



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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Volume XXXII

December, 2014

Number 12

From the President

de Gary Drasch, K9DJT



I trust everyone had a good Thanksgiving holiday and are continuing to stay warm during this early winter arrival. I'm one of those guys who actually enjoys snow but not the colder temperatures which accompanies it. For me, the warmth and coziness of my ten by twelve foot shack in the basement is very comforting during this time of year. The only thing I wish I had at my home QTH is a window looking outside as I have at my cabin operating position. It's neat to be able to watch the chickadee's and squirrels zip around while snow accumulates in the woods, all while having a cup of coffee and QSO with friends.

On November 8th, five of us gathered at the Field Day shed to somewhat finalize the clean out and organization of our gear. I say somewhat, because I think there is still more which could go, but need to say the real junk has been disposed of. A special thanks goes to Ken Boston, W9GA; Mike York, AE9MY, Mike York Jr., KC9VXP; and Chuck Curran, W9KR for their labors. In addition, the club netted \$60 from scrap aluminum due to the efforts of Mike and Mike hauling it to a recycling center. Thank you guys! Some other good news is that Nels, WA9JOB, has been in contact with the owner of the shed who said the club is welcome to use the space to the south in the shed which has recently opened up. Right now I envision placing the K9GCF antenna trailer in the area, but it also opens up the possibility of a place to store the Field Day box trailer which the club had approved the purchase of. In line with that, I think once we have the box trailer, we'll be able to better understand what is worth keeping and not as we assemble it with our equipment.

For those of you who were unable to attend last month's meeting, as I said, the club approved the purchase a box trailer, with no greater expenditure than \$2750. The committee appointed to investigate and make the purchase is Chuck Curran, W9KR; Ken Boston, W9GA, and Nate Seidler, KC9TSO. According to Chuck, there are numerous listings on Craig's list every week. Therefore, he has requested a check from our treasurer for the full amount in order to negotiate the purchase of a used one.

I have appointed a nominating committee for 2015. It consists of only two people at this time, who are Ken Boston, W9GA, and Tom Ruhlmann, W9IPR. If you are approach by either of them, it is for good reason. The reason being is that they and others believe YOU have the talents which will serve the club well. Don't let those talents go unused. Share

them! Anyone can give money or gifts to a friend or organization, which is important, but the true gift is of your time. Don't be afraid to give some it to others.

At this time, I want to wish everyone a Very Merry Christmas and Holiday Season. May you love others, be friends with many, and cherish one another year-round.

73 and God bless, Gary, K9DJT

DX'ing & Contesting

De Gary Sutcliffe (W9XT)



December has arrived with the usual hustle and bustle of the Holidays at the end. The last of the larger contests are at the beginning of the month leaving you time to fill out your list for radio goodies for Santa to deliver.

The first full weekend of December is the ARRL 160M contest. It has become very popular in the last 20 years or so as most HF rigs now include 160 meters, which most didn't before that. Antennas can still be an issue to hams living on small lots, but a little creativity and wire can provide a system that can provide a lot of fun and a chance to work on your 160 Meter Worked All States award. Speaking of awards, I finally got my

100th country confirmed on 160 meters a few months ago. It was the last of the bands below 6 meters for me to complete DXCC. The challenges are part of the attraction to this band.

Top Band is a night time band, so the start and ending times for this contest are a little different. It starts at 2200 UTC (4:00 PM local) on Friday December 5, and ends on Sunday at 1600UTC (10:00 AM local). You can operate as much of the 42 hours as you wish.

This is a CW only contest. You send a signal report and your state. You can also work DX stations which will only send a signal report. Full rules can be found on the ARRL web site.

On the other end of the HF spectrum (OK, 160M is technically a MF band) is the ARRL 10M Contest. This is one of my all time favorite contests. You can work the world on this contest with not much of an antenna when conditions are good. Conditions have been very good. During the CQWW CW contest over Thanksgiving weekend I made 345 contacts in 93 countries on 10 meters. I only did a part time effort, having other obligations both Saturday and Sunday afternoons. I did an all band effort, so did not spend all my operating time on 10. Also, I only ran 100 watts. This will probably be the last good year for conditions for quite a while, so don't miss your opportunity.

