The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Mail all contributions to the editor, Tom Ruhlmann, W9IPR, 465 Beechwood Dr., Cedarburg WI 53012 (phone 262 377-6945). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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Web site: **www.ozaukeeradioclub.org** **Facebook: facebook.com/orcwi**

Volume XXVVII | January, 2014 | Number 1

From the President

De Ken Boston (W9GA)

I cannot believe how cold and snowy it has been so far this winter, but I guess this is Wisconsin after all. This usually means that plenty of time is available to sit inside my warm house and make plenty of radio contacts, but due to other projects and tasks, I have not been at the radio very much.

The January meeting is the yearly elections for a slate of officers to serve for the upcoming year. Your nomination committee has identified a slate of potential officers for the upcoming year, who represent a shift in responsibilities for a few members and some returning members to the board as well. Others will continue on as incumbents, as they are willing and very accomplished in their areas of responsibility. The proposed slate for 2014 includes the following nominees, and was published a few weeks ago on the webpage:

President:	K9DJT	Gary Drasch
!st VP	W9POU	Chuck Curran
2ND VP	W9FAD	John Strachota
RPT VP	KC9ONY	Tom Trethewey
Treasurer	N9UNR	Dave Barrow
Secretary	N9LOO	Brian Skrentny
Trustee	AA9W	Ed Rate
Past Pres	W9GA	Ken Boston

You will also have the option to fill in other candidates for these positions, plus we will have the fun task of selecting the “Ham of the year” and “Turkey of the year”. Think about who YOU feel has been the best member of our group to fulfill a spot in either of the above categories. There are a number of other awards which are presented in our awards banquet, which is coming up in the late winter or early spring timeline.

If you have not paid dues yet, please see Dave N9UNR to continue membership in the ORC; this is a must if you will be voting in the January meeting. You can do this from the webpage, or mail them to Dave.

I will be stepping down as president after a two year term, and want to wish everyone big thanks for placing your trust in me, and helping out at every turn with the many club initiatives. I sure have appreciated your help. This is one of the most active radio clubs in the state, and we are recognized for this fact in many other hams commentary; on the air, in bulletins and on their web sites. I plan to help out on several committees going forward, and urge you to consider this as well.

Please join us at the Grafton senior center this Wednesday January 8th at 7:30 PM. Doors open at 7 PM and many come and gather to look at the auction items and chit chat. Or you can get in your dues to Dave N9UNR, so you can vote!

73 Ken W9GA

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

2014 is the 100th anniversary of the ARRL. They are having a lot of events this year including a big convention. There is an on the air activity that lasts the full year. You accumulate points for various awards by contacting stations affiliated with the ARRL in some manner. A regular member is worth 1 point. A life member is worth 2 points. Other stations are worth more points, up to 300 points for working the ARRL president, Kay Craigie, N3KN.

One of the on the air activities is that W1AW will be used from each of the states during the year. The first week for Wisconsin starts February 12. The stations will be signing W1AW/9. W9XT has been selected as one of the stations operating as W1AW/9 that week. I don't know my exact schedule yet, but I can post it to the club if anyone is interested.

The ARRL Centennial is a big deal for the ARRL. Check out the web site for more information.

There are a huge DXpedition scheduled for January and February. It is to Amsterdam Island in the south Indian Ocean. To be a member of this DXpedition requires an unbelievable amount of dedication. Besides the personal expense, the operators will be away from home for the better part of two months. They will endure approximately 9 days of travel through some of the roughest seas to reach the island. Then they will be living on a remote island for 18 days. After packing up, they will spend another 9 days on a rocking ship on the return trip.

The costs of this trip are huge. It is estimated they will be about $450,000. Hundreds of thousands of that is just for fuel for the ship. Because of the costs and remoteness, this island is not activated very often. I worked it on 20 Meters back in 1998. It could be many decades before it happens again. Any DXpedition like this is only going to be done by top notch operators. I know several personally and most by reputation. They will do a great job.

