



WARCI News

Wisconsin Antique Radio Club, Inc.

Spring

May 2012

A Tough AK Radio Restoration By Dan Koczur and Ed Lyon - see Page 6



The Atwater Kent Model 246 before and after a superb restoration by Dan Koczur !

CQD - We need a Vice President / Publicity Leader!

See page 4

Check Out Bob Paquette and Mic Museum on You Tube, p5

NEXT WARCI MEET:

Sunday, May 6; 8:00 - 12:00 Noon,
Outdoor (unless it rains): Doors open 7:00AM

The Terminal, 5917 S. Howell Ave., Milwaukee
(near the Airport)

Features: 50-50 Raffle , Donation Auction, Excel-
lent Free Pizza

INSIDE THIS ISSUE...

3	WARCI Headlines - Club News and Doings
4	Vice President / Publicity Leader Needed !!
6	A Tough AK Radio Restoration, by Dan Koczur and Ed Lyon
x	Your Article Needed Here

WARCI, Inc.

THE WISCONSIN ANTIQUE RADIO CLUB, INC. EXISTS TO PRESERVE THE KNOWLEDGE OF RADIO, TELEVISION, AND OTHER RELATED DISCIPLINES. WE HAVE A SPECIAL INTEREST IN THE HISTORY OF RADIO IN WISCONSIN, WISCONSIN RADIO COMPANIES, RADIO STATIONS, ETC. OUR MEMBERS' INTERESTS INCLUDE RADIO, TELEVISION, AUDIO, AND ANTIQUE PHONOGRAPHS.

OFFICERS AND BOARD

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Board - Jim Menning, Dennis Schrank,
Dale Boyce, Terry Hanney

WARCI News Editor - Greg Hunolt

WARCI Website - Nick Tillich
webmaster@warci.org

WARCI Information

WARCI is incorporated in the State of Wisconsin.

Annual membership dues are \$15 for each calendar year, January - December. (Allowance is now made for new members joining in July or September.)

Seller's fee at Swap Meets is \$7.00 for members, \$10 for non-members.

Swap Meets are held at The Terminal, 5917 S. Howell Avenue, Milwaukee WI (near airport).

The next swap meet date is Sunday, May 6. Swap meet times are 8:00AM - 12:00 Noon. Doors open at 7:00AM for set-up.

WARCI News

This newsletter is the official publication of the Wisconsin Antique Radio Club, Inc. It is published four times per year, in January, May, July and September. The WARCI News is free to all paid-up club members.

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Articles or material for the newsletter are most welcome and should be sent to Greg Hunolt, ghunolt@excel.net or N5412 State Hwy 57, Plymouth WI 53073. Include your name, address, phone, and email. PC format (e.g. MS Word) by email is preferred. JPEG for images is preferred. Please contact Greg Hunolt for assistance.

Classified ads up to ¼ page are free to WARCI members

The cut-off date for all newsletter material is about the fifteenth of the month preceding publication of the next newsletter (e.g. June 15, 2012, for the July, 2012 issue).

WARCI Website

www.warci.org

The WARCI website features information about WARCI activities, Wisconsin radio, articles, etc. Contributions are most welcome! Contact our webmaster Nick Tillich, at webmaster@warci.org. Thank you, Nick, for your great work.

Voluntary Member Directory

There is a new feature on the website that lets you create a listing for yourself in a club member list. You can describe your interests in radio, etc., and provide contact information. This capability put in place by NARC has provided some good contacts for WARCI members who are also NARC members and have listed themselves on the NARC site. We encourage you to list yourself on our site - it is purely voluntary.

WARCI Headlines

March 25 Meet

We had a good turnout at the meet (I counted 45 vehicles in the meet area). The new sign (thanks Dennis) was in full view. There were 15 sellers. Three new members joined the club. The 50-50 Raffle was successful, netting \$50 for the club (due, no doubt, to artful ticket selling). The Donation Auction was small, but WARCI thanks those who donated and purchased, with a yield of \$19 for the club. Once again, we enjoyed the excellent pizza cooked and served by Joe Halser and his staff.

January 22 Meet including Annual Business Meeting

The January meet was held at the New Berlin VFW Post 5716. Thanks to Bill Engaas for finding the venue for our meet. There were just 10 sellers, and about 25 people there overall, but we gained 4 new members.

Annual Business Meeting Results:

1 - Election of Officers for 2012:

President - Greg Hunolt
Vice President / Publicity Director - OPEN
Treasurer - Bill Engaas
Secretary - Mike Sadjowitz
Board Members - Dale Boyce, Terry Hanney,
Dennis Schrank, Jim Menning

Thanks to all who've agreed to serve, and to Mike Sadjowitz for stepping forward to take on the secretary position.

2 - Auction: We will hold our second Auction at the September 2012 Meet.

3 - Club T-Shirts, Etc.: This was agreed to be worth pursuing as a way to boost a sense of club identity. The idea of a WARCI T-Shirt was agreed to; Dennis Schrank and Terry Hanney will look into T-Shirt designs. Dennis has identified a source for T-shirts, and Terry Hanney has suggested that his school could produce them. The need for a few different sizes was noted. We hope to select a T-Shirt design at the May meet. Greg will look into options for a WARCI cap.

4 - Publicizing WARCI Meets: Putting ads or announcements for our meets in antique auction newsletters such as "Auction Action Antique News" or "Antique Trader Magazine" was suggested. We also need to have WARCI information in Antique Radio Classified and AWA outlets. This reminds us of the need for a vice-president / publicity director.

5 - Meets Away: The possibility of having a meet outside of the Milwaukee area was discussed. The general view was that we should stay in the Milwaukee area, but that a meet near the Illinois border should be considered to attract more ARCI members; possibilities noted were Elkhorn or Janesville. Another option would be a location on the west side of the Milwaukee area along I-94 to attract more folks from the general Madison area.

6 - Joint Meets: Doing a joint meet with ARCI was suggested. Also, doing joint meets with Milwaukee area ham clubs was suggested - or maybe WARCI members would go as a group as sellers at ham meets, with adjacent tables and WARCI banners and handouts (with the ham club's consent and an offer of reciprocity).

7 - Possibility of a Second Level of Membership: Intended for WI folks (and possibly some Illinois folks) who live too far away to attend our meets. These members would pay a reduced dues level, receive electronic delivery of the Newsletter, and be on the list for WARCI's email announcements. This might help attract such folks to our meets, especially as our September meet develops. This idea was agreed to.