The 10 Meter Contest starts at 0000 UTC Saturday December 13 (6:00 PM local) and ends 48 hours later. You can only operate 36 hours, but this is a day time band which will open around sunrise and shut down a couple of hours after sunset.

You can work CW only, phone only, or mixed mode. A special note to those that have Technician tickets: you can operate phone on 10 Meters between 28.300 and 28.500 MHz. Exchange is signal report and state. DX stations send signal report and a serial number. Work anyone you hear. Full rules can be found on the ARRL web site.

If you don't have an antenna, a dipole is very simple, pretty small and effective if you can get it up at least 30 or 40 feet. If you have an old CB vertical laying around, it can be trimmed down to work on 10M.

Actually I lied about all the contests being at the start of the month. There is another one that has been gaining popularity on the Saturday between Christmas and New Years. It is the Stew Perry Topband Challenge. It is named after Stew Perry, W1BB who was an early pioneer of DXing on 160 meters. This one starts at 1500 UTC (9:00 AM local) December 28 and ends 24 hours later, but you can only operate 14 hours. It is CW only.

This contest is a bit different than most contests. Most contests you get points for every contact made. Some contacts such as contacts in other countries or continents might be worth more points than ones made with your own country. Then there are multipliers, such as the number of states or countries worked. Your score is the total number of QSO points multiplied by the number of multipliers. Here there are no multipliers, but the point value of the QSO depends on the distance.

The exchange is your grid square. VHF operators will know about those. Most ORC members are in EN53 or EN63. If you don't know which one you are in, you can go to http://www.levinecentral.com/ham/grid_square.php and enter your call sign. For this contest you only send the first 4 characters.

The number of points is determined by the distance between your grid square and the grid square of the station you work. A contact is worth at least 1 point, but increases by 1 point for every 500 KM. Some logging programs will tell you how many points a given contact is worth. If it doesn't, the contest sponsor calculates them for you.

The power level you run also affects how many points a contact is worth. If you run QRP (5W or less) multiply your points by 4. If running under 150 W multiply by 1.5. Over that it is just the number of points.

One complaint you sometimes hear among contesters is that it is unfair to higher power stations working QRP stations. The argument is that the other station has to work harder to hear and make a contact with the QRP station, but gets no additional benefit for working them. Stew Perry gives you an incentive to work low and QRP power stations. The distance QSO points you get for a contact are multiplied by 2 if the other station is low power. If he is a QRPer, they are multiplied by 10.

You don't know what power the other station is using. This is calculated by the contest sponsors from logs received. If a low power or QRP station sends in their log, every contact they make are credited with the bonus. This means you don't know your final score when you send it in. You have to check the web site to find out. It is interesting to see you move up and down in the standings as more logs are received.

The rules are a bit complex, but they make it a nice change of pace. You can get the full rules at <http://www.kkn.net/stew/stew.rules.txt>

This month is pretty quiet on the DXpedition front. Last month I mentioned the VU4 DXpedition. They will be on the Andaman & Nicobar Islands until Dec 10. I still have not been able to snag a contact with them but a number of the local DXers have been successful.

While there are not a lot of major DXpeditions, as always around any holiday periods there are a number of vacationers who bring along a radio. Operation is usually sporadic during free periods, so the best way to work them is just to be on the air a lot and work what shows up.

2015 will bring about a DXpedition to the most wanted DXCC country. For something this rare, you would expect this to be some small island on the other side of the world. Where it is located and what country owns it might be a big surprise to you. I will cover it next month.

Everyone have a great Christmas and New Years!

The Computer Corner

No. 202. A (FREE!) Computer Cart or Mobile Workbench

by Stan Kaplan, WB9RQR
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wb9rqr@att.net



Need a computer stand for your desktop or laptop? Or a mobile workbench/work surface you can roll into place in your office or workshop? Here is one that is small, easily moved, and has both an adequate workspace and a shelf. Cost? Nada. Nil. Nichts. Nothing. Best of all, you are contributing to the recycling program by salvaging parts that probably would have gone into a landfill, and giving them a second chance to be useful for many additional years.

