



Hamtrix

Volume 55, Issue 10 October, 2010

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Meetings & Events



October 12
Club Meeting

**Digital TV
Update**

by Dave Schank, KA9WXN
7:00 PM Church Basement

October 26
Board Meeting

7:00 PM Church Basement

October 31
Material Due for Next
Hamtrix

November 9
Next Club Meeting

November 14
Annual Awards Dinner



The President's Shack

by Howard Smith,
WA9AXQ

The October meeting is the Annual Election of Officers and Board Members. It is the one meeting each year that you MUST ATTEND because it is your opportunity to elect those individuals that will lead the club for the following year. The club has four Officers, President, Vice-president, Secretary, and Treasurer, who serve one-year terms. There are two Board Members who serve two-year terms. One Board Member is elected each

year. Finally, there is the Past President position. For the last several years, this position has been an elected position for one year, since the last past president resigned that position.

I have served as the President for the past 12 years and I do not wish to continue. I will automatically become the Past President, so that Board position will not be elected this year. I will continue to be involved with the club and will be attending regular meetings and Board meetings just as I always have. I would like to thank all of you for the support that you have given me during the last 12 years. It has been a privilege to serve as your President and I have enjoyed doing it.

As for other Officer positions, I have

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Election of Officers — October 12

- and -

Digital TV - An Update

Program by Dave Schank, KA9WXN

WARAC DAVID KNAUS MEMORIAL SCHOLARSHIP

2010 RECIPIENT

Congratulations to Eric Haskins, KC9JVH, as the recipient of our 2010 David Knaus Memorial Scholarship. He is also now an honorary member of our club - please welcome him. Below Eric introduces himself.

Thank you for your congratulations and the award.

I am freshman studying Software Engineering at MSOE. My father, KC9JVO, received is license at the same time as me. My younger brother Abraham, 16, is also interested in technology, but has no interest in amateur radio.

Professionally, I am interested in user experience and user interface design. I find them interesting because they commonly receive little or no consideration,



Eric hard at work on his computer.

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From the Minutes...

By Lynn Tamblyn, K9KR
Secretary

Minutes of the General Meeting

September 14, 2010

The meeting was called to order at 7:03 by Secretary Lynn Tamblyn, in place of the President and the Vice-President, who were out of town.

Visitors— Ken Brown, KB9EX, Eric Haskins, KC9JVH, and Jerry Riedel, K9FI. After giving each a few moments to talk about themselves, WARAC members then introduced themselves to our guests.

Minutes – By motion, minutes were approved as published in the latest issue of Hamtrix.

ANNOUNCEMENTS

Awards Dinner – The WARAC annual dinner is going to be held November 14. Mark your calendars and plan to attend.

Nominating Committee – Mention of the need for additional members to join the Nominating Committee, besides just Chuck, W9WLX. Nominations will be needed for the October election meeting.

Homebrew Challenge – Charles Craven, WB9PUB, spoke about his “homebrew challenge project,” starting tonight, with the end happening effective with the February regular club meeting. He then went thru his challenge rules, after handing out sheets to those interested. He will be accepting registrations for projects.

Two-Meter Club Net - Mention was made of the Board’s decision to begin using the 147.05 MATC repeater for the “off-Tuesday” 2M nets. Lynn encouraged all members to try and participate.

Program – Homebrew Projects. A number of members brought in homebrew projects. As each project was shown, the member showing the project(s) included descriptions and associated details of each piece of equipment. Following is a list of the member and their project (s):

- Charles Craven, WB9PUB, brought in his 40 meter QRP transmitter, a T/R switch and a 2.5 ampere

power supply;

- Frank Humpal, KA9FZR, brought in a power supply, a 40 meter QRP transmitter, a microphone, a frequency monitor and an SWR meter and tuner;
- Phil Tollefson, WA9AQL, showed his trickle charger for gel cells from the ARRL Handbook;
- Tom Nickel KC9KEP, shared with us his vacuum tube novice transmitter from the 1957 QST and his 1944 vintage 7 tube receiver;
- George Dunco , AA9SR, had an audio amplifier that he uses in clock repair, and a digital clock from the 1970’s that was built using point to point wiring; and
- Lynn, K9KR, showed his balanced line RF ammeter setup for measuring line current between his transmitter and his antenna.
- While waiting for coffee to be made, Charles Craven spoke to an 800 watt amplifier he had converted from his GE days that was based on a 3CX800 tube.
- After making coffee, Phil Gural, W9NAW, spoke to a 430 Mhz antenna he was building, based on the 216 Mhz yagis that the club had sold a while back. It will become a 10-element yagi when he is finished.