Amsterdam Island is just about at our antipodes, the very opposite point of the planet. That could mean that the signals could be coming in from any direction or several directions at once. It also means that it is a long trip for our signals, and it might be tough on some bands. The call sign will be FT5ZM. Start looking for them to be on the air about January 24. You can get more information at www.amsterdamdx.org.

Another DXpedition is to the Sovereign Military Order of Malta. This is a unique DXCC entity. SMOM was founded as a religious order about 1050 AD. Their original purpose was to provide medical care to pilgrims to the Holy Lands. They became a military order during the First Crusade. They exist today to provide care to the sick and homeless worldwide. SMOM has international sovereignty, and is recognized as a permanent observer to the United Nations. It even issues passports and its own stamps. That is why it is a DXCC entity.

The ham station there is 1A0KM and is activated from time to time. A large group of primarily Italian hams will be activating this station from January 2-7.

January is cold month for Europeans and those of us in the northern US. So, it is a great time to travel to the warm Caribbean Islands for sun, sand and a little operating. There are at least a dozen, mostly small operations scheduled from the various islands in January. Keep an eye out if you need them.

There are a number of contests in January. The RTTY Roundup is the first weekend of January. It is a good chance to work states and countries for awards with the digital modes. Those interested in VHF can look forward to the ARRL January VHF contest. Unfortunately conditions for this one are usually not as good as the one in June with chances of sporadic E propagation, or tropo during the one in September. The cold weather and chances for snow make rover operations less pleasurable.

The CQ 160 Meter contest is from 2200Z on January 24 through 2200Z January 26. You can operate only 30 of the 48 hours, but for all practical purposes this is a night time activity. This is for the CW weekend. The phone weekend is in February. Send signal report and state. DX will give signal report and CQ Zone.

Have you ever wondered how strong your signal is at other places around the country or the world? How do your antennas compare at different locations. Of course one way is to make a lot of contacts and get signal reports and do A-B antenna comparisons. That is time consuming and subject to a lot of interpretation. There is an automated way to this without needing accommodating hams. This is the skimmer stations and the Reverse Beacon Network.

Skimmers are automated receivers that monitor the bands looking for stations calling CQ on CW and some of the digital modes like RTTY and PSK. These are then put on the Internet and can be linked into logging programs. You can see just about every ham calling CQ on the HF bands in the world in near real time. This creates some interesting challenges and opportunities.

The quickest way to check this out is to go to the Reverse Beacon Network at http://www.reversebeacon.net/
After reading the information on the landing page you can go to the main page. There you will see a world map with dots showing stations hearing them with lines connecting the CQing stations heard and the skimmer station reporting them. This is updated every few seconds.

A table showing the spots is found below the map. It shows the spotting station, spotted station, frequency, signal strength and some other information. As you watch you can see that some stations are spotted by several skimmer receivers. In order to keep the amount of data somewhat manageable, a station will not be re-spotted for 10 minutes or unless the frequency changes.

So, all you have to do is log into the RBN site and call CQ. If the band is open, and one of the 100+ skimmers on the network hears you, you can see where you are being heard, and how much above the noise level you are. To compare antennas you need to move a few KHz and call CQ again. The minimum you need to send is CQ and your call sign (CQ W9XT). If you don't want to risk someone to answer, you can send TEST instead of CQ.

The spots come pretty quickly if there is a lot of activity. You can click on the “dx spots” tab, and then select “spot search” and then type in your call sign. It will show the spots for your call for the last 24 hours.

If you want to compare antennas, keep in mind there is a lot of QSB. CQs a few seconds apart can vary 10dB or from the same reporting station. You will need to make a lot of comparisons to get good statistics for comparing your antennas over time you can a good idea how the antennas perform.

January is a cold month, and this winter is shaping up to be colder than usual. It will be a great month to spend some time in the shack.