Find a dealer that sells Weber grills. Very likely, they will have a “bone yard” in the back where old grills await recycling. Find one that has both of the two wheels intact and the frame (1 inch square steel tubing) appears not to be broken. Ask if you can take the steel frame (leave the grill burner and cover for aluminum recyclers – these parts are solid, cast aluminum). Use a 7/16-inch wrench to disassemble the frame into either 5 or 6 pieces (depending on the particular model). If the plastic or wood bracket trays are in good condition, save those too, with their metal brackets. Save the bolts and black plastic washers under the bolt heads. The frame and wheels easily fit in a small car’s trunk when disassembled. Cart it all home.

At home, break off and discard the plastic “hubcaps” and the metal retaining ring under the hubcap. Pliers do this easily. Slide off the wheels and remove the axel from the frame. Drill a hole for a cotter pin about ¼ inch in from each end of the axel (or, you can give the store some business by purchasing a new retaining rings and hubcaps). Clean and brighten the axel shaft with steel wool and give it a quick spray with clear plastic coating. Remove the black plastic washers from the frame bolts and buff the bolts on a wire wheel to remove any rust and dirt. Put the washers back on the bolts, reversing their position so that any cupping will face the frame. Wash the wheels and dig out any pebbles stuck in the tread.

Remove the black plastic tubing ends from all the square frame components (pry one corner with a knife and then use a screwdriver along each side). Don’t forget the two on the vertical elements that contact the floor. Wash the tubing ends and remaining square frame components with soap and water to remove any grease, and let them drain and dry. Sand the tubing lightly with fine sandpaper or steel wool to dull the sheen. Then give each component a light spray with gloss black paint, to make them look brand new.

Reassemble the frame when the paint is dry, starting with the axel and wheels (the other vertical frame member is longer than the one that holds the wheels, and it has no axel holes). When done, replace the black plastic tubing ends on the bottom of the vertical frame element that has no wheels, and on the four ends of the horizontal elements. You need 6, so go back to the store and get any missing ones from other junked frames, or buy new ones. Hardware stores carry them new, too, but if you go that route bring an old one to match the correct size.

You now have a lightweight but strong cart frame that is quite stable until you lift the handles to roll it on its wheels. Cut whatever plywood, composition board or other material you like for the top work surface and bottom shelf. Keep the bottom shelf the size of the bottom frame, and cut notches in the shelf to match the vertical members. No fastening hardware is needed if you do the notching carefully – just tip the shelf in place. Make the top work surface as large as you like within reason. Don't forget to leave about 6 inches of horizontal tubing free at the end opposite the wheels, so you can grasp them as handles when you want to move the cart. One approach to fastening the top work surface is to drill and tap four 8 or 10/32 holes in the frame top, for screws that go through the board. Use taper-head screws and countersink the holes in the board so that they do not protrude above the board.

You should observe one caution when using the cart. Use care to keep any heavy equipment you put on the top work surface centered between the two vertical frame elements. For example, I used a cart to hold two bench grinders, one with a coarse and fine wire wheel and the other with two wheels with different grinding grits. I used care to mount these between the two vertical frame elements so the whole cart does not unexpectedly tip during use.

They make wonderful mobile workbenches, and even great storage carts that can be easily moved and repositioned in your shop or office. Be prepared, though! If you make one, you will likely make more than one. My first computer carts never got to see a computer! My first two wound up as garage workbenches, and four more appeared in my computer workshop in the basement. Finally, one wound up next to my HF rig desk, holding a computer on its bottom shelf, and a printer on the top shelf. The screen, keyboard and mouse, however, are on my HF rig desk.