Membership Update

Last year, 2011, we had 44 active, paid members. We have added eight new members this year, and with renewals we stand at 47 paid members and a total of 57 active members - so we have 10 members who have yet to renew for 2012! We need for those ten to pay their dues - *this means you!*

Meeting Dates for 2012

Our remaining meeting dates for 2012 will be on Sunday mornings: May 6, July 22 and September 23 at our usual excellent location, the Terminal on Howell Avenue near the Airport.

CQD

Needed: a Vice-President / Public Relations Director

As you all know, WARCI needs someone to step forward and volunteer for the office of club vice-president / public relations director. Organizations like ours can only survive and grow if there is a core of dedicated volunteers supported by the general membership. If you value and enjoy your participation in WARCI activities, please consider volunteering to help. We are working to develop the club to make it better for you and to attract new members but we need your help to do so.

The most pressing need now is for a vice-president / public relations director. According to the WARCI charter, the vice-president's duties are to act as president when the president can't, and to be ready to assume the office of president if need be. If a person volunteers for the vice-presidency we would have a special election at the next membership meeting (i.e. swap meet) to make it official.

In addition, the WARCI board agreed that the vice-president would take on the key function as WARCI's public relations director - though if someone wanted to

step forward to take on the public relations job, but not be vice-president, the board would accept that offer in a heart beat.

The public relations director would be responsible for carrying out / coordinating activities to spread the word about WARCI and in particular to attract public attention and draw more folks to our meets and help build our membership. This includes ensuring that our activities are listed in Antique Radio Classified, the AWA Gateway, etc., working exchanges of information with other antique radio clubs, outreach to Wisconsin folks who are members of clubs like NARC or ARCI but not WARCI. The person would work with our secretary Mike Sadjowitz to implement the second tier of WARCI membership described on page 3. The person would work with our webmaster to keep the public information on the WARCI website up to date. The person would check into placing announcements of WARCI meets in newspapers, antique publications, local radio. WARCI would encourage the person to be creative and take an active hand with their own ideas.

WARCI Needs You!

If you would like to become more active in WARCI, please step up! Organizations like WARCI depend upon volunteers for their success. Areas where you can help include:

Public relations - see above.

Providing radio services such as repair / restoration.

Contribute newsletter articles or information from which an article can be written.

Contribute items for the WARCI website - such as photos of your Wisconsin-made radios to add to our gallery.

Give us your ideas on how we can make WARCI better for you!

WARCI Volunteers

WARCI members are stepping up. In addition to the officers and board members carrying out their duties, WARCI salutes and thanks the following:

Dale Boyce helps out with the Donation Auctions and our September main auction.

Bill Engaas collects dues and table charges and cashiers at the Donation Auctions at our meets.

Terry Hanney takes care of the signs at our meets, and has worked on signs etc. for the club.

Ralph Larsen sends out the meet reminder cards.

Jim Menning sets up the Donation Auction area and works on the September main auction.

Mike Sadjowitz will take photos at our meets (and get your name for captions).

Dennis Schrank puts out the great WARCI flyers (and came up with the new sign), and other members help distribute the flyers.

Nick Tillich is our webmaster - and we've gotten some very nice compliments on our website.

If I overlooked you - let me know.

Editor's Note:

The WARCI News is your newsletter.

Your comments and suggestions for the newsletter are most welcome.

Your contributions of articles or other material are urgently needed. Your help is needed to make the WARCI News a success and to ensure that it covers the full scope of the interests of WARCI members.

If you're not seeing articles on topics you are interested in, write one.

You may submit complete articles, but information from which an article can be developed is also welcome.

Don't agonize over format, etc., as I will have to adapt your submission to the newsletter anyhow. Simple text is best. PC format (e.g. MS Word, separate jpegs by email) is preferred, but hardcopy text and photos are accepted.

We've gotten requests for restoration articles. While I'm waiting for *your* great restoration article, I am fortunate to have received the kind permission of Radio Age editors Brian Belanger and Ed Lyon to reprint an excellent article by Dan Koczur on his restoration of an AK 246.

We will also cover tube audio and television and other member interests - but we need your contributions of articles or information for articles.

You'll notice on page 4 that we still need a Vice-President - Publicity Director; we are looking for a person to step forward to take on this job. We do have a corps of volunteers - see the salute to them also on page 4 - and that does not include Joe Halser who supports us at the Terminal or Paul Dorobialski who has donated newsletter envelopes and labels and I'm sure others who have pitched in over the years. A club like ours lives or dies on the willingness of members to contribute some time and effort to make it go.

On page 15 you'll see the ad for the Chicagoland Antique Radio Show, August 11 and 12, 2012, at the Lake County Fairgrounds, Grayslake IL. See the note beside the ad for more information.

Thank you, and see you at the May meet,
- Greg Hunolt, Editor, WARCI News

WARCI Welcomes!

WARCI welcomes new members, *thank you!*

Daniel Giddings, Glendale CA
Bob Kasley, Lake Geneva WI
Lance Koll, Burlington WI
James Michaels, Milwaukee WI
Fred and Karen Mikolajewski, West Allis WI
Mohan Nathan, Greendale WI
Olin Shuler, Quincy IL

We hope you enjoy being WARCI members!

Bob Paquette's Microphone Museum



WARCI member Bob Paquette's Microphone Museum features his collection of well over 1,000 different makes and models of microphones as well as related pieces of equipment. The emphasis is on historically important microphones made between 1876 and 1950, and early radios, telephones, and many other communications devices, including an assortment of military gear.

You can see more photos and find out more about Bob's book "History and Evolution of the Microphone" at his website, <http://www.sssmilwaukee.com/Microphone%20Museum.html>

There is a very nice 8 minute video taken at Bob's Museum on You-Tube. You can find it easily by googling on "tube tests 23" or the link: <http://www.youtube.com/watch?v=1MzBQqiHUX0>

Bob always enjoys visitors and will be happy to give a guided tour to individuals or groups. You can call Bob at Select Sound (414) 645-1672 to arrange for your visit. Just ask for Bob Senior. The museum is located on the second floor of Select Sound, 107 E. National Avenue in Milwaukee. Enjoy your visit and allow yourself plenty of time.

A Tough AK Radio Restoration

BY DAN KOCZUR AND ED LYON

We thank the editors of Radio Age, Ed Lyon and Brian Belanger, and author Dan Koczur for graciously giving us permission to reprint this article from the July 2011 issue of Radio Age, the monthly publication of the Mid-Atlantic Antique Radio Club (MAARC). Even if you never make it out East to a MAARC meeting, you should join - the subscription to Radio Age by itself is more than well worth the annual membership fee. You'll find this an excellent account of a difficult but successful radio restoration. As Radio Age editor Ed Lyon noted: "Here, you will find clever and thoughtful restoration tips aplenty." This is Dan's story, edited originally for Radio Age by Ed Lyon.

