



FOX CITIES AMATEUR RADIO CLUB, INC.

QSO'ER



P.O. Box 5233 Appleton, Wisconsin 54912

www.fcarc.us

• My Memories of Jim, K9FBA

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August 2006

Submitted By: Bernie, N9YMC

The amateur radio community lost a gentleman earlier this year named Jim. Gentleman Jim was always one of the first to volunteer for an event or to help someone out. He often talked of his radio escapades and his friends in Florida. Jim carried his radio activism with him when he moved up to cheddar land. I remember Jim volunteering to come down and work at the EAA special event station in 2005. Jim was late to breakfast, but we stayed back for him so that he could get his parking pass. Once Jim made it over to the EAA grounds, it did not take him long to get on HF and make some contacts at the SE station- I know he enjoyed it immensely, as I think that this may have been his first time on HF. Another moment with Jim was at Field Day last year where Jim was one of the first to volunteer and jump on my 6-meter station. He said that this was his favorite band and he often spent time there when he lived in Florida.

Jim, we will all miss you. May you work DX from the heavens.

73, Bernie de N9YMC

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- *Tony Mach (AB9IO)- ab9io@yahoo.com*



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EAA Special Event Station Recap

Submitted by: Bernie N9YMC

I have thoroughly enjoyed chairing the SE station at EAA these last 3 years. It is a time to meet hams from all over the world and swap stories. This year was no exception as our station hosted approx. 200 people in our shack over the course of 4 days. The final logs are still being converted from paper to electronic, but when they are done, I expect 400 or so QSO's from the HF bands.

A couple of firsts this year, we had our WI section manger from the ARRL, Don – W9IXG in the shack on Friday and we hosted our first ever ALL- HAM breakfast meeting at the local IHOP- courtesy of Dan – N9LVS. Don has already committed to returning in 2007 and I am sure that we will host an even bigger ALL HAM breakfast next year. Don was telling me that he had no idea that there were this many hams that attended this event. He even had some folks place their renewal ARRL memberships at our shack.

We had 30 operators over the course of the 4 days, including some newly minted Technicians that were able to make their first ever HF contact, courtesy of our W9ZL call. This was truly a special time for them, and for us to be able to be the springboard into HF operations.

Our station operated not without its share of antenna issues – all of which we overcame by the second day of operation. One of the long-wire antennas that we installed 10 days prior to the event may have taken a lightning strike, which traveled down to the on-tower tuner. Eventually, we took the tuner out of service and utilized another in shack tuner. All was well after that. The club band pass filters worked wonderfully as we were able to operate 2 stations on separate bands in close in shack proximity to each other.

As stated earlier, I have had so much fun organizing this event for the past three years that it is time to find a successor for the event. God willing, I plan to do it one more year and am actively looking for a co-chair for 2007. Any takers?

73, Bernie – N9YMC

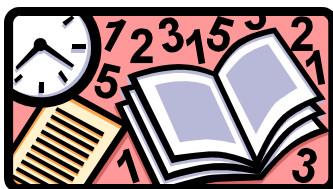


VE Testing Dates

Interested in Amateur (HAM) Radio? August 12th, November 5th.
 Need to upgrade your license? The FCARC can help you with both of these.

With the exception of the November test date, all testing is done at the Red Cross Building at 1302 E. Wisconsin Ave. in Appleton. Test check in is from 8:00 am until 8:30 am. The cost is \$14.00.

Here are the dates for 2006:



New Members

Join me in welcoming the following new members to the club!

Data Not Available

Wednesday 2 Meter Net

Net Control Operator schedule

August 9	Dave	ND9DW
August 16	Andy	NIKSN
August 23	Tony	AB9IO
August 30	Eric	KG8RF
Sept 6	Guest Op	
Sept 13	Tim	KC9FSH
Sept 20	Dave	ND9DW
Sept 21	Andy	NIKSN

Fox Cities Amateur Radio Club (W9ZL) invites everyone to tune in on Wednesday evenings at 7:30 PM on 146.76/R 100hz PL to hear the *Newsline* broadcast.

Then stick around to check into the net immediately afterwards. This is an open forum net and anything can be discussed, including; technical questions, equipment review and for swap and for sale items.