Finally, here is another recycling tip, especially useful if you used rough material for the top work surface and bottom shelf of your cart. Go to your hardware or other store where they sell pull-down window shades. Ask if you can snag a couple of discarded shades from the trash. Use them to cover the shelves in your project (and your workbench, too!). The plastic in these shades is white or nearly white and it makes a wonderful surface to work on because of its texture and light-reflective nature. It is easily cut with a razor knife to conform to whatever surface you are covering. Use masking tape to hold it in place along the edges. When it gets dirty or torn or full of solder burns, simply pull it off and put on a new piece. I promise that, if you try this once on your workbench, you will love it. And it is one more item that gets a second use before hitting the landfill.

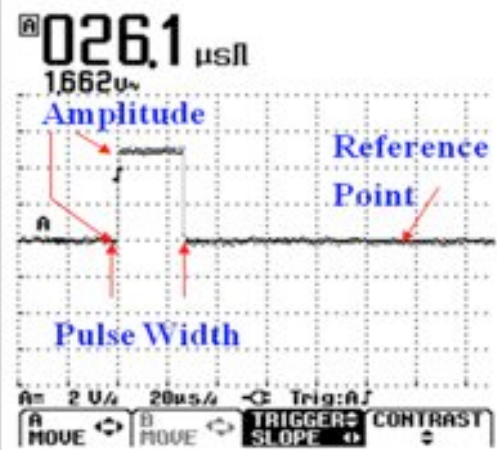
This article is a rewrite of No. 112, published about 11 years ago, and it is still relevant! Happy computing!

Understanding Test Equipment©

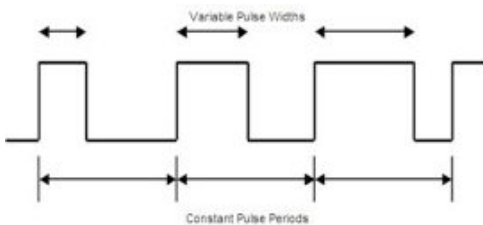
de Gary Drasch, K9DJT



The measurements we are going to look at this month are **Pulse** and **Pulse Width**. A Pulse is a type of waveform which is characterized by a fast rise and fall time. It can be a repeating or a single event but typically does not pass through the reference point. Naturally, it also has amplitude. The Pulse Width is the duration of a pulse measured in time. With the signal we are looking at to the right, the Pulse Width is 26.1 microseconds in duration and has an amplitude,



or voltage, of 1.662 volts. Digital pulses usually have a well-defined shape, e.g., rectangular or triangular, but in reality they may have various shapes at random intervals. Electrical noise would be a good example.



The illustration at the left is an example of variable Pulse Widths. Are you able to see the differences? Pulse Width measurements are of particular interest to technicians and engineers who work PWM (Pulse Width Modulation). PWM is used to control the amount of power delivered to a load without having the losses which occur within linear power systems. Variable-speed fan controllers for computers usually use PWM. The light

dimmer in your home often uses PWM for control. You'll find PWM techniques used in voltage regulators. As a matter of fact, the Alpha 8100 which I just brought back to life uses digital regulation for its grid voltage. You'll also find its usage in audio amplifiers and creating audio effects. What about your car? Have you happen to notice your mechanic, or more appropriately, technician, using an Oscilloscope while servicing your vehicle? Yup. From your ECM (engine control module) to your transmission. All controlled by Pulse Width. What a challenge the automotive industry has had in turning wrench turners into electronic technicians! In our day of digital electronics, you would be hard pressed not finding pulses used to control something.

Thus far, I've presented a bunch of different type of signals, which is all fine and good. But at this point I have only described what they are and what they might look like. How can you make use of this? As I attempted to stress during the Multimeter topics, "If you don't know what to expect from your measurement, i.e., voltage, current, resistance and now a *wave form*, why bother making it?" As with all test equipment, especially with a scope, you need to have appropriate service literature, which if good, provides you with not just simple data but also wave-form data. Even with good literature, a good technician will continually question his or her measurements. You need to ask yourself, "Does this make sense?" Chuck, W9KR, can attest to misprinted values or identified components used for alignment with his Collins equipment. Ask me of how happy I was with the Alpha service literature sometime.