The Atwater Kent Model 246 is a 1933 table top (or mantel) 6-tube AC superhet radio, receiving only the standard broadcast band. This set was purchased on eBay. The previous owner had performed some repairs in 1999 and actually had it working. He replaced some capacitors and replaced some open and missing resistors. He did discover the No. 1 radio frequency transformer (T1 on the Rider schematic for Model AK 246, as found on Nostalgia Air) was missing although after his other repairs it was said to have played without the coil and actually picked up stations without any antenna at all. He reported he had tested the radio just before listing it on eBay and that with an 18 inch antenna connected to the tuning capacitor he had stations slamming in. I surveyed the set carefully as soon as it arrived, deciding, in view of the sorry condition of the cabinet and the claim that the chassis was functional (but very dirty and shedding insulation from the wiring, among other things), that I should tackle the cabinet first, and if that failed, I wouldn't have wasted time on a useless chassis.

Overall Survey

Aside from having to restore the chassis to as near original condition as possible, the real problem was that the cabinet needed major repairs. It had been painted red and a significant portion of the fretwork was missing as well as the back cabinet brace and trim piece. The replacement of these missing pieces, would be very difficult if I couldn't find an intact example, so I could duplicate them. A check at the Radio and Television Museum in Bowie, MD revealed that they did not have this model in their collection. However, *Radiomuseum.org*, on the web, listed the model and showed an excellent front view, the picture taken head-on, by luck. This would enable copying the front fretwork, but the rear cabinet arch and trim were not as clear in their rear view. It did give me a good idea of what these parts looked like, though, so I pressed on. Luckily, the speaker grille-cloth was intact and appeared to be

original. The front page photo (left), and figures 1 and 2 below show the cabinet as bought. In addition, the following problems were found:

- The cabinet feet were missing
 - The knobs were missing
 - The metal chassis bottom was not fastened to the cabinet base
 - Several small veneer chips existed on the front of the cabinet in addition to the missing fretwork
- The outside veneer of the cabinet base had several large missing areas.



Figure 1 - AK 246 As Bought Top View



Figure 2 - AK 246 As Bought Rear View

A Tough AK - continued on Page 7

The chassis was then examined carefully to see what sort of problems it might have, despite it being reportedly “working.” It was dirty and rusty (see figure 3), and the earlier repairs needed some more attention.



Figure 3 - Top View of AK Chassis as Bought

The following list shows most of the chassis issues, some serious, some no-problem:

- The original filter can containing a 4 μF and an 8 μF electrolytic capacitor was disconnected and a tubular 10 μF 400 V electrolytic was wired in place of the 8 μF and two tubular 4.7 μF 400 V electrolytics were wired in parallel for the 4 μF capacitor.
- The multiple by-pass capacitor which contains 10 separate capacitors in a metal can was disconnected and individual capacitors were wired to terminal strips which were mounted to the can.
- The volume control/on-off switch had been replaced with a modern version (1 M Ω) control.
- The grid cap for the type 55 tube was missing and the wire was soldered to the tube’s grid-cap.
- The No. 1 radio frequency transformer was missing, as noted earlier.
- The speaker had a small tear (hole) that had been repaired with paper and glue or paint
- The power cord had been replaced with brown zip cord.
- Some of the deteriorated rubber/cloth covered wiring was replaced with vinyl insulated wiring.
- The 2000 Ω flexible resistor (1st detector bias) had been removed and replaced with a 2-watt carbon resistor.
- The 250 Ω IF amplifier bias flexible resistor had

been left in place, but a 1-watt carbon resistor was soldered across the appropriate connections.

- The two 250 pF diode plate capacitors had been replaced with disc capacitors.
- The 0.01 uF 2nd detector/ 1st AF coupling capacitor had been replaced with a disc capacitor.

Restoration of the Cabinet

I am more of a restorer than a “just get it working” type, so my work was cut out for me. As I noted earlier, I decided to work on the cabinet first since it appeared to be the biggest challenge and if I couldn’t restore it, there probably was no reason to restore the chassis. I first removed the chassis and bottom cover plate. The entire cabinet top was loose from the front piece and only fastened to the base on one side. (See figure 2, page 6.) I decided to remove the molding holding the cabinet to the base and to separate the top from the front and base. The next step was to see if I could remove the red paint from the cabinet pieces. This was complicated by the fact that the temperature outside was below freezing and I did not want to use the paint stripper in the house. I used ZAR Paint and Varnish Remover – a semi-paste formula product. It worked very well in spite of the cold temperature in the garage. I was pleased with the result; the wood veneer looked much better than I should have expected. The walnut trim on the front of the cabinet was nearly intact and the mahogany on the top and front cleaned up very nicely. None of it was in need of replacement.

The next challenge was to manufacture the missing fretwork as you can see in figure 4 below, the photo of the stripped front.



Figure 4 - Stripped front of cabinet, with missing fretwork obvious, but generally nice veneer.

I used the photo from Radiomuseum.org to copy and paste into PowerPoint. Inserting it as a JPEG or TIFF picture allowed me to scale the image to the actual size of the cabinet front by trial and error. I then printed the picture, cut out the portions of the missing fretwork and glued it on 1/4 inch plywood which I then cut out using a scroll saw. After sanding, these pieces were then glued into the cabinet front piece with the results seen in figure 5.



Figure 5 - Raw cut-out fretwork glued in place.

I removed several small pieces of the inside veneer layer from both the cabinet front piece and the new replacement fretwork pieces to allow me to add a bridge piece of thin wood to help support the new fretwork. After the fretwork was glued in place, I cut out a piece of mahogany veneer to cover all the fretwork (newly replaced and existing) and glued it in place. When this was dry, I used an Exacto knife to cut out the openings (from the back of the piece), and sanded all the edges to match the fretwork design with the results seen in figure 6.



Figure 6 - Sanded and edge-finished fretwork

One problem still existed. Close inspection of the front veneer shows that the veneer actually has a small cove cut along all edges such that the outer (top) layer of veneer is cut back slightly from the underlying support

structure of the fretwork. The tools available made it convenient to delay this task until the cabinet was reassembled, as I will discuss in the next paragraph. The next task was fairly simple. The bottom ply of the plywood base had numerous missing chunks. I removed all the remaining parts of this ply and replaced the entire bottom layer with a piece of birch veneer.