The meeting was adjourned at 8:18 PM, followed by refreshments and eyeball QSO’s.

Respectfully submitted,
Lynn Tamblyn, K9KR

**Minutes of the Board Meeting
September 28, 2010**

The meeting was called to order at 7:07 PM. by Chairman Howard Smith.

Board members present were: Charles Craven, Chuck Dellis, George Dunco, Tom Macon, Howard Smith, and Lynn Tamblyn.

WI QSO Party - Chairman Lynn provided the Board with a top ten WIQP SOF and SOM list for the past 11 years, basically to provide further information to help with the on-going discussion regarding the award structure of WIQP. He said he wanted to speak further with the WIQP Committee before speaking to the Board. The

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WARAC Officers and Board			Hamtrix — Editor & Publisher
President	J. Howard Smith, WA9AXQ	414.425-5626	Submit newsletter material to: Tom Macon, K9BTQ 3547 S. 95 St Milwaukee, WI 53228 414 543-3878 tmacon@wi.rr.com
Vice President	Thomas W. Macon, K9BTQ	414.543-3878	
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Treasurer	Chuck Craven, WB9PUB	262.642-7628	
Director (2011)	Frank Humpal, KA9FZR	414.425-0794	
Director (2010)	George Dunco, AA9SR	262.782-6325	
Director (1 year)	Chuck Dellis, W9WLX	414.543-1134	
Board Chairperson	J. Howard Smith, WA9AXQ	414.425-5626	

TOWARD ONE MOVING PART

PART ONE

By Lynn Tamblyn, K9KR

As most of you probably know, I have been playing with the old (1955 vintage) Z-Match antenna matching device - my homebrew version that is. It does not have any active devices, so it does not qualify for our Homebrew Challenge. It is homebrew though, except for the capacitors.

While I have learned a lot, I am still in the learning mode. I thought I would share information with you over a number of articles during the Homebrew Challenge, which might help you decide to get your soldering iron hot and join the Challenge. Homebrewing is fun and you learn a lot.

At our show and tell at the September 14, 2010 "Bring Your Homebrew Project" club meeting, I presented my homebrew version of a balanced antenna line measurement device, which is going to be the basis of my plans moving forward. At left is a picture of that device. I slid two toroids over two hunks of coax so I could monitor both sides of the balanced line at the same time. In series with one lead from a toroid, there is a diode. At the end of the other toroid lead and at the diode, there is a resistor and capacitor across both leads. This allows me to monitor the secondary of the toroid as a DC voltage. Eventually, I will put the device permanently in series with the balanced line, with remote meters at the operating position, so I can watch what is going on with the antenna via the balanced feedline.



My plan is to construct a single band antenna matching series L network, with a link output for my full wave 75-meter horizontal loop. At this point I am not sure what feedline I will be using, since am not aware of how large the link coil needs to be. My ultimate goal is to have a matching network located near, or at, my loop feed point, using only one moving part (a capacitor), unless having the network outside in the weather causes too many problems, whence it will be placed indoors just inside the outside wall of the house.

Some background. The Z Match antenna tuning system consists of a parallel tuned network with a series capacitor between the network and the transmitter. The Z Match is unique today, in that the output is coupled to the antenna feedline via a link coil, wrapped around the main parallel tuned network coil. For the newer members, be aware that years ago, antennas were fed via balanced open wire feedlines, not coax. Link coupling was the norm at that time.

In my research, I have been looking for information on link coupling. Not much exists; in fact, I could honestly say VERY LITTLE exists. Even the ARRL was of no help when I emailed them. I found an article on coil design for link-coupled circuits in the July 1950 QST. The article gave me inductor and capacitor values using 52, 75 and 300 ohm lines, for Q's of 2, 3 or 4. It did not tell me how those values came about, which is what I want to know. Subsequently, I happened across a sentence in my 1960 ARRL Antenna Book that simply said "reactance equal to the impedance of the coaxial line." Ahah. Based on that single sentence, and out of curiosity, I calculated the impedances of the Z Match link coils. The calculations showed the 80/40 link coil to be

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Ham Happenings

Around the area

Ozaukee Radio Club

Wed, October 13

7:30PM

Grafton Senior Center

1665 7th. Ave.