The Computer Corner

No. 190: No. 14 Revisited

Stan Kaplan, WB9RQR
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skaplan@mcw.edu

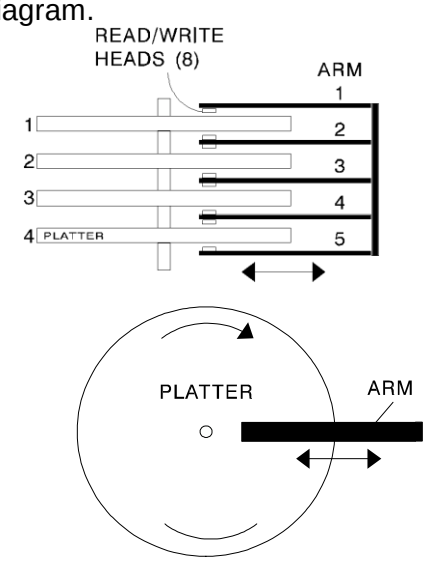
Well, it is 2014. Exactly 20 years ago, I wrote “A GOOD ONE IS NOT HARD TO FIND”, about the workings of hard drives. Interestingly, it is still accurate, though a few of the details relating to differences in size of modern drives have changed and it does not describe today’s SSD drives (solid state drives with no mechanical parts). But the article does accurately describe how a hard drive works. I thought it might be interesting for folks who did not see the original article (some were not yet born!), so here it is, exactly as printed in 1994.

No. 14, September 1994 © 1994 Stanley Kaplan, WB9RQR **A GOOD ONE IS NOT HARD TO FIND**

Of course, this title's twist on Mae West's famous comment describes that marvel of modern technology, the hard drive, also known as a fixed disk or Winchester drive (the latter title was given to it when the first model, a 3030, reminded someone of the famous 30-30 rifle of the early west). Although these gadgets are simple in concept, they just have to be about the most complex mass-produced mechanical/electronic device in history. I am truly amazed that they even work, let alone reliably. But they do work, and very reliably, too (unless you have failed to back up your data, in which case the gremlin that lives in each hard drive notices that fact and quickly causes a non-recoverable crash). Let's see if I can tell you how they work, for those who have never opened the case of a defunct hard drive. (You should, if you get the opportunity; it is a good learning experience. But make sure it is really no good. If in doubt, give it to me to check out; I will be glad to trade you a junker to open!)

Imagine an old jukebox that plays records. Remember those antiques? There was a stack of records in view, and when you put in your coin, a mechanical arm would remove your selection from the stack and drop it on the turntable. Another mechanical arm holding a needle would then move over the rotating platter and gently lower itself until the needle settled into the groove. Voile, music!

The hard drive is not too much different. A stack of several platters, each about the size of a 45 rpm record or a little smaller and each separated from its neighbor by perhaps 1/4 inch, spin constantly (but at around 3,600 rpm). A mechanical arm moves between each pair of platters. Each arm holds two tiny read/write heads, one of which floats near the platter above the arm, and the other of which floats near the platter below the arm. That means, if your hard drive has four platters, there are 5 arms holding 8 heads, as is shown in the diagram.



Sometimes the published drive specifications show it has one less head than it should (7 heads for four platters, for example). That is because one platter surface is sometimes set aside to hold head positioning data that the controller uses to move around the drive. So, the head is really there, but it is not usable by you to hold your data.

There are marked differences, though, between the way the needle gets "data" from a phonograph record and the way the read/write heads get data from (or write data to) the hard drive. First, the read/write heads do not normally contact the platters. If they do, it is called a "head crash" and the platter surface is most certainly damaged where contact was made. Normally, the heads float on a cushion of air a few micrometers above the platter. I have seen the analogy that the spaces involved are akin to a 747-jet plane flying 6 inches off the ground! That is why the smallest speck of dust inside hard drive housing can wreak havoc if it comes between a head and a platter; the speck of dust is like a 3 foot boulder lying on the ground when the 747 goes by. It can simultaneously damage both the head (the 747) and the platter (the ground below). Hard drive housings must never be opened, or the "ground" will be strewn with boulders. They are manufactured in a special clean room where dust particles are not present.