The cabinet was now reassembled and glued together. An attempt to duplicate that small cove on the edge of the fretwork was made freehand with files, sandpaper and grinding bit in a Dremel tool, but the result was not satisfactory. I located a 3/16 inch cove bit with a bearing surface that fit my Dremel tool although the bearing diameter was a little too small, resulting in a slightly wider cove, but it matched pretty closely and I was able to fair the new cove into the original cove without it being noticeable. Because the bit's bearing surface actually needed to protrude beyond the back of the fretwork to give the proper depth, I waited until I had reassembled the cabinet so that the front was solid and provided the room for the bit to protrude beyond the thickness of the front panel. I thought this was a better solution than trying to put spacers under the fretwork and do the routing on the table top. Using the Dremel plunge router attachment and this bit, I was able to match the cove cutout pretty closely. All in all, I believe the front came out looking very close to the original.

The last repair work on the cabinet was to make the missing feet. This again was a challenge since I had no sample. The best I could do was a picture. I again did some measurements of a picture at *radiomuseum.org* and scaled from their picture to the actual size. The dimensions of the feet were estimated to have a length of 2.5 inches on each side but actually had to be cut to 3 inches because of the skewed ramp on each side. The feet were cut from 1/2 inch hardwood and the edges routed using a 1/2 inch cove bit and then a 1/2 inch round-over bit to give the same profile as in the *radiomuseum.org* picture. I wasn't sure how the feet were fastened to the bottom. One picture appeared to show two wood screws holding it on, but I could only see that in one photo. I finally obtained a picture of the feet and their mounting. Each was attached to the bottom with two wood screws. I also discovered the rear two feet had two flat sides, so I removed the routed edges that I had painstakingly done on these two feet. I masked all the delicate fretwork in order to tone the edges with Dark Walnut toner and leave the face of the fretwork the mahogany color. With that

done, I completed finishing the cabinet with a satin lacquer spray. The final challenge was obtaining some knobs. I confirmed that the knobs were wooden, but did not realize there were so many variations. I believe I was able to obtain a correct set, but did not have a sample to compare to my knobs. These were cleaned and re-lacquered. The finished cabinet is shown in figures 7 and 8 and the front page photo (right).



Figure 7- Finished cabinet, front



Figure 8 - Finished cabinet, rear

When I had gained sufficient confidence that the cabinet restoration was going to be successful, I started to work on the chassis restoration, which beats watching cabinet glue cure.

The Chassis – Electronic Restoration

Figure 3 on page 7 shows a top view of the chassis as bought. The first step was to remove most of the components mounted on the top of the chassis so it could be cleaned. The speaker and mounting bracket, transformer cover, tuning capacitor gang, dual electrolytic capacitor, the No. 2 RF transformer, and

finally the No. 1 IF transformer were all removed. Careful diagrams of all connections were made. The chassis was then cleaned with soap and water using a tooth brush and then Naval Jelly and a small stainless steel brush were used to remove the rust as well as possible, although some pitting is still evident. The same cleaning process was used on the base plate. The transformer cover was cleaned, primed and sprayed with black enamel.

The first major electronic repair was to rebuild the No. 1 RF transformer. The schematic showed the transformer to consist of two coils. The best picture I had of the chassis seemed to show the top coil to be about 1/4 inch thick with the turns wound on top of one another with a single layer second coil below it. I could find no specifications on these coils and was unable to locate another set to use as a model. After searching through numerous Atwater Kent schematics in Rider's looking for a schematic that had a similar coil, I finally decided that the No. 1 RF transformer in the Atwater Kent model 427 set that I had was the closest to what I needed, although this latter set covered the shortwave band also. After further searching on the internet, I found an article in the June 1920 *Experimenter's World* entitled "Wind Your Own Honeycomb Coils" written by C.J. Fitch. This article described how to make a jig to wind coils such that the turns will not slip off one another. I built a small jig using a couple of different diameter hole saws to cut the arbor on which the turns were wound and two larger diameter washers to hold the turns in place while winding as can be seen in figure 9. The resulting coil can be seen in figure 10.

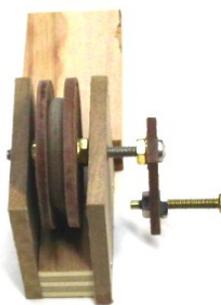


Figure 9 - The home-brew coil winding jig



Figure 10 - The new coil primary on RF-1

The arbor diameter was sized to match the diameter of the radio's companion No. 2 RF transformer. While the Fitch article was winding a much larger coil, it actually

worked out pretty well. I wound about 100 turns of 30 gauge wire that had a plastic coating on it ("Nylclad") to make this coil. I cut a piece of cardboard tubing (from Christmas wrapping paper) that had the same diameter as the existing No 2 RF transformer. I mounted this honeycomb wound coil on this tube and glued it in place. I then wound about 125 turns of 30 gauge magnet wire on the tube below the honeycomb coil. I made a sheet metal bracket to match the No. 2 RF transformer and riveted it to the tube using 1/8 inch brass eyelets. I made four terminal connection points out of thin copper shim material and mounted at the bottom of the tube to make connections from the coil and to provide a connection point to the chassis wiring. The coil form and pieces are shown in figure 11. I then sprayed the coil and form black to match the No 2 RF transformer.



Figure 11 - Finished coil form and hardware

Most restorers use modern electrolytic capacitors to replace, functionally, defunct ones found in sets, but I like to hide them inside the original capacitor containers, when possible. The A-K's dual electrolytic capacitor was opened up using a metal blade on my scroll saw and the internals cleaned out. I installed a 4 μF 450V electrolytic and 10 μF 450 V electrolytic (I didn't have an 8 μF available as called for in the schematic) inside the case and cemented the joint in the outer can with some aluminum epoxy. See figure 12 above right. The electrolytics which had been previously installed outside the can were removed. I replaced the missing antenna and ground posts with parts scavenged from an Atwater Kent Model 55 chassis. The 1 M Ω volume control was replaced with an older model 500K Ω potentiometer as called for in the schematic.