Grafton

CQ3TUE Lunch

Tues. October 18

11:15AM

Old Country Buffet

16750 W Bluemound Rd

Wisconsin Amateur Radio Club

Wed. October 27

7:30PM

Germantown Police Dept

N112 W16877 Mequon Road

Germantown

Milwaukee Radio Amateur Club (MRAC)

Thurs. October 28

7:00PM

Redemption Lutheran Church

4057 N. Mayfair Rd

South Milwaukee Amateur Radio Club

Wed. November 3

7:00PM

Legion Post 434

9327 S Shepard Ave

Oak Creek

Amateur Radio Testing

Saturday, October 30

9:30AM

Amateur Electronic Supply

5720 W. Good Hope Rd.

Milwaukee, WI

www.w9rh.org/testing.htm

NOTE

Please do not contact meeting places for information.

WARAC David Knaus Memorial Scholarship

This scholarship is available to licensed Amateurs who are Wisconsin residents pursuing an Associate, Bachelor's or Graduate degree in any course of study. The next application deadline is March 31, 2011.

Visit the [FAR website](#) for additional information and application forms.

WARAC 2-Meter Net has Moved!

We have been offered the use of the MATC repeater on 147.045 for our off-meeting night nets on 2 meters. Thanks to Dave, KA9WXN, for inviting us to use this repeater.

- 7:00 PM
- 1st, 3rd and 5th Tuesdays
- 147.045, standard offset
- 127.3 Hz CTCSS

Everyone's Welcome!

Thanks!

Thanks and a tip of the editor's hat to the following contributors to this month's issue of **Hamtrix**



- Eric Haskins, KC9JVH**
- Chuck Craven, WB9PUB**
- Lynn Tamblyn, K9KR**



Write an Article
This means
You!
Please??

Upcoming Meeting Programs

October 12
Digital TV - An Update
 By **Dave Schank, KA9WXN**

Coming Up Soon
D-Star Digital Voice and Data
Program suggestions?

Let us know - Contact a Board member!

Scuttlebutt...

- Club members are keeping Phil, W9NAW, busier than usual with rotator work for Howard, WA9AXQ; John, K9IAC and Tom, K9BTQ as well as antenna work for John, N9LGD.
- QSO parties for Arizona, Pennsylvania, Illinois, New York and Iowa are coming up in October. For details, see the listing of state QSO parties on our website at www.warac.org/gp-list.htm

Do you have news that isn't listed here? It won't be if ye editor doesn't know about it - call or email Tom, K9BTQ!

Eric, KC9JVH
 (Continued from page 1)

even when there is significant evidence that user experience is one of the most important factors in determining the success of a software project.

Most of my radio experience has been with 2-meter and 70-cm equipment, mostly voice, but also some packet. I'm a software guy, so my radio projects have involved augmenting hardware with software. Some of my projects include a software simplex repeater, a code encoder (it was supposed to decode eventually, but never made it), and a TNC made from a used modem.

I was the lead programmer for FIRST robotics team 1103, Frankenbots, from Delavan, from 2006 through 2010. We were not a well-funded team, but did well considering our resources. Our Win-Lose-Tie record for this year was 6-2-2, we were ranked 13th of 50 at the Milwaukee regional.

My parents own the Clean Machine Laundromat in Elkhorn, where I have been servicing the equipment since I was 10. My mom is going back to school for her B.S. in Information Technology and Business Administration from UW-Whitewater, which she will receive this winter. My dad runs the business, he is the committee chair of the local Boy Scout troop, and is actively involved in the Delavan robotics team.

Eric Haskins

HOMEBREW CHALLENGE

By Chuck Craven, WB9PUB

First, I would like to thank the club members who brought in their projects for the September meeting program, Show and Tell night. The projects were very interesting and we all appreciated the time and effort that went in to building them. I was happy to see the mix of different projects that were brought in. Thank you all!

Have you selected a project for the second club Homebrew challenge? I have selected my project, or should I say projects - yes it's a two-part project. The first part is an amplifier for my 40 meter QRP transmitter. I bought the kit back in 2004 at the same time as the QRP transmitter kit was purchased. I never took it out of the bag it came in.

So Wednesday, after the meeting I took it out of the bag and started to assemble it. It is a one transistor, five-watt class C amplifier. The kit has just a few parts, a PC board (2.5 inch by 2.5 inch), a power transistor, 6 toroids with 10 feet of 26 AWG magnet wire, six capacitors and two resistors. So far most of the time has been spent

winding the toroids. Four are single layer winding, and the only challenge has been keeping track of the turns count. One toroid has two windings, 12 turns and 6 turns. It's not hard to wind, one just needs to label which winding is which. The last one is a balun core with three windings, 1 turn, 3 turns and 6 turns. It's a little more challenging to keep track of the six wire leads.