As always, you are welcome to ask questions on the "ORC Radio Chatter" forum board. I look forward to hearing from you.

Meet Bill Shadid, W9MXQ

De Tom Ruhlmann, W9IPR



Bill is one of our newer members and comes to the ORC with a wealth of business and “HAM” radio experience.

He grew up in Normal IL and first became interested in electronics at about 7 through his uncle who was into radio and the early days of data processing with an insurance company. However, it wasn't until 1964 that he earned his first FCC amateur radio General Class license and this was followed about 20 years later by his FCC Advanced Class license.

Upon graduation with a business degree from Illinois State University Bill went to work with 3M who was conveniently located in Bloomington. He was with 3M for about 10 years when they sold that division and Bill relocated to Columbus Ohio where he became director of purchasing for Emerson Electric/Liebert Division who make uninterruptable power systems. After traveling the world with Liebert for 20 years he tired of airports and moved to Wisconsin about 16 years ago as Director of Purchasing for Bradley Corporation who make washing fountains and specialized bathroom fixtures. Bill has since retired from Bradley Corporation and now operates his own import business (BJB America) from his home in Germantown.

Bill has been contentiously active in “HAM” radio since earning his first license. His special interest is restoration of vintage amateur radio equipment with an emphasis on Hallicrafters. He has several Hallicrafters vintage stations but recently procured a Collins vintage station for restoration.

He especially enjoys casual contesting and for that purpose he has current equipment including the Yaesu FT1000 MK5 and Ft 2000, Kenwood TS2000 and a seldom used Drake L7 amplifier. For an antenna he is somewhat limited by space to a GAP Titan vertical.

While Bill has been an ORC member for about a year or so he is also a member of the Wisconsin Amateur Radio Club in Germantown where is a past President and is currently their technical advisor.

Bill and his wife Jean live in Germantown and they have a lawyer daughter Bonnie. He also has a casual interest in astronomy and model railroading.

Bill, welcome to the Ozaukee Radio Club.

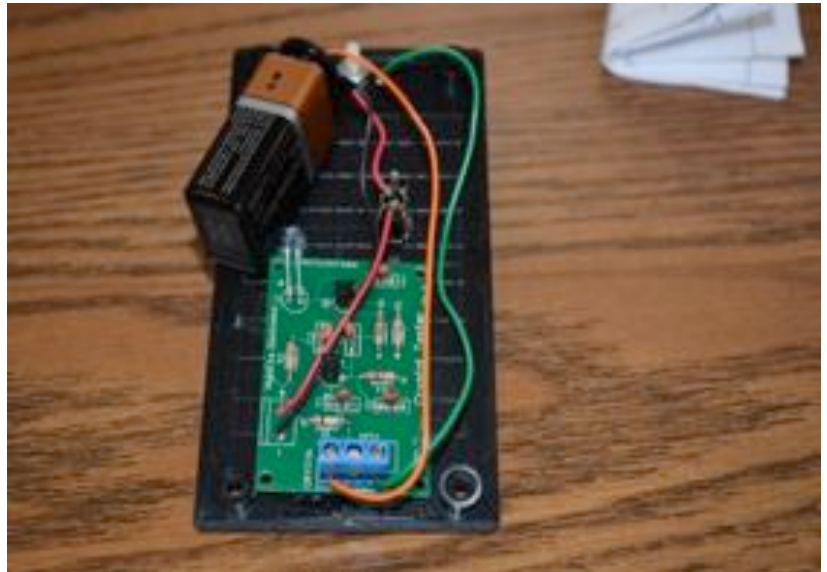
Junk Box Product – A Crystal Tester

De Chuck Curran, W9KR

Many of you have seen the variety of crystals that are used in Ham Radio equipment. I ran into a situation where I could not get any output from the 20 meter crystal oscillator circuit in my Collins KWS-1 transmitter. I realized that I had 35 different HC-6 type crystals in all of my older gear. So, I decided to fabricate a crystal tester, basically a simple oscillator. The need for one in the future is probably relatively high!