I had ordered two new flexible resistors from Vintage Components and replaced the modern carbon film resistors that had been installed as part of a previous repair effort. The major electrical restoration involved



Figure 12 - The electrolytic capacitor has been opened, cleaned out, and the modern replacements installed, mounted on a thin perfboard.

the multiple by-pass capacitor housing that contained 10 separate capacitors and had been replaced with terminal strips and capacitors mounted outside the can. After unsoldering all the leads (again making detailed connection diagrams) and removing the can, terminal strips and capacitors, I unsoldered all the capacitors and terminal strips. The can was heated up on an aluminum pan on my outdoor grill (the kitchen range is far too sacred for this) and the internals removed. I sketched out locations, placements, and wire routing for the capacitors to be installed inside the can. I used fish paper to mount some thin copper shim material as connections for the twelve leads that would protrude from the case. I mounted the capacitors on a piece of perforated melamine circuit board obtained from Radio Shack, insulated leads as necessary with shrink tubing, and separated the leads into the two groups of six each with fish paper. The leads were attached to the copper shim terminals and a small piece of perforated circuit board was cut and openings made as a cover for the can with the copper shim connectors protruding. The entire assembly was then inserted in the can (a very tight fit) and the cover glued in place with a hot glue gun.

That's the good news. Now the bad news: I then realized I had inserted the assembly upside down and the terminals were reversed from what they should be according to the Rider diagram. I decided this was a minor deviation from the original and as long as the capacitors were connected correctly, it would be OK. I used my EICO tester to make a final verification that everything was correctly connected and no shorts existed in this rebuilt multiple by-pass capacitor. Trying to connect the chassis wires to this new capacitor after it was installed turned out to be impossible, so I removed all the chassis wires destined to connect to this capacitor block, replaced those that

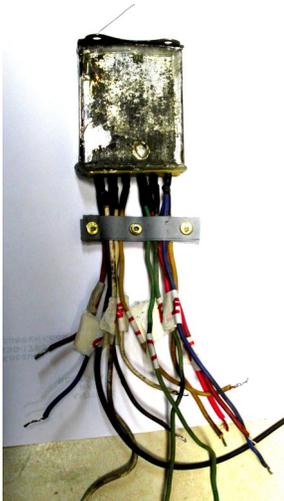
had insulation damage and soldered them to the new capacitor terminals. I added some strips of fish paper, which I riveted together, to have all the leads come out from the capacitor in an orderly fashion, mounted the capacitor in the chassis, and finally re-soldered all the wires back in the chassis. I was glad when this was done. The photos below show the original installation (figure 13), the internal arrangement (figure 14), and the finished capacitor (figure 15).



Figure 13 upper left, Figure 14 above, and Figure 15. left.

Figure 13 shows the as-bought capacitor block, with all of the formerly replaced caps mounted all over it.

Figure 14 above shows the replacement block, ready for insertion in the can, and figure 15 left shows the finished job.



The 800 MMF tracking condenser which was riveted to the chassis was removed because the paper covering had been damaged. I repaired the covering using fish paper and used screws to reinstall since I could not find small enough rivets to replace those that were originally used. The new No. 1 RF transformer was now installed and new wires added to the antenna and ground terminals. I used a piece of copper braid taken from a piece of coaxial cable to use as the shield for the antenna lead as was shown in the schematic.

A broken lead was discovered in the oscillator transformer, but I was able to find the end after melting off some of the wax with a heat gun. I re-soldered a piece of the wire I had used to wind the antenna coil to it and was able to get continuity through the coil. The rest of the electrical restoration

consisted of replacing nearly all the rubber coated wire (which had hardened and had insulation falling off) with similar colored rubber coated wire. Several cloth covered wires also required replacement. Finally, the rubber coated wires from the speaker field coil and voice coil were replaced. This required removing the field coil from the speaker. Plastic shims were used to re-center the voice coil when it was reassembled. The previous speaker cone repair was cleaned up a little bit but was not redone. The gold painted field magnet cover was repainted. The restored chassis is shown in figures 16 and 17.

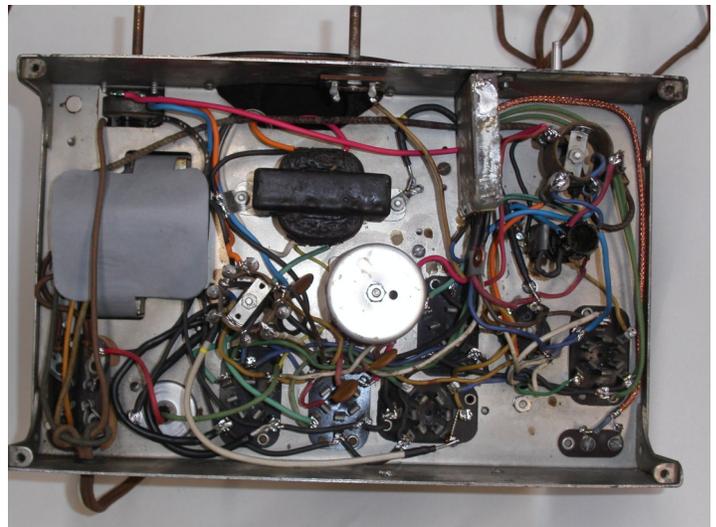


Figure 16 - Restored chassis, bottom view



Figure 17 - Restored chassis, top view

The last step was to see if all this effort was worthwhile. The set was plugged into a Variac and the voltage slowly brought up. I was happy to hear stations without even an antenna attached. I followed the test

A Tough AK - continued from Page 11

and alignment procedures covered in *Elements of Radio Servicing* by Marcus and Levy. I used a Heathkit SG-8 Frequency Generator and a Heathkit IM-28 VTVM. The output of the SG-8 was verified with a Heathkit Frequency Counter IB-1101. The alignment went well with no problems. The IF transformers required some adjustment and were peaked at the specified IF of 262.5 KHz. The only "anomaly" noted was the grid voltage on the Type 47 output AF amplifier tube. The schematic indicated 4 volts, but I measured - 4 volts, which is at least the correct polarity. The actual voltage there is -15 V, but is heavily affected by voltmeter loading. In the Atwater Kent days, voltmeters were relatively insensitive, and dragged that voltage down to -4 V, which caused the type 47 tube to sweat a little. In my effort to match AK's measurements, I used an equally insensitive meter. It's better to compute the correct values, and then use the best instruments you can find.

The finished radio appears in figures 19 and 20 below. That's my story of the AK resuscitation. It just takes a little bit more effort to restart a set than to just make it play again. And now baseball games, when tuned in on this radio, sound just like they should, with the announcer's voice reminiscent of "Dutch" Reagan's.