•Upcoming Events

Sat. August 12	VE Testing -Red Cross 1302 E. Wisconsin Ave Appleton-8:00 am
Sun. August 20	Corn Roast- Sunset Park in Kimberly- 11:00 am
Sun. August 20	Fox Hunt- Sunset Park in Kimberly
Mon. Sept 11	Exec Board Meeting at Goodwill Comm. Center
Mon. Sept 18	FCARC Monthly Club Meeting at the Goodwill Comm. Center
Sun. Oct 8	SA Crop Walk- 8:00 am
Mon. Oct 9	Exec Board Meeting at Goodwill Comm. Center
Mon. Oct 16	FCARC Monthly Club Meeting at the Goodwill Comm. Center
Sat. Oct 21	JOTA- Contact KC9EYA at it1usnr@new.rr.com
Sun. Oct 22	JOTA
Sun. Nov 5	Hamfest at Waverly Beach in Menasha- 8:00 am
Sun. Nov 5	VE Testing- Waverly Beach in Menasha- 8:00 am

• Membership Renewal Reminders

As a reminder only—following is a list of the membership renewals coming up this month and the following 2 months. If you have already renewed—thank you. If not, you can renew with Karen (KC9BMH) at the next club meeting.

KC9HQF	7/1/2006
N9YMC	7/1/2006
KB9JGW	7/1/2006
KB9JGX	7/1/2006
WA9FFT	7/1/2006
W9WIS	7/1/2006
N9LVS	7/1/2006
KC9DMM	7/1/2006
N9MY	8/1/2006
W9SJZ	8/1/2006
KB3DRD	8/1/2006
W9PIP	8/1/2006
W9OP	8/1/2006
N9YAM	8/1/2006
W9IEI	8/1/2006
N9PBM	8/1/2006
KG8RF	9/1/2006
K9IY	9/1/2006
KC9GVM	9/1/2006
KB8MCZ	9/1/2006
N1KSN	9/1/2006
KC9BVQ	9/1/2006
WB9OJE	9/1/2006

Elmer's Contact List

This is a listing of HAMS who are willing to help other HAMS out in special areas. Feel free to contact these fellow HAMS with any questions:

Call / Name	Specialty Area	Phone #
N1KSN– Andy	CW	720-0617
W9ZC– Bob	Tech. Code	725-7974
N9OEQ– Chuck	HF & VHF Digital Modes	788-5497
N9TNW—Bill	HF & Satellite	739-6827
N9LVS—Dan	FCC Personal Data Changes	205-4899

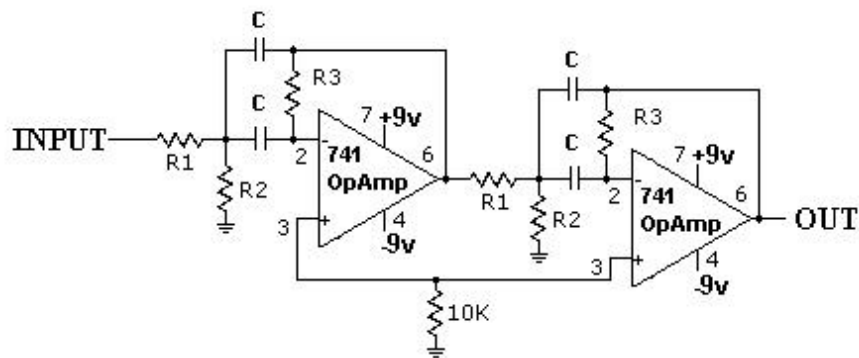
Have something Ham related to sell? If so, contact Tim (KC9FSH) at kc9fsh@arrl.net to arrange for it's insertion in the next issue of this newsletter. We will run it in the newsletter and on-line at www.fcarc.us

An Active CW Filter Utilizing an Inexpensive Op-Amp

Submitted By: Anthony L. Mach, AB9IO

I had a great time at Dayton 2006. One of the treasures that I brought back was a shiny new Yaesu FT-817ND. Unfortunately, I'm one of those picky people that likes to have a CW filter in my rig when I am working or just copying CW. Of course, that filter also happens to be one of the most expensive options you can buy. It seems to be that way for every rig - unless you are lucky to have DSP! I wondered how wonderful another \$125 out of my pocket would be.