I went on the Internet and found several circuits that were perfect for my needs. At the same time, I was thinking whenever I build a circuit on a chunk of perf board; I am never impressed with its esthetic charms. It looks like HELL is another way of phrasing it---

So, I searched for someone who might just have a crystal oscillator circuit board available. I found a fellow in Florida who makes several hundred simple, low cost kits. He supplies a circuit board and a bag of parts, along with a circuit diagram. The place is called Nightfire Electronics and that is what I bought. His crystal tester kit, one of 3 or 4 that he sells, was \$12.95.



I had a plastic enclosure available, so I was all set to start. Since it had only 16 components, the construction time was about 18 minutes, even with a cup of coffee sitting there. It took another 20 minutes to mount it in a cabinet, and here is the finished unit.



It is a one transistor Colpitts oscillator. The oscillator output is fed to a second transistor that is simply a switch to turn on the green LED, indicating your crystal is properly oscillating. I have had a HC-6 crystal socket for about 40 years in one of my junk boxes, so I dug that out (took hours to find it---) and used it for this application. With any other crystal style, I will simply plug in some short test leads with an alligator clip on their ends.

This turned out well and you might want to remember the name "Nightfire Electronics" since they have quality circuit boards and components supplied for competitive prices. Their web site is at www.vakits.com. I tested my 20 meter crystal and it was good. So now I can focus on a dirty pair of band switch wafers, or the L/C circuit used to peak this crystals output. Progress has been made!

Club Static



Stan Kaplan and his wife Nancy Stecker were honored at a dinner at the Highland House in November for their service to the OZARES (Ozaukee amateur radio emergency Services) organization. Stan actually founded the organization in 1990 and acted as the local EC (emergency coordinator) through 1999. Then he took on the responsibility of Wisconsin State Sectional Emergency Coordinator and it was during this time he merged Wisconsin ARES (an FCC sponsored organization) and RACES (similar ARRL sponsored organization) organizations. This was a major accomplishment and other states have since followed this example. Stan also served as the county Emergency Manager from 1992 through 2006 and on the county HAZMAT team from 2001 through 2006.

Nancy joined OZARES in 2005 and since then has served as the coordinator for weather services and as the coordinator for the Thursday evening nets.

Between them they have 33 years of service to Ozaukee County. Many thanks to Stan and Nancy.

Minutes– November 12th, 2014

Brian Skrentny (N9LOO) - Secretary

President Gary Drasch, K9DJT, called the meeting to order at 7:31 p.m. Introductions followed.

Announcements/Show-and-Tell:

Gary, K9DJT, reminded everyone to keep Ron, W9BCK, in your thoughts and prayers as he is still recovering from a stroke. He also noted that the CQ World Wide CW DX Contest is on the 29-30th of the month.

Ted, N9LLT, invited everyone with an interest in railroads to join them for the Railroad Net held on Monday evenings at 8PM CT on the 442.100 repeater.

Bill, KA9WRL, attended Trainfest last weekend at the WI State Fair Park and noted that technology has really impacted the hobby. He observed many operators controlling their trains using an iPad for example.

Chuck, W9KR, provided an update to progress on his recent restoration of his Gold Dust transmitter now working and Gary, K9DJT, successfully repaired an Alpha amplifier that was struck by lightning.

Jerry, KC9WUI, noted that he received a flyer from R&L Electronics for a Baofeng UV5R (2m/440) for \$39.95.

Program:

Bob, KD9AAD, gave an excellent presentation on Drones/UAVs. He explained the different types, common terms, abbreviations used and various uses that hams have used them for. During the break he showed a short clip he put together using video he shot from his drone and also a video shot in downtown Milwaukee by someone he knows. Be sure to download his presentation on the ORC website at www.ozaukeeclub.org/downloads

50/50 Drawing:

Kristian Moberg, KC9TFP, ran the drawing and Bill, AC9JV, was the winner.

Auction:

Stan Kaplan, WB9RQR, ran the auction and numerous items were sold.