IARCHS Antique Radio Auction

The Iowa Antique Radio Club and Historical Society (IARCHS) is sponsoring an antique radio and related items auction **Saturday, May 5th** starting at 10:00am in the auction arena at Hawkeye Downs in Cedar Rapids Iowa. The address is 4400 6th Street. If there are any hayrack items consigned, we plan to auction those at 9:00am. The auctions in past years have been successful and good sale prices have been realized on items with higher collector value. The auction will be conducted by Brent Wears (CAI, AARE, CES, Licensed Broker) of Wears Auctioneering, Inc

Check-In: Thursday, May 3rd from 9:00 am to 5:00 pm
Friday May 4th from 9:00 am to 5:00 pm

Seller Fees:

15% commission on each item sale under \$200.00
10% commission on each item sale \$200.00 or higher
\$1.00 minimum fee on each item (also referred to as a lot). This is a new fee this year for this radio auction.

Buyer Fees: 7% of item sale price.

This is a no reserve auction – the item is sold to the highest bidder. Low value items may be grouped together into a single lot to facilitate bids.

Sellers interested in consigning items to the sale should contact Dwight Baker (515) 965-0999 Email: vtaudio@hotmail.com or Dave Perkins (641)752-3417 Email: spamhole1951@gmail.com It is desired that a listing of items along with individual pictures be provided so that we can place those items on Wears website. A picture is worth a thousand words! The posting on the website helps generate interest which translates into a high sale price for the seller. The earlier this information is posted, the better!

If you have Questions: Contact Dwight Baker (515) 965-0999 Email: vtaudio@hotmail.com or Dave Perkins (641)752-3417 Email: spamhole1951@gmail.com

Websites:

IARCHS: <http://www.iowa-antique-radio-club.com>

Wears Auctioneering:

<http://www.wearsauctioneering.com>



Figures 19 (top), and 20 (bottom) show the finished radio, after this painstaking restoration. The chassis is clean, but still slightly pitted, but the cabinet looks like new, including the feet.

Radio Daze 2012

The Northland Antique Radio Club reports that Radio Daze 2012, the Upper Midwest's ultimate vintage radio collecting event, will be held Friday and Saturday, May 18-19, 2012, at the Comfort Inn of Plymouth, located at the northwest corner of I-494 and Hwy. 55 in Plymouth, Minnesota. This will be our 14th year at this great location! The Comfort Inn's reservation phone number is (763) 559-1222.

This is NARC's premier event, and we are proud to have both the the Pavek Museum of Broadcasting and the Antique Wireless Association (AWA) as supporting sponsors. The auction, swap meet, radio contest, program, and awards presentation are well attended by prominent vintage radio collectors from across the country. The radio contest includes equipment displayed from the earliest days of radio to the 1960's.

The meet kicks off with a large antique radio auction in the hotel main ballroom at 7 p.m. Friday. We make this an entertaining auction and there will be a good variety of radios available. If you want to sell your radio(s) at the auction, check them in between 3:00 and 6:00 pm Friday. Auction preview is 5 to 7 pm, and the auction starts at 7 pm. Member Frank Rasada will be our auctioneer, with auction coordinator Don Hauff handling registration and check in. See the Radio Daze Flier for auction details.

A visit to the Pavek Museum of Broadcasting is always a highlight of 'Radio Daze' and they schedule their annual garage sale of surplus radio relics for this weekend. The Pavek museum is located at 3515 Raleigh Avenue in St. Louis Park, Minnesota and will be open at 10:00 am sharp on Friday and again at 9:00 am on Saturday. Make sure you are displaying your Radio Daze name tag for free admission.

The Saturday program featured speaker will be collector Richard Majestic.

- SCHEDULE -

Friday - May 18th

10:00 am - 5:00 pm	Pavek Museum Sale
3:00 pm - 6:00 pm	Auction Item Check-In
5:00 pm - 7:00 pm	Event Registration
6:00 pm - 7:00 pm	Auction Preview
7:00 pm - 10:00 pm	Antique Radio Auction

Saturday - May 19th

Dawn - 2:00 pm	Outdoor Swap Meet
7:00 am - 2:00 pm	Hospitality Room
8:00 am - 2:00 pm	Event Registration
10:00 am - 5:00 pm	Pavek Museum Sale
11:00 am - Noon	Contest Item Entry
Noon - 1:00 pm	Contest Judging
1:00 pm - 2:00 pm	View Contest Room
2:00 pm - 4:00 pm	Program & Drawing



	<h1>Radiofest 2012</h1> <p>August 2-4 Thursday - Friday - Saturday</p> <p>Willowbrook Holiday Inn 7800 South Kingery Hwy (Rte 83 & I-55) Willowbrook, IL 60527 (1-630-325-6400)</p>	
	<p>MARCONI / TITANIC CENTENNIAL COMMEMORATION</p> <p>Plus: "Lee de Forest: Movies & Sound" - Book Signing By Mike Adams</p>	

MARCONI / TITANIC CENTENNIAL COMMEMORATION
Plus: "Lee de Forest: Movies & Sound" - Book Signing By Mike Adams

<p>THURSDAY</p> <p>Setup Day (NO SALES) Main Auction 6:30pm in the Ballroom using big screen video. Followed By A Free Pizza Party!! (ARCI Members) Pre-Registration Packets Available After 5pm</p> <p>FRIDAY</p> <p>7am Radiofest Opens Registration open Flea Market open All Day Noon - Ladies Luncheon Educational Programs Ham Radio Ops All Day Hospitality Tent All Day Hotel Food Service</p>	<p style="text-align: center;">MARCONI / TITANIC DISPLAY</p> <p>Emergence of Wireless Rescue Radio Marconi Artifacts & Documentation Titanic Items</p> <p style="text-align: center;">EQUIPMENT CONTEST</p> <ol style="list-style-type: none"> Radios Pre 1930 Radios Pre WWII (1945) Radios Post WWII (1946) Art Deco Radios Catlin, Rare, Plastic Radios Speakers Transistor, Novelty Radios Vacuum Tube Audio Radios Made In Midwest Ham/Military Radio Open <p style="text-align: center;">LADIES LUNCHEON Noon</p>	<p style="text-align: center;">FRIDAY NIGHT BANQUET</p> <p>Book Signing: Lee de Forest: Movies & Sound by Mike Adams</p> <p>Dinner Recognition Awards Contest Awards</p> <p style="text-align: center;">ENTERTAINMENT</p>  <p style="text-align: center;">MISSISSIPPI FLANNIGAN</p> <p style="text-align: center;">SATURDAY</p> <p>Free Sellers' Raffle 9:15am Donation Auction 9:30am Ham Radio License VE Tests Flea Market Until Noon</p>
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FRIDAY PROGRAMS