Well, after cracking open my well-used 1998 ARRL Handbook for the thousandth time, I started searching for the active filters area. Passive filters are just too difficult and large to build nowadays. The insertion loss can be huge at audio frequencies and I'm not about to start digging for some serious iron! I thought a nice audio band pass filter with a little Op-Amp might do the trick. My design criteria included easy to find parts, a little gain, low bandwidth, decent Q, and enough audio to drive at least a pair of headphones. After doing some additional research on the internet and using some well-known designs with established equations, here's what I've come up with:



R1 = 1.5 kΩ
 R2 = 330 Ω
 R3 = 10 kΩ
 All C = 0.22 μF

150 Hz Active CW filter Centered at 450 Hz
 Design by AB9IO 08/11/06

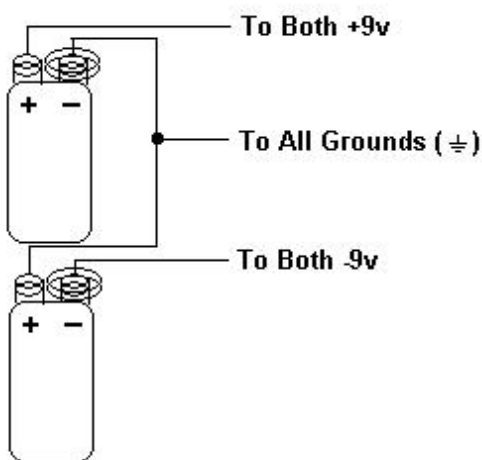
How did I come up with that design? This is one type of multiple feedback bandpass filter. A nice feature of this type of filter is that the component equations are easy to calculate. All I needed to do was pick a center frequency that I wanted (in this case 450 Hz), pick a 3dB bandwidth (something like 150 Hz), pick a **gain figure "H₀"** for each op-amp (as suggested 3), and start with a capacitor "C" value that was easy to obtain (0.22 μF). OK, we got all that. Calculating the "Q" is easy, just take your center frequency and divide it by the 3dB bandwidth: **450 Hz / 150 Hz = Q of 3**. Next, we have to calculate the **angular velocity "ω₀"** of 450 Hz. This is: **ω₀ = 2πf = 2π * 450 Hz = 2827.4 rad/sec**. You can use 3.14 for π. Extreme accuracy in these calculations is not critical, as you'll see a couple of moments.

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An Active CW Filter Utilizing an Inexpensive Op-Amp

Now, we have to calculate **R1**. The equation for this is: $R1 = Q / (H_o * \omega_o * C)$. My design worked out to an approximate **R1** of **1607.6 Ω** . I don't have one of these in my junk box, but I think **1.5 k Ω** is close enough! The calculation for **R2** is different. Here it is: $R2 = Q / ([2 * Q^2 - H_o] * \omega_o * C)$. Don't forget to multiply **2** and **Q²** first, then subtract **H_o**. My **R2** came out to be close to **321.5 Ω** , but **330 Ω** is a nice standard value. Now, for the last equation of the day: $R3 = (2 * Q) / (C * \omega_o)$. Mine came out to be **9645.9 Ω** , but **10 k Ω** works for me! Now, let's figure out the power supply. Op-amps work best when they can operate with voltage swings that are equal above and below 0v. This is how to do it:

How to hook up the 9v batteries

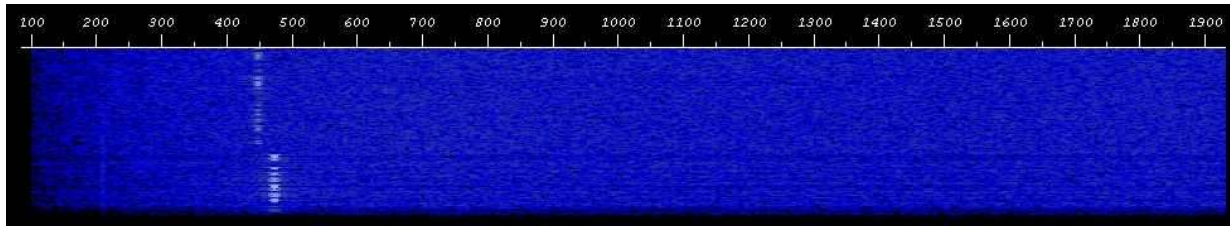


The cost? Very little! The two op-amps were about a buck apiece. One could even spend a bit more than a dollar and pick up a dual op-amp (TL082, etc.). You might be able to scrounge four equal capacitors and the resistors from your junk box. I ended up making the ubiquitous trip to Radio Shack for the op-amps and caps. Two caps for a buck, and I needed four. It might be a nice time to change the batteries in your smoke detectors and use the partially depleted batteries for this project! My cost was about \$4 then. Not too bad!

