from the mixer tube plate driving the first 455 KC IF to an RCA connector on the rear of the receiver. The connector and its mate were supplied as part of the kit. Once the modification is made the first 455 KC IF transformer should be realigned to compensate for the added capacitance of the coax. The additional length of coax between the QF-1 and the receiver is tuned out internally in the QF-1. The realignment assures that if the Q-Multiplier is disconnected the receiver will perform as it always has.

Conclusion:

If you have an old single conversion receiver that uses a 455 KC IF, and that you've restored you might keep an eye out for any of the Heathkit Q-Multiplier models to enhance the receiver's performance.

** This article is about a device from the fifties so the abbreviation KC (for kilocycles per second) is being used instead KHz* (for kilohertz).

73, from AF6C

Remember if you come across any old Heathkit Manuals or Catalogs that you do not need, please pass them along to me.
Thanks - AF6C

A Flashback to the Past

OCARC 1971 Officers

By Ken W6HHC

I dug this 1971 OCARC photo out of my archives in the attic, and was motivated by questions from Ron Cade W6ZQ (then WA6FIT) to identify some of the members shown in the photo.

Front L-R: Bill Robinson N6BR (then WB6WOO), Ron Cade W6ZQ (then WA6FIT), President Bill Hall N6EDY (then WB6CQR), Ken Konechy W6HHC, Jack Shaw WA6YWN

Back L-R: Jerry VerDuft ADØA (then WA6ROF), Roger Coult WA6AAL, Bud Barkhurst WA6VPP, Don Gould W6EQY, Bob Eckweiler AF6C (then WB6QNU), Jim Keller W6YXY (then WB6YXY), Paul Taylor WN6ENT

This photo was taken in the old Lincoln Savings and Loan meeting place at 17th St and Bristol in Santa Ana. It is interesting to note that seven of the leaders shown in the photo had been, or went on to become, OCARC Presidents.

OCARC Board Meeting Minutes for: November 13, 2010

The OCARC Board meeting was held at the JagerHaus Restaurant, 2525 East Ball Road, Anaheim, at 8:15AM Saturday, November 13, 2010. There were a total of 7 directors and 4 visitors – Diane Konechy Steve N1AB, Steve KJ6LHA, John W6JOR. There was a quorum with the directors' present.

DIRECTOR REPORTS:

- President Kristin K6PEQ –
- Vice President Paul W6GMU confirmed November speaker Wayne Barringer KB6UJW
- Treasurer Ken W6HHC –Balance on hand $5,994.00 and the auction had a net income of $600.00
- Kristine –KC6TOD – thanked Bob Eckweiler AF6C for taking the October minutes at the monthly meeting.
- Membership Loran AF6PS – flyers are at HRO, new roster available per Nicolas
- Activities Dan N6PEQ per Kristin said we would reschedule the potluck
- Technical Bob AF6C suggested simple club project to build a Field Strength meter
- Nicholas AF6CF holding for new business
- Larry K6YUI – none

OLD BUSINESS:

- **RF Newsletter " Rotating" Editors – thank you to all who volunteer!**
  - December – Nicholas AF6CF
  - January – Paul W6GMU
  - February – Kristin K6PEQ
  - March – Ken W6HHC
- **Speakers – Suggestion to have Bob AFC6 show the membership how to use the Club website**

Old Business (cont.):

- Holiday Party - $900 prize money to be increased to $1200, by Nicholas AF6CF & Larry K6aYUI seconded. Set up at 5:30 pm. Noted that donations are down due to the economy.

NEW Business –

- No need for December Board meeting
- Board approved a motion by Nicholas AF6CF to shut down the OCARC Thursday evening 2M repeater net because of poor participation. This club net was started to give people with handhelds a better opportunity to participate in a club net, but seems there was little interest.
- Audit Committee – Kristine KC6TOD, Kristin K6PEQ, Bob AF6C
- Next Board meeting January 8th, 2011.

GOOD OF THE CLUB - nothing

Motion made to adjourn meeting by Nicolas AF6CF and seconded by Larry K6YUI.
Meeting adjourned 8:50 AM

Respectfully submitted:
Kristine Jacob KC6TOD, Secretary " Merry Christmas" Thank you for my two years as Secretary!

OCARC General Meeting Minutes
November 19, 2010

The OCARC November General Meeting was held at the Red Cross complex in Santa Ana at 7:05 pm on Friday evening, November 19th, 2010. There were a total of 38 members and guests present.
.
Kristin K6PEQ started the meeting with the Pledge of Allegiance. She then turned the meeting over to Paul W6GMU to introduce our guest speaker – Wayne Barringer KB6UJW. Wayne has a tremendous presentation on "Emergency Communications Preparedness". The question is "Are you ready" to react or perform for your community.