Vacuum Tube Audio Panel - Karl Johnson, Pete Nauseda and Terry Shaver
Museum Tour: Pavek Museum Of Broadcasting in Minnesota - Steve Raymer
The Ham Radio Forum (Heavy Metal - WLW Cincinnati) - Bill Ross (W9WR)
E. H. Scott - Kent King, Scott Historian

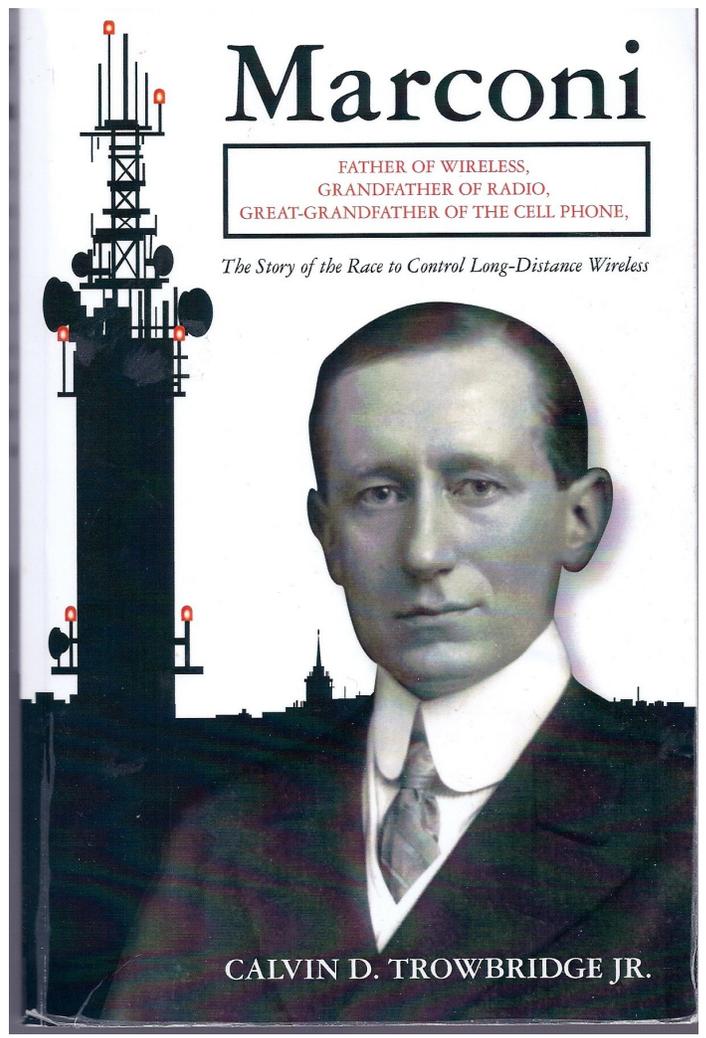
IMPORTANT INFORMATION

ARCI Registration Form: <http://www.antique-radios.org>. Pre-Registration Deadline: July 1.
Hotel Reservations: Front Desk 1-630-325-6400. Ask for ARCI room rate of \$99.00 per night.
Seller Fees: 1st space: \$45 pre-reg./\$50 onsite. Additional spaces: \$25 pre-reg./\$35 onsite. Saturday Only \$30. Banquet tickets: \$25/person, \$45/couple. 8' TABLE RENTALS \$15 each (pre-registration only). No charge for general admission. Membership required to attend programs.
Questions? Call 630-739-1060. See www.antique-radios.org.

Renew Your WARCI Membership for 2012!

WARCI membership runs January to December, so it is now time for you to renew for 2012!

Please complete the Membership Renewal form that you received with the January issue of WARCI News and bring it to the next meet or mail it, with \$15, to Bill Engaas, 18265 W. Thornapple Lane, New Berlin, WI 53146.



Above is the cover of Cam Trowbridge's biography of Marconi, available from bookstores, Amazon, etc. He tells the fascinating story of Marconi the businessman who made 'wireless' real, amidst infighting, politics, etc. Cam contributed an article on Marconi and the Titanic for the January 2012 edition of WARCI News.

Donation Auction Rules

We will have an area marked off for donated items. Once you place an item in that area, it is donated to the club and becomes the property of the club, and will be auctioned or disposed of if it does not sell at the auction. No one may remove a donated item from the donation area prior to the auction. So, while we very much appreciate your donations, please don't place an item in the donation auction until you're sure you want to donate it. Or, if you see an item of interest in the donation area, don't ask the donor to reclaim it—the item no longer belongs to the donor.

WARCI Radio Services

We now have a list of WARCI members who would be willing to provide repair / restoration services, advice or research for folks who contact WARCI looking for help. If you would like to be added to the list, please let me or one of the Board members know.

Name	Email	Telephone	Service Available
Dwight Church	(none)	414-545-6972	Radio repair – electronics only.
Bill Engaas	crafteradio@earthlink.net	262-786-8183	Speaker Repair.
Ralph Larsen	radioralph@hotmail.com	414-278-7981	Repair, including Television.
Mike Lewis	deepheart@att.net	608-835-7193	Repair, restoration, training.
Dave Milke	wb9egz@gmail.com	608-838-9661	Parts, tubes, and free advice.
Greg Hunolt	ghunolt@excel.net	920-893-0422	Research, especially on 1920's radios.

Chicagoland Antique Radio Show and WARCI

The two day show is indoors in a really nice expo hall with plenty of free electricity. We'll run an ad in the May and July newsletters, it is on our website now, and we'll have flyers with forms at the meets coming up. In exchange for our support, Tim Zurko has kindly offered to make six tables available to WARCI without charge to give the club a presence at the event. Tim is also extending to WARCI members a buy one, get one free offer for tables.

The new expo building at Grayslake is big, but the radio show is a show within the Grayslake Antique Market that will be sectioned off with pipe & drape. There will be a limited number of spaces available for the radio show, and Tim recommends that you sign up as early as possible because spaces could sell out. You can mail in a deposit with the sign-up flyer to hold a spot. Be sure to note on the form that you are a WARCI member. If you have questions, please contact Tim Zurko at TRZurko@Bemis.com.

CHICAGOLAND ANTIQUE RADIO SHOW AUGUST 11 & 12, 2012



Phonograph, Mechanical Music, Coin-Op, Music Box, Antique Radios, HAM, Records, 33's-45's-'78's & More!