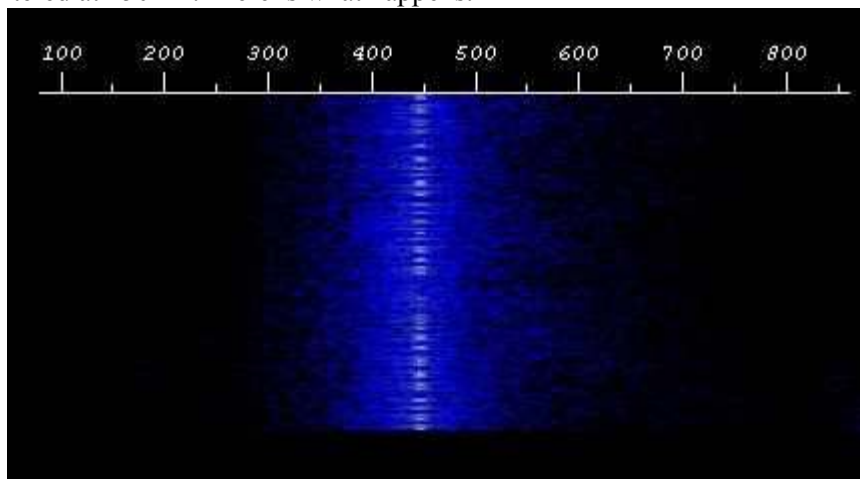
Now for the big question: How well does it work? Mine worked well from the start. One does not need any fancy equipment to test these homebrew active filters. For example, I ran the earphone output of my FT-817 into the input of the filter. The output of the filter was then fed into my soundcard input. I used a freeware program that had a waterfall display (Ham Radio Deluxe), turned on the rig, and found a decent CW QSO in progress. You can see below where station A turned it over to station B. The white area is signal and the blue is noise.

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•An Active CW Filter Utilizing an Inexpensive Op-Amp Cont'd



Now with the filter in line, the noise is attenuated. The filter equations worked out well. Bandwidth is approximately 150 Hz, centered at 450 Hz. Here is what happens:



There are only a couple of things that one must take into consideration before working with op-amps. First, they are very predictable, and their outside characteristics are determined by the **external** components. Secondly, they don't tolerate reversed power supply connections very well. So, buy two! There are a great deal of experimentation possibilities with these. Try starting with some non-polarized caps with a value of 0.1 μF . Some final thoughts: Don't forget to keep the gain figure and bandwidth realistic. A very high Q leads to a "ringing" sound. Also, don't expect the same type of performance with this as with a good filter. Keep the input volume low to avoid distortion. Have fun and feel free to e-mail me (AB9IO@yahoo.com) if you have any suggestions or issues!

• FCARC General Membership Meeting Minutes– 07/17/2006

Presiding: President: Brian KB9LRD

Quorum count: Vice President: Dave ND9DW

Call to Order: 7: 00 PM

Old Business:

A.) Wisconsin WSO Party, 3rd Place champions! (Tony AB9IO) mentioned that the score didn't match the total membership score. (KB9LRD) The committee should send a recap sheet when filing the FCARC scores.

B.) Field Day 2006 update! Tony AB9IO. (KB9LRD) Famous Dave's will be providing our supper in 2007. (W9RIC) We may have to look at a "Pass" system in 2007 for food. (AB9IO) We recorded over 3,900 points for 2006.

C.) Postponing the vote on the proposed By-Laws is in order because the 501(c)3 filing will require specific language requirements pertinent to the distribution of assets to another 501(c)3 if we are to be dissolved.

Also required in our By-Laws would be the purpose of exemption stated as a "Location of Purpose Clause".

Motion to postpone by Brian KB9LRD

Postpone the 2006 By-Laws vote until September 18th, 2006. 2nd Eric KG8RF

Discussion: Vote to close discussion KB9LRD 2nd KC9IKS Vote: P/F

Conditions / exceptions to Motion to postpone None

New Business: None

Committee Reports:

EAA: WB9ZNA will donate some coax.

Web Site: (KB9LRD) Guest book has too much spam / will close out module.