Wayne pointed our some tremendous issues, which we all need to think about! The community is not prepared – the public is clueless, home preparation, To Go Kits (are you ready). Wayne shared his experiences with Cal Fire using emergency response, communications officers, and coordination efforts.

He also reminded us that there are an inadequate number of experienced volunteers, pointing out where we can all help. Wayne has written an entire Standard Manuel for emergency preparedness. He has experienced through participation many disasters, fires and the like to know how to use the Amateur Radio Community. It is a delightful evening to hear Wayne speak of how we can all join in and help.

After listening to Wayne, let's see if we can all make an effort to participate in our local communities.

Kristin reminded everyone of the Holiday Party at the Jagerhaus Restaurant on Friday, December 10th. We look forward to a nice turnout. Please RSVP to Kristin so that we can insure the correct amount of food ordered.

The next item on the agenda for the evening was the election of the 2011 Board, thank you to Nicholas AF6CF for coordinating the candidates for the 2011 elections. The election results for the OCARC Board of Directors are shown on next page.

Listed below is the 2011 Board for OCARC:

President: **Paul Gussow W6GMU**

Vice President: **George Jacob N6VNI**

Secretary: **Doug Britton W6FKX**

Treasurer: **Ken Konechy W6HHC**

Membership: **Jeff Hall W6UX**

Activities: **Kristin Dankert K6PEQ**

Publicity: **Steve Brody N1AB**

Technical: **Bob Eckweiler AF6C**

Directors at Large: **Dan Dankert N6PEQ and Larry Mallek K6YUI**

Meeting Adjourned: 8:40 pm

Followed by an opportunity drawing

Just a note:

I would like to say it has been my pleasure to be the Secretary of OCARC for the last two years and look forward to helping the club in whatever capacity in the future! Best of 73's & 88's … Kris KC6TOD

Respectfully Submitted

Kristine Jacob KC6TOD, Secretary

Just a reminder that the OCARC Board Meetings will now be held on the second Saturday of each month at 8:15 AM at the Jagerhaus Restaurant, 2525 East Ball Road Anaheim. Visitors are welcome.

The Desert Rats and the Palm Springs DX Club

invite you to attend the 2nd annual + + + $1 admission with raffle ticket.

HAMFEST - RAFFLE - WINTER FIELD DAY

Bring your ham gear to sell, no fee charged for selling if you bring own table and chairs. Maybe you only have one or 2 items for sale put it on our single items table with a sign and tell us your reserve price... (for a small commission to the club) ...we'll handle the sale.

Saturday, January 29 9:30 A.M. to 4:30 P.M.

CHECK OUT OUR WEBSITE!

http://www.desertrats.am

Talk-in frequency:
146.940- PL 107.2
WD6RAT Desert RATpeater
Daily Nets Thursday thru Sat.
8 A.M. - Noon - 6 P.M.

An official ARRL Sanctioned Event

HAMFEST!

Winter Field Day 2011 Special Event Station

Directions:
Take I-10 to Palm Drive Exit.
Turn onto Gene Autry Trail
(becomes Matthew Dr. as it crosses Hwy. 111)
Follow the RAT...
4193 Matthew Dr. is on left

Lots of vendors and exhibits! Check website for the most up to date list.

ICOM YAESU
Buds Engraving Alpine Antennas
Byonics Old Military Radios
EDS Emergency Pack
Ham Radio Outlet
Impulse Electronics
ARRL
DX
Store
W5YI
RF Stuff
AMSAT

Email us for more info:
Peter Reinzuch VE7REZ~President of 'the Desert RATS' Club
ve7rez@desertrats.am
Evan DeRouen KI6WNF - EC Riverside County ARES
riversidecountyares@gmail.com
~Check ze Tweets @hamradio @RivCoARES

Admission only $1 includes1 free raffle ticket!

Clint Bradford and Gordon West

Event Coordinators Gary Boskovich KD6QLT and Susie Boskovich KD6QVO 760-328-9662 sboskovich@dc.rr.com

Nearby Hotel: Holiday Inn, corner of Sunrise & E. Palm Canyon, Palm Springs 760-323-1711 call for best room rate.

RSVP: RV Dry Camping reservations for vendors: sboskovich@dc.rr.com Vendor Set-up time 7:00-9:00 AM

Just for fun

NO “LAME DUCK”

The OCARC Board, in an effort to save face, has decided not to have a Board Meeting for December.
Happy Holidays and a Prosperous New Year!
73 DE AF6CF, Editor.