Another difference concerns the tracks of data on a hard drive platter and a phonograph record's groove. A phonograph track is spiral; that is why the arm and needle wind up near the center of the record when it has finished playing. On a hard drive, the tracks are not spiral; they are circular. The word "track" has even fallen out of use when referring to hard drives, probably partly because it might be taken to mean a spiral pattern (though the term is still in use when referring to floppies). The newer (and more descriptive) word is cylinder. A typical 20-megabyte hard drive will have two platters, four heads (held by 3 arms) and 615 cylinders. I just checked a large hard drive database and found 41 different drives with those specifications, including the famous Seagate ST225.

Each cylinder is further subdivided into short arc-shaped sectors. A 20 meg drive will typically have 17 sectors per cylinder. Each sector holds 512 bytes of data. Now let's do some arithmetic: 4 heads X 615 cylinders X 17 sectors X 512 bytes. My calculator comes up with 21,411,840. If I divide that number by 1024 (there are 1,024 bytes in a kilobyte, not an even 1,000), my calculator says 20,910k. That translates into 20.910 Mbytes, rounded to 21 Mbytes. Yep, it works out just right.

There you have it. From a mechanical standpoint, a hard drive is a glorified stack of phonograph records, with circular (not spiral) magnetic "grooves". Ah, but the electronics to read from, write to, and control the drive - that's another matter and very complex, indeed. Amazing that it all works so well! Happy computing.

"Drill for oil? You mean drill into the ground to try and find oil? You're crazy!"

Response from drillers that Edwin L. Drake tried to enlist for his project to drill for oil in 1859.

Understanding Test Equipment©

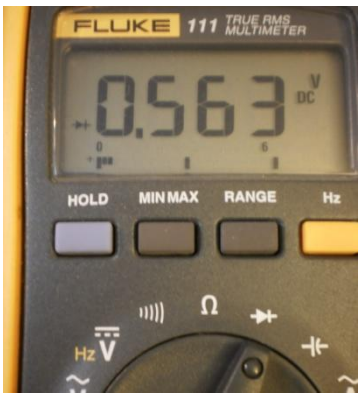
de Gary Drasch, K9DJT

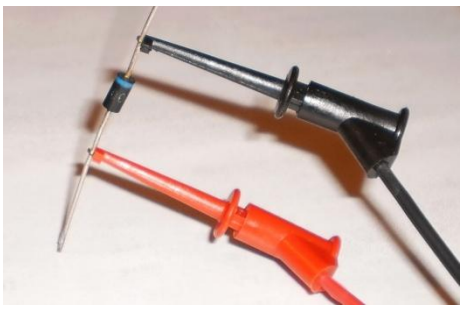
Let's take a look at something I believe is pretty simple, but yet have been asked many times of what two different symbols on a DMM (Digital Multimeter) rotary switch are used for. The first one is a small cone shape having multiple curved lines, and the second is a schematic symbol for a diode.

The cone shape with multiple curve lines is representing a speaker, and is used to measure continuity. Most of us have done continuity measurements using an ohmmeter, which is fine. But what if you just want to know if something is making contact or not, without having to look at the display of the DMM? Let's say you're looking at a pair of contacts on a relay and it is taking both your hands and eyes to active the relay in some manner. Well, by using the "Continuity Check" you can do just that. You connect your test leads across the contacts you want to check; activate the relay, and <u>LISTEN</u> for a steady tone. When you release the relay, the tone should disappear. You may check this function of the DMM just by touching the probes together, or if you're in the need of a Morse code practice oscillator, here it is.