Officer Reports:

President's Report: The board met this evening at 6:30pm and approved spending no more than \$2,750 on a new/used Field Day box trailer for storage and to use for Dayton. This was brought up during the meeting for discussion and three members were chosen to form a committee. The selected committee members were Chuck (W9KR), Ken (W9GA) and Nate (KC9TSO). Stan, WB9RQR, made a motion to accept and Mark, AB9CD, seconded it. The motion passed. Going forward the committee will put together a list of specifications as to the size, weight, etc and start looking for a suitable trailer to purchase.

1st VP Report (Chuck, W9KR): None.

2nd VP Report (John, W9FAD): None.

Repeater VP Report (Tom, KC9ONY): Repeaters are working fine and haven't heard any complaints. Jim, K9QLP, did report that the 220 repeater was experiencing a minor issue with interference.

Secretary's Report/Minutes: Stan, WB9RQR, noted a spelling correction for Nancy to be made in last month's report. He also made a motion to accept the minutes and John, KB9RHZ, seconded the motion. The motion passed.

Treasurer's Report (Dave, N9UNR): Stan, WB9RQR, moved to accept the treasurer's report. Bill, KA9WRL, seconded the motion. The motion passed.

Committee Reports:

Exams / Class: Tom, W9IPR, reported that he anticipates 2 students from his class will be taking their exam next month.

Field Day: Ken, W9GA, noted that progress was made in cleaning out the shed to make room for Leon's trailer that he donated to the club.

Old Business:

None.

New Business:

None.

Adjournment:

Kristian, KC9TFP, moved to adjourn and Chuck, W9KR, seconded the motion. The motion passed. The meeting adjourned at 9:13 PM.

Member Attendance:

There were 39 members present and 2 guests.

A copy of the attendance sheet is available upon request in PDF format. Please contact me via email at: n9loo@arrl.net if you would like a copy.

Respectfully submitted,
Brian Skrentny, N9LOO
Secretary

Minutes of the November 12, 2014 Ozaukee Radio Club Board Meeting

Secretary: Brian Skrentny, N9LOO

Attendance: President Gary Drasch, K9DJT; 1st Vice President, Chuck Curran, W9KR; Repeater Vice President, Tom Trethewey, KC9ONY; Secretary, Brian Skrentny, N9LOO; Club and Repeater Trustee, Ed Rate, AA9W; Past President, Ken Boston, W9GA

Call to order: The meeting was held at 6:30 pm prior to the start of the regular club meeting. President Gary Drasch presiding.

Discussion about the type and size of Field Day trailer to purchase was made. One concern regarding the size of the trailer was brought up and it was agreed that the trailer should not be dependent on a large-sized vehicle in order to use it. Being able to use a standard type SUV or pickup truck with standard-sized trailer hitch is desired. It was suggested that we select a committee during the regular business meeting to decide the specifications and size requirements of the trailer.

Chuck made a motion to approve a maximum of \$2,750 for a Field Day trailer. Gary seconded it and the motion passed.

Chuck made a motion to adjourn at 7:00 pm. Tom seconded it and the motion passed.

AGENDA

December 10th, 2014

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to order: Gary Drasch , K9DJT
3. Introductions.
4. Announcements, Bragging Rights, Show & Tell, Upcoming events, Etc.,
5. Program:
6. 50/50 – Kristian Moberg, KC9TFP
7. Fellowship Break
8. Auction – Stan Kaplan (WB9RQR)
9. Presidents Report – Gary. Drasch, K9DJT
10. 1st VP Report – Chuck Curran, W9KR
11. 2nd VP Report – John Strachota, W9FAD
12. Repeater VP report – Tom Trethewey, KC9ONY
13. Acceptance of Minutes : Brian Skrentny, N9LOO
14. Treasurer's report – Dave Barrow, N9UNR
15. Committee reports.
Other:
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

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The ORC Newsletter

465 Beechwood Drive
Cedarburg WI* 53012

First Class

Next ORC Meeting

Grafton Senior Citizens Center

1665 7th Avenue, Grafton
Wednesday December 10th

7:00 PM – doors open

7:30 – Membership Meeting