JOTA/Boy scouts: (KC9EYA) Special Needs division August 19th, 20th. Troop 8 Merit Badge, JOTA Oct. 21, 22

Repeater Committee: (W9RIC) The 76 may have had sever weather hit the site, he'll find out if we're on backup power.

Hal Report: None

KB9LRD - Corn Roast Aug. 20th! Start at 12:00 Noon!

WB9ZNA – Thanks for the use of the wooden ticket drum!

KB9LRD – Sole Burner T-Shirts handed out

ND9DW – Winnebago County ARES meeting July 20th if you would like to join!

Adjourn: Motion: ND9DW (2nd) KG8RF

(V: M) PASS

• FCARC Exec Board Meeting Minutes– July 10th 2006

President: Brian, KB9LRD Vice-President: Dave, ND9DW

Treasurer: Karen, KC9BMH Secretary: Bernie N9YMC

Membership Coordinator: Jim WB9OJE

Members at Large: Rick W9RIC, Tony AB9IO, Andy N1KSN

Absent: N9YMC

Call to Order: 7: 00 PM. Meeting to close no later than 8:30PM

Old Business:

A.) Field Day results / comments. (AB9IO) Up to 4,000 point scored

B.) WQSOP results. (KB9LRD) Great Job, work on new members!

C.) Reimburse N9RQM for \$40.00 as an estimated fuel and equipment cost. YES

D.) Bandpass filters for Field Day 2007. Outfit (2) two more stations with 20m and 40m filters.

E.) **-OFF THE RECORD – SUB-COMMITTEE FORMED TO FURTHER REVIEW ISSUE**

(Motion): KB9LRD (2nd) ND9DW (Discussion) 1:20 Minutes (Move to Table): KC9BMH (2nd) AB9IO Vote: P / F

Discussion: Old Business

New Business:

A.) Agenda for September 18th 2006.

B.) No meeting in August for the General membership or the Executive Board of Directors.

Discussion: New Business

Announcements: Have a great summer!

Adjourn: Motion to adjourn: WB9OJE (2nd) ND8DW (Vote :) PASS

• Antenna Observations

Submitted by: John, N9RJZ

One thing I have learned at field day's and other special events is that everyone seems to have opinions on antennas, and people often reach different conclusions about virtually the same antennas. I think it might be somewhat like the Ford-Chevy thing. You find one thing that works, something you like and everything else gets excluded from consideration.

Two main antennas were put up at the recent EAA Special Event Station. They were the same configuration wire antennas that we ended up using at last years event. Last year the antennas performed reasonably well.

This year the wire between the hanger and tower for the 20M station worked reasonably well. For those of you not there, the antenna was configured as about 40 feet of coax from the radio to a Kenwood antenna tuner loaned to the club for the event by Rick, W9RIC. The antenna tuner was grounded and the wire was about 20 feet high at the low end that was attached to the hanger. There was a band pass filter at the back of the rig (a 706 loaned by Bernie, N9YMC) that connected to the coax.

The other antenna was a long wire that went up the side of the tower (about 10 to 12 inches away from the metal leg) to about 35 feet and then went over to a pole about 20 feet high on the back of the Piedmont hanger. I'm guessing it was about 150 feet of 12 gauge wire. Initially it was connected to an antenna tuner at the bottom of the tower and from that about 100 feet of coax led into the hanger and radio. The club's Kenwood radio was used for this station, Bernie loaned his LDG auto turner and there was also a 40M band pass filter for the rig. Even starting early, when 40M should have still been open for contacts, the station failed to perform. It was hearing quite a few stations, but very few seemed to hear us.

A good thing was noticeable right away. Last year during the 2005 event we could not operate both radios at the same time. Keying up the 40M would interrupt anything the 20M was doing. Not good, as QSO's were lost. Rigs operated close together will often overpower each others receiver section. It was that event that led to the club buying the band pass filters. We have now seen their effectiveness at field day and EAA.

The 40M station poor performance was soon being investigated. It was decided the antenna tuner on the tower was not working as it should for reasons undetermined. Rick, W9RIC and others tried to tune it but were not successful. Something seemed to have gone wrong with the tuner. A guest operator, Terry, WA0ITP, had joined us and tried to operate from the 40M station with poor results. We decided to make some changes.