The amplifier requires a maximum of just a half a watt to drive it. My transmitter puts out 900 milliwatt of power so I have to get rid of a half a watt. To do this, I ordered two 300 ohm 1 watt resistors and an 18 ohm resistor to make a 3dB attenuator. The attenuator will be installed at the input to the amplifier. I don't want to lower the output of the transmitter as I still may want to run it barefoot. It does seem funny to talk about 900 milliwatts as a barefoot transmitter and 5 watts as a power amp! Next week I will be building the heat sink for the transistor and the box to install the board in.

I will talk about the second part of my project next month in Hamtrix.

One Moving Part

(Continued from page 3)

46 ohms at 4 Mhz and 92 ohms at 7 Mhz. This surprised me. I was never aware that a 50 ohm or 100 ohm open wire feedline was ever manufactured. 75, 300 and 450 ohms - yes. I know of an old timers trick, where either 50 or 70 ohms coax is placed in parallel, with the shields not used, for an effective impedance of double the basic value, i.e. 100 ohms or 140 ohms, using just the inner conductors of the coax as open wire feedline. In a May 1981 QST article, I found that one can also double up again, this time ending up with two sets of two coaxes in parallel, using just the inner conductors, again in open wire fashion, for a net of 50 ohms or 70 ohms. Perhaps the old timers did that when using the Z Match system. The calculations on the Z Match link still puzzle me. I have no idea how or why the Z Match works - I just know it does, with a very high Q, making tuning very sharp.

This series of articles will track my experiments. I hope to accomplish a number of things in those experiments:

Determine the best inductance value for my output link for efficient power transfer;

Determine the best "coupling value" to maintain a decent Q value, which I also found mentioned in the 1960

QST - the Q needs to be 2, 3 or 4, to keep the circuit as broad as possible, so more of the (75 meter) band can be utilized before I need to retune:

Use as small of a main inductor as possible, while trying to keep the capacitor value at a reasonable number, like less than 250 pf. Small inductance values need high capacitance values to resonate, raising the Q of the circuit so high that it affects retuning, and, at the same time, the capacitor value is so high that a premium is paid for those capacitors, if available at all, especially with the wider plate spacings that I would like so I can run more than 100 watts when needed;

Determine the best balanced feedline, to keep the SWR losses as low as possible. The more and more I read, even with open wire feedlines, higher SWR steals power. Even open wire like #12, unless equal to antenna feedpoint impedance, can cause losses of a rather high value, which reduces your transmitter power reaching the antenna. I have seen calculations using 600 ohm open wire feedline, using a 100 watt transmitter, with an antenna feedpoint of 50 ohms, that reduced power radiated to 25 percent of the 100 watts - or 25 watts radiated. Hence, I want to pick the best feedline to match my loop feedpoint so I can radiate as much of my 100 watts as I can.

Stay tuned.

WARAC ANNUAL AWARDS DINNER

SUNDAY, NOVEMBER 14, 2010

5:00PM QSO TIME — 6:00PM DINNER

THE MACHINE SHED RESTAURANT
N14 W24145 TOWER PL
(I-94 & HWY J, EXIT 294)



<p>WARAC Activities <i>the year in review</i></p> <p>Swapfest WIQP</p> <p>Field Day <i>more</i></p>	<p>Presentation of:</p> <p>2010 Scholarship Certificate</p> <p>Years of Membership Awards</p> <p>Contest Awards</p> <p>2010 Member of the Year Award</p>
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Dinner Menu

Country Fried Chicken and Ol' Fashion Pot Roast

Served 'family style' with potatoes, vegetables, cole slaw, cottage cheese, bread, beverage and dessert. Tax and gratuity included in \$16.00 price. Cash bar.

Program

(To be announced at October 12 meeting)

Contact Phil Gural or Tom Macon if you need transportation

Sign-Up sheet below— Fill out and bring to the Club meeting!



AWARDS DINNER

RESERVATION FORM

SUNDAY, NOVEMBER 14, 2010

5:00PM QSO TIME — 6:00PM DINNER

Name _____	Call _____
Number of people attending _____	Amount (\$16 each) _____

Sign-Up Deadline: November 9

Bring form and money to club meeting or mail to:

Make checks payable to:
W.A.R.A.C, Inc.