Just connect the probes across the key terminals and you're ready to go!!! But wait, what if you are also interested in the integrity of the relay contacts? What if they're highly resistive? At this point you do need to look at the display which will indicate a resistance as high as 600 ohms. With perfect contacts the DMM should indicate 0 ohms as in the picture at the above right. If the contacts are in poor shape they might indicate a resistance like the picture to the left. In both cases, take note to the position of the rotary switch and the symbol on the left side of the DMM display. It's the little speaker symbol, and not the ohm meter.

OK…So why is there a "Diode" selection on the rotary switch? In the past when we would test a diode with a conventional VOM, we would use the ohmmeter in its lowest range and place the probes across the suspect diode, first in one direction, and then the other. With the negative on the cathode there would be a needle deflection indicating forward bias of the diode and therefore conduction. Reversing the probes should indicate no conduction, i.e., a good diode. If there was conduction in both directions, the diode is shorted. That still holds true using a DMM except for one thing. In many cases, the DMM, because of the processor it uses, doesn't provide enough voltage to forward bias a diode while in Ohms. That is why there is a separate "Diode Check" on most DMM's. The neat thing though is that it just doesn't indicate conduction when forward biased, but it will display the amount of voltage it takes to do it. Take note to the picture on the left showing the voltage and a little diode icon to the left of it.

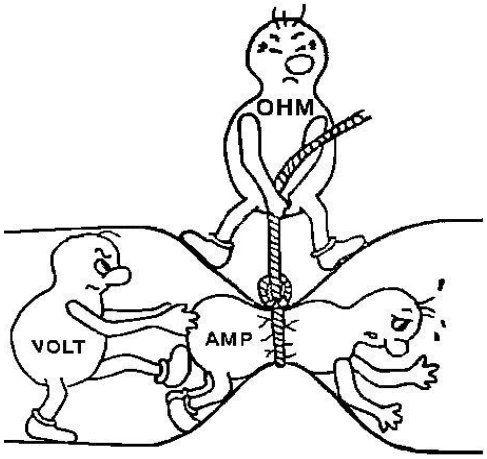




Can't remember if it is the long or short lead on an LED which is the cathode? Why not check it with the DMM? Just connect the test leads across the LED and see if it lights up. If not, reverse the leads and take note to the negative lead and the length of the LED lead it is connected to. (It will not be full brightness and therefore you must be sure you are looking at it straight on and not off to the side as in the picture.) Again, the DMM will display the voltage it takes to forward bias and turn the LED on. In this case it is 1.63 volts which is enough to turn it on but not to full brightness which is usually around 2.2 volts.

Next month we'll discuss the various current measurement capabilities and options available with a DMM. You are welcome to ask any questions on the "ORC Radio Chatter" forum board. I look forward to hearing from you.

So what do the "OHM's" do? The following example is courtesy of Dave and Stan.



73, Gary (K9DJT)

Tips, Tails & Tools

When repainting a panel it is a real challenge to match the paint color and to save the dial/knob markings that were silk screened on the panel.

As far as matching paint color I suggest the True Value hardware store in Cedarburg. They will match enamel paint but a quart size is the minimum quantity.

Now, how do you salvage the panel markings? Try using an artist's liquid masking. It can be applied with a small brush and after the paint dries, just rub it off – it's like a spot of liquid rubber. Works much better than attempting to tape the labels however, use the blue masking tape for line work and edging.

TIME TO PREPARE CW (Christmas Wish?)

De Ray Totzke (W9KHH)

Thanksgiving, Christmas, and New years have been observed. Good memories of family and friends will stay with us.

The Winter Solstice has also come and gone. What does that mean to the dedicated ham? It means the days are finally getting longer. Nights shorter. That means "Time To Prepare."

Prepare for what? For the greatest event in the realm of amateur radio. FIELD DAY. Only six months until "CQ FIELD DAY" or 'CQ FD" on CW or the buzz and tones of Digital modes fill the amateur radio spectrum. Watch those band edges.

Whether you plan to participate with the Ozaukee Radio Club or are able, due to family, business, work, medical, or other obligations, to only give a short time to on-the-air ecstasy, do it.