The wire antenna was disconnected from the tower mounted antenna tuner and connected directly to the coax leading into the shack. The coax end was attached to the LDG auto tuner in the hanger that Bernie, N9YMC had brought and it did tune up but results were still very poor. A main point Terry, WA0ITP then made seemed to explain some of what we were experiencing at the station. His point was since the radio was "hearing" stations but we couldn't "talk" to them it was an indication that not much power was getting to the antenna. It was mostly being wasted in coax loss and probably grounding loss against the tower by the 35 foot vertical section of the wire.

The next day a tuner specifically for a wire antenna and more #12 wire were brought to the special event station. Eric, ND0L helped rework the 40M wire antenna. Approximately a 100 foot extension was added to the wire so it could be extended from the tower point where it was tied about 35 feet in the air to a telephone pole outside the shack.

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• Antenna Observations Cont'd

From the telephone pole the wire was fed into a different antenna tuner. The intent was to come up with something like an end fed zep antenna. The changed tuner was another one specifically made to use a wire antenna. The lengthened wire was brought close to the hanger and doing that meant it no longer had anything but the 35 foot high tie point at the tower close to the tower. Our hope was that we would be eliminating a big source of power loss.

It was definitely noticeable that more power was available -- let's say for something. When you touched the metal case of the antenna tuner the background static level doubled a time or two in loudness. Normally, with an end fed zep you would have a counterpoise wire of significant length. A wire antenna needs a good ground. A vertical antenna normally has radials at the base of the antenna. Radials, counterpoises and grounds all essentially serve the same purpose.

After adding a *good* ground the background static did not change when you touched the case of the tuner and there were stations again to be heard on the radio. A few contacts were made, but it was still difficult and as the afternoon advanced the conditions seemed to get worse. There was a high background static level most of the day.

Another day might have brought better conditions and probably would have had us reworking the antenna again. Wire, dipole and end fed type zep antennas have very little if any gain. It would be nice to try an antenna with some gain. What could we build and put up or design? There are lots of questions for consideration in setting up the station for next year.

The EAA special event station was indeed a great success, and among the many reasons it needs to be counted a great success is because it provided opportunity for many of us in the club, as well as guests, to experiment, learn and have fun with antennas. I hope to participate again next year and will have some new ideas about antenna setups to try. Hope you join us for the fun or offer some antenna suggestions.

• On the Road Again

Submitted by: John, N9RJZ



Saturday, August 12th was a perfect day to go “hamfesting.” The Yellow Thunder Radio Club had their annual Circus City Hamfest in Baraboo. The drive over there is a nice one as many of you probably know. It is interesting and refreshing to get away from our flat Appleton area and see some hills.

The crowd was relatively small. Its hard to estimate but there were about ten to twelve inside table setups and about that number outside along a driveway. Its held at the fairgrounds there and with the wonderful weather the mix of inside and outside was just right to allow for “scrounging” without getting sunburned.

Donald E. Michalski, W9IXG, our ARRL section manger was there. He commented to me on how much fun he had



visiting out EAA Special Event Station. I talked to him about antennas a bit, and we got off on the subject of the G5RV that I recently put up in my back yard. He was familiar with the antenna and mentioned that he had used one on 20M because on that frequency it is supposed to be resonant without a tuner. I saw a few other people there who have supported our club with tables at our hamfest.

There were some deals to be had. Tim found a large box of assorted wire, twin lead and baluns for only 5 bucks, among other things. I found a frequency counter for one buck. Of course, it does not work. Hopefully, that will be a minor problem. I was looking for some 12AT7A tubes for the old Swan Radios I am getting back on the air. Couldn't find any

but one guy just gave me a box of about 40 tubes – I guess that was just reward for looking.

We car pooled over there. Tim, KC9FSH drove and Andy, KC9IZF rode shotgun. I didn't see any other club members there. We got there around 7:30 am and left about 11:45 after the main prize had been drawn. About 30 or 40 of our hamfest flyers were picked up by attendees.

A fairly good hamfest is coming up in Grayslake, IL next month. It is always more fun to go with others to hamfests; and these days car pooling has the added benefit of helping to cut the cost of gas expense to a reasonable level. If you need a ride or can offer a ride to a hamfest let me know. I try to co-ordinate hamfest car pooling for the club members if you let me know your intentions.

•W9ZL Newsletter Committee

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Tim Hale	KC9FSH	kc9fsh@arrl.net
Eric Bjorkquist	KG8RF	ebjorkquist@yahoo.com