Show Hours: Sat. 10am - 4pm • Sun. 8am - 3pm / \$6

Held during the Premiere Grayslake Antique Market

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ricksradioroots@yahoo.com

News from the Neighboring Clubs

ARCI

Antique Radio Club of Illinois
www.antique-radios.org

June 17, 2012 - Combined Meet with 6-Meter Club of Chicago

**DuPage County Fairgrounds, Wheaton IL
Outdoor - Gates Open 7:00AM**

All weather, large outdoor Flea Market and more than 20,000 sq ft of indoor selling space. Good food and refreshments at reasonable prices.

Donation Auction at 11:00 am - proceeds go to ARCI (radios, test equipment, parts only - NO PC's).

Free parking.

Tickets: Advance \$6.00, at gate \$8.00.

Information: email wd9gjk@arrl.net or call 24 hr information hotline 708-442-4961.

Radiofest 2012 is coming - see page 14.

NARC

Northland Antique Radio Club
www.northlandantiqueradioclub.com

Radio Daze 2012, the Upper Midwest's ultimate vintage radio collecting event, will be held Friday and Saturday, May 18-19, 2012, at the Comfort Inn of Plymouth, located at the northwest corner of I-494 and Hwy. 55 in Plymouth, Minnesota. This will be our 14th year at this great location! The Comfort Inn's reservation phone number is (763) 559-1222.

This always excellent meet features a large auction Friday night, flea market Saturday morning and a program Saturday afternoon, with this year's speaker Richard Majestic. The Pavak Museum of Broadcasting will be open to meet attendees.

See page 13 and the NARC Website for more information.

MARC

Michigan Antique Radio Club
www.michiganantiqueradio.org

**EXTRAVAGANZA '12
July 12, 13 and 14, 2012
Causeway Bay Hotel, Lansing MI**

The 2012 Extravaganza will feature a concurrent meet at the same location of the Telephone Collectors International association. They will have a flea market and demonstrations.

Pre-Registration begins 4:00pm on Thursday July 12. The Open Air Flea Market opens 7:00am on Friday, followed by the Telephone Collectors International show opening at 8:00am.

The contest will be open for viewing at 5:00 pm Friday, and the Radio Reception will begin at 7:30 pm.

The Flea Market continues all day Saturday. Auction check-in is 9:00 - 12:00 Saturday, and the auction begins at 1:30 pm following announcements.

The line-up of programs is:

8:00pm Thursday - "The Hallicrafters Project", John Reinicke.

1:00pm Friday - "Introduction to Collecting Telephones", Ray Kotke.

3:00pm Friday - "The Potentiometer Seminar", Mark Oppat

10:00am Saturday - "Collectors Roundtable", hosted by Geoffrey Bourne, Jeff Conley, and Alan Jespersen.

The meet closes with the traditional Good-Buy Affair - a bargain auction, following the main auction, about 4:30pm or so.

Visit the MARC website for details.

Scenes from the March 25, 2012 Swap Meet



Terry Hanney and Pauline Church enjoy the morning.



The general scene at the WARC March flea market.



A happy Olin Shuler and his NIB Motorola car radio.



Glenn Trischan and Bob Paquette in the March sun.



Jeff Aulik and Mike Kreuser up from Illinois.



Dawn and Patrick Kondreck ready to deal.

Scenes from the January 22, 2012 Swap Meet



Dennis Schrank, Mike Hill and Dennis's great new sign.



Goodies for sale at the VFW on a Sunday morning.



Jim Menning, coffee, and great stuff for sale.



Bill Engaas, and our new secretary, Mike Sadjowitz.



The smaller but happy crowd at the VFW .



The facility worked out well for us.

Classified Ads

HELP NEEDED: Would like to contact owners of 1920's battery sets, literature, and equipment made by Globe Electric Company of Milwaukee, WI, to survey existing model types and variations for development of a company history. All responses will be kept confidential. Thanks.
Glenn Trischan, P.O. Box 240022, Milwaukee, WI 53224. E-mail: gnets142@att.net.

WANTED: Any set made in Plymouth, WI, by the Plymouth Radio and Phonograph Co.
Greg Hunolt, N5412 State Hwy 57, Plymouth, WI 53073, Email ghunolt@excel.net or 920-893-0422.

SERVICE: Michael Lewis - Radio Repair / Restoration and Training. You can hire me to restore your antique radio, but why not hire me to teach you to do it yourself? I've been teaching people how to electronically restore antique radios for over 30 years. I've assembled an incredible supply of parts, literature, and test equipment over more than 40 years. With two long-term students already, I've recently retired from my day job to devote full time to my antique radio restoration business. Whether you need just one session for some help on a "tough dog" or want to learn over the long term how to restore radios, I'm available through the end of 2010 at an introductory rate of \$15/hour, and able to make available to you the facilities described below.

At your command: test equipment including digital and analog multi-meters, high and low voltage bench power supplies, AF and RF generators, and much more. Also a large stock of parts including 50,000 vacuum tubes, and a comprehensive technical library spanning the 1920's-1980's, including the Riders and Gernsback manuals, and Sams Photofacts, and various factory manuals.

Michael Lewis, 6070 County Road D, Oregon, WI 53575, Phone: 608-835-7193, Email: deepheart@att.net

WANTED: DeForest Plug-In Butterfly Coils - Terry Hanney, 414-545-6425

Remember that classified ads up to about ¼ page are free to WARC members.

The cut-off date for all newsletter material is about the 15th of the month preceding publication of the next newsletter (e.g. June 15, 2011 for the July, 2012 issue). Send ads by email or letter to Greg Hunolt, WARC News, at ghunolt@excel.net or N5412 State Hwy 57, Plymouth WI, 53073.

Discovery World of Milwaukee - "Tesla Lives!" Show

Filling the stage with 20 million volts of roaring, crackling, sizzling electricity, a continuing live theater show **TESLA LIVES!** delivers an energetic and sometimes humorous glimpse into how our modern world was designed by the godfather of the 21st century, Nikola Tesla. Through Discovery World's latest theater production, audiences will meet the genius who invented the modern world and find the genius within themselves.

See www.teslalives.com for information.

Some Hamfests!

July 7, 2012 - Swapfest '12', South Milwaukee Amateur Radio Club, Inc. American Legion Post 434, Oak Creek WI. Email for info: wb9tik@sbcglobal.net or on web: www.qsl.net/WA9TXE.

August 25, 2012 - Circus City Swapfest, Yellow Thunder Amateur Radio Club, Inc., Elks Club Lodge, Baraboo, WI. See website, www.yellowthunder.org.

September 22-23, 2012 - Peoria Superfest, Exposition Gardens, Peoria IL. See website: www.peoriasuperfest.com.