Radios, antennas, power sources, accessories are all a part of your plan. Do you plan to be on the air, phone, cw, digital?

There is never a real shortage of phone operators. The club is now in need of CW ops ready "to pound brass half the night." Years ago there were always enough brass pounders to keep ORC on the air for 24 hours. Now, not so many. Moving away, silent keys, lack of interest have taken their toll on the CW pool in ORC.

So!!! Now is the time to prepare!!! You have six months to sharpen your CW skills. Six months to get to 13 words per minute. 15 or 18 is better and sufficient. This is not a DX contest with keyboard CW at 35-40 WPM. This is an Emergency Preparedness Exercise. Even if you cannot approach 13 WPM at least approach the key and use it regularly before the fourth weekend in June. You'll be surprised how well you can handle 4A WI or 2B SCV or 23A EPA.

Prepare now!!! Field Day Cometh!!!

Field Day Update

By Stan Kaplan, WB9RQR

Not too shabby! The ORC scored:

1st in Wisconsin, all categories; 3rd in the Central Division, all categories; 6th in the USA, 5A

Just for the record, here is how we have stacked up in the past:

*ORC POSITION IN THE USA, CLASS 5A

YEAR	POSITION
2001	6th
2002	3rd
2003	3rd
2004	2nd
2005	3rd
2006	3rd
2007	2nd
2008	3rd
2009	4th
2010	5th
2011	3rd
*2012	*5th
2013	6th

*In 2012, we were 4A, not 5A.

Upcoming Events

West Allis ARC hamfest at Waukesha Expo Center is Saturday, January 4, 2014

Club Static

For all the QRP fans on this list (and those that should be QRP fans but haven't realized it yet) Rockmites are now once again available through an arrangement with Rex, W1REX at QRPME.com.
>
> Dave Benson, K1SWL, the inventor of the Rockmite recently decided to hang it up after something like 20 years of selling the Rockmite as well as other kits. The QRP world took a deep breath as another great kit went the way of the dinosaur. But an arrangement has been made with W1REX to provide the kits on Dave's behalf and the QRP world is breathing again.
>
> Maybe that's a wee bit embellished but the Rockmite is an excellent little QRP transceiver. They are fun to build, they perform well, and there's a great support and mod ecosystem built around them. If you want a reasonably challenging kit to build that doesn't cost an arm and a leg and provides lots of smiles per milliwatt I'd highly recommend getting one. There so much fun that I have two!
>
> Tim
> KA9EAK
>

Best wishes for a speedy recovery to Dave Barrow (back surgery), Bill Howe, Terry Koller (leg infection/ rehab) and Joyce Harvey (returning home to Nels from rehab).

Minutes– December 11 th, 2013

Gary L. Drasch (K9DJT) - Secretary

President Ken Boston, W9GA, called the meeting to order at 7:30 p.m.

Announcements/Show-and-Tell:
Nancy Stecker, KC9FZK, reported that Dave Barrow, N9UNR, had **reinjured** his back/neck and is back at Cedar Crossings for rehab. Tom Ruhlmann, W9IPR, said that he is still in the process of taking pictures of new members for the newsletter. Ed Rate, AA9W, said he has been offered 75 ohm hardline from an estate for anyone who might be interested. Stan Kaplan, WB9RQR, said that he and Bill Howe, KA9WRL, are working jointly a special presentation but would not tell us what it was about.

Program:
Our club secretary, Gary Drasch, K9DJT, provided a program titled "DXing from a City Lot". He provided an overview of his HF antenna system he constructed within the city of Port Washington. After seeing there was a wire placed across the street to a light pole, and radials extending into his neighbors yard, Jim Albrinck, K9QLP, said it should have been titled "DXing from a City Block!" Brian Skrentny, N9LOO, placed the PowerPoint presentation on the club web site for anyone interested.