Chuck Craven, WB9PUB
W2292 Beulah Hgts Rd
East Troy, WI 53120



< None to Report >



www.warac.org

*Wedding
Anniversaries*

- October 16 - Tom and Debbie Liebe
- October 22 - Mike and Victoria Bauer
- October 26 - Phil and Janet Gural
- October 26 - Louie and Alice Mae Golembiewski
- October 26 - Frank and Judy Humpal
- November 4 - Tom and Mary Ann Macon

President's Shack

(Continued from page 1)

discussed the President position with Tom, K9BTQ, and he will consider the position. Frank, KA9FZR, has come forward and offered to take over as the Editor of Hamtrix. This answers a long-standing concern that Tom has had because he did not want to be both the President and the Editor of Hamtrix. Lynn, K9KR, will be stepping down as secretary. Chuck, WB9PUB, will continue as Treasurer. George, AA9SR, will step down as one of the two Board Members. Chuck, W9WLX, has said that he would consider the secretary position.

This then leaves unfilled positions of Vice-president and one board member. While these persons have shown an interest in serving, they do have to be elected by you, the membership. If any of you are interested in any of these positions, please nominate yourself, or ask somebody else to nominate you. This is your club, and you do get to choose the leadership once a year. I am looking for a large turnout. Be There!

While we are talking about the October meeting, there is also a program. Dave, KA9WXN, will present an update on HDTV and what has happened since the conversion to all digital TV a couple of years ago. This will be an interesting presentation.

The Annual Awards Dinner is planned for November 14th, 5:00pm at the Machine Shed Restaurant in Pewaukee. The presenter for the meeting is still being worked on, but will be announced at the October meeting. If you are a Packers fan, this is their 'bye' week, so there are no Packers Game excuses for not being at the dinner. There will be a grand prize, door prizes, awards for length of membership, and the Member of the Year award. This has always been an enjoyable evening and you really want to be there. There is a sign up sheet in this Hamtrix. Bring it with you to the meeting, and give it to Chuck, WB9PUB, with your check or cash for the dinner.

See you at the meeting...

Howard, WA9AXQ

Minutes

(Continued from page 2)

matter would be held over till the next Board meeting.

Elections - Howard mentioned that the Nominating Committee still only had one member, as Chuck Dellis, W9WLX, needs some help.

Audit Of Club Books - Howard mentioned he is waiting for the past Treasurer to return from vacation. He will then request copies of bank statements for 2008 and 2009. When he has that information, he will do a cursory overview of the 2008 and 2009 checkbooks. Following that, the Audit Committee will be asked to meet to complete the audits for both years.

Tuesday Night Net - Few members have participated. In order to check out the coverage area of the MATC repeater, there is a need for more members to participate. Promotion of this net is needed.

Programs - The October program is to be a Digital TV

update. The Board discussed a possible D-Star program for November. No program is in the works for December, although having an ATV or slowscan program was suggested. There is a possible program on homebrewed equipment for January. Charles Craven will be doing his homebrew project wrap-up at the February 2011 regular club meeting.

Scholarship 2011 - Discussion was held about continuing with FAR as our scholarship winner selection service, or moving to another provider, as well as a discussion about possibly modifying the requirements for scholarship applications. Howard will do some research on providers, and do a comparison for the Board to discuss.

Club Awards Dinner - Charles Craven mentioned he has only received a few checks for the dinner so far.

The meeting was adjourned at 8:30 PM.

Respectfully submitted,
Lynn Tamblyn, K9KR

West Allis Radio Amateur Club, Inc.
Tom Macon, K9BTQ
3547 S. 95 St
Milwaukee, WI 53228



WEST ALLIS RADIO AMATEUR CLUB, INC.

PO Box 1072
Milwaukee, WI 53201
W9FK
<http://www.warac.org>

***See our Web Page or contact us
for more information on***

- WARAC Memorial Scholarships
- Wisconsin QSO Party
- Midwinter Swapfest
- Worked all Wisconsin Counties Award
- Amateur Radio Classes

WARAC holds meetings on the second Tuesday of each month and board meetings on the fourth Tuesday of each month. Meetings are held at 7:00 PM at:

**St Peter's Episcopal Church
7929 W. Lincoln Avenue
West Allis, WI**

Entry is off the alley at the rear of the church.
A wheel chair ramp and chair-lift are available.