50/50 Drawing:
Kristian Moberg, KC9TFP, ran the drawing and Gary Sutcliffe, W9XT, won it. Congrats Gary!

Auction:
Stan Kaplan, WB9RQR, acted as our auctioneer. As always, Stan kept it entertaining and fun. Thank you Stan.

Business Meeting:
Ken Boston, W9GA, reminded everyone that elections will be taking place next month. He has a slate of potential candidates except for a Second Vice President. He would be interested in talking with anyone who would be willing to help out.

Tom Ruhlmann, W9IPR, asked if the Spring Swapfest had been sanctioned by the ARRL. Kristian Moberg, KC9TFP, said it had not been done yet.

Nels Harvey, WA9JOB, asked for help this coming Saturday to pick up the 220 antenna from AES. Tom Ruhlmann, W9IPR, offered to do it after breakfast in Cedarburg.

Committee Reports:
1st VP Report: Art Davidson, AC9CD, had nothing to report.

2nd VP Report: Brian Skrentny, N9LOO, didn't have anything to report.

Repeater VP Report: Tom Trethewey, KC9ONY, reported that the 2 meter and 440 machines were working fine. He referred to Nels Harvey, WA9JOB, as to the status of the 220 antenna replacement. Nels said the antenna has arrived at Amateur Electronic Supply (AES) and needed to be picked up. The package is 16 feet long. Tom, KC9ONY, also mentioned that Terry Koller, KA9RFM, is in the same facility as Dave Barrow, N9UNR, and has been using the 97 machine when he is able.

Secretary's Report/Minutes: Tom Ruhlmann, W9IPR, motioned to accept last month's meeting minutes and Bill Howe, KA9WRL, seconded the motion. The motion passed.

Treasurer's Report: Report was deferred because Dave Barrow, N9UNR, was recuperating from a back/neck injury. Nancy Stecker, KC9FZK, said she had spoke with Dave and he asked her to report that all bills are paid and the club is still in the black.

Fall Swapfest:
Tom Ruhlmann, W9IPR, didn't have anything new to report on the Fall Swapfest. Bill Howe, KA9WRL, said the fliers are already out for the May swapfest.

Old Business:
Bill Howe, KA9WRL, quickly commented on a nice article in the Milwaukee Journal Newspaper relating to ham radio. Our own Tom Ruhlmann, W9IPR, was mentioned in it.

New Business:
There was none.

Adjournment:
Stan Kaplan, WB9RQR, moved to adjourn and Nels Harvey, WA9JOB, seconded the motion. Passed. The meeting adjourned to January, 2014, at 9:00 PM.

Member Attendance:
There were 26 members present along with one guest, Bob Schatzman, KD9AAD. Welcome Bob!

Actual attendance sheet is available upon request in a PDF format. Please contact Gary via email at: k9djt@sbcglobal.net

Respectfully submitted,

Gary Drasch, K9DJT
Secretary

AGENDA

January 8th, 2014

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to order: Ken Boston (W9GA)
3. Introductions.
4. Announcements, Bragging Rights, Show & Tell, Upcoming events, Etc.,
5. Election of Officers
6. 50/50 – Kristian Moberg (KC9TFP)
7. Fellowship Break
8. Auction – Stan Kaplan (WB9RQR)
9. Presidents Report – Ken Boston (W9GA)
10. 1st VP Report – Art Davidson (AC9CD)
11. 2nd VP Report – Bryan Skrentny (N9LOO)
12. Repeater VP report – Tom Trethewey (KC9ONY)
13. Acceptance of Minutes Gary L. Drasch, K9DJT
14. Treasurer's report – Dave Barrow (N9UNR)
15. Committee reports.

    Other:
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Return undeliverable copies to

The ORC Newsletter
465 Beechwood Drive
Cedarburg WI* 53012

First Class

Next ORC Meeting

Grafton Senior Citizens Center

1665 7th Avenue, Grafton
Wednesday, August 8th

7:00 PM – doors open

7:30 – Membership Meeting