

May, 2010

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Newsletter of the North Kitsap Amateur Radio Club

PO BOX 2268 -- Silverdale, WA 98383-2268

Web page: <http://www.nkarc.org>

May 2010

From the Editor's Machine:

Last month, Dave Norman, N7ORM, was nominated to serve the remainder of the term as Club president. The nomination was seconded and after the three calls for nominations without another nomination being offered, the nominations were closed and Dave became the president of NKARC. The club is fortunate to have Dave as its president. He shows much enthusiasm for the hobby; is willing to listen to suggestions from others; and is willing to try something new. He is encouraging thoughts of Special Event Stations and participation in the Scouting Anniversary event later this year. The spark is lit—Let's turn it into an active bonfire.

Last month, we started a series of articles explaining A2D devices starting with basic electronics going up to how that analog signal is converted into digital bits. In this month's segment, although short, Kris takes us through the simplest component in electronic equipment—resistors. We may know all about resistors, but it's worth the refresher.

Bob, N7KTP

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Paid your 2010 Dues?

Time flies. It is the fourth month of the year and some members have not paid their dues. The notice is probably somewhere on the desk under the issues of QST. Renew your club memberships Put a check for your dues in the mail and address it to the club You can download an application for your renewal by going to the webpage at <http://nkarc.org> and clicking on "Join NKARC" followed by "Online".

Scheduled Upcoming Events

Club Breakfast

Location: All Star Lanes – Silverdale

Date: Saturday, May 15, 2010

Time: 09:00 AM

General Club Meeting

Location: Fire Station #51 – Silverdale

Date: Saturday, May 15, 2010

Time: 10:00 AM to 12:00 PM

Project Night

Location: Fire Station #51 – Silverdale

Date: Friday, May 28, 2010

Time: 6:30 PM to 9:00 PM

Board of Directors and Business Meeting

Location: Fire Station #51 – Silverdale

Date: Friday, June 11, 2010

Time: 6:30 PM to 9:00 PM

General Club Meeting

Location: Fire Station #51 – Silverdale

Date: Saturday, June 19, 2010

Time: 10:00 AM to 12:00 PM

ARRL Field Day

Location: To be announced

Date: Saturday, June 23 to Sunday, June 27

Time: To be announced.

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CQ CQ CQ

Field Day – June 26-27

Will you be there?

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An Invitation to the Hunt

The South Wahkiakum Amateur Radio Club announces a Big Hidden T Hunt in Tacoma, WA area at Ft Steilacoom Park on Saturday, May 22, beginning at Noon. All details are shown on the following website:

www.kr7w.org

What is Fox Hunting? Here is a description from our friends down under in VK land.

This is an amateur radio activity that allows adults to play a sophisticated game of hide and seek. It is a team activity undertaken in vehicles to get close to the location of the hider - the 'fox' and then members of the team jump out of the vehicle and pursue the fox on foot. The device that is hidden is a small amateur radio transmitter; usually around 1 watt output. Once the fox has hidden the transmitter they call in the hounds and the hunt begins.

It is usual to have a team of at least four members - a driver whose job is just to drive the car, a combined beam swinger and equipment operator along with two navigators come runners. Some teams have done well with as little as two members, the introduction of small GPS car navigation units has assisted these smaller teams greatly.

The beam swinger is an important member of the team as they decide which direction the vehicle should head. There are many theories about triangulation etc but the fastest way to get to the fox is drive straight towards the signal. Thus antennas used for foxhunting need to be unidirectional.

Foxhunting can be undertaken on a number of frequencies but the most popular is the two meter amateur band. In Melbourne foxhunting on two metres has been taking place on a monthly basis for more than 40 years. At other special events such as the South East Radio Group's convention in Mount Gambier hunting on other bands has been common. A Victorian championship is run each year where hunting on a number of frequencies is undertaken as well as pedestrian hunts.

Rules are fairly basic - fox is not permitted to be on private property and hounds should not enter private property to find the fox. All road and traffic laws are to be observed at all times.

At one time, the club vice president Charles Scharlau, (NZ0I) had a demonstration of how to make a foldable delta-quad fox-hunting antenna. He got the club started in that and had a few hunts at the club ham-fest. He also developed the clubs first webpage and had a section all about fox-hunting in the NW. Now he is on the east coast and still very involved in it. Here is a link to his website:

<http://www.qsl.net/nz0i/>

which still mentions our club when he first made the web-page.

For those more curious about this fox hunting stuff, Ron (N7EM) tells us there is an extensive article in the May issue of CQ magazine. And finally, Al Warner says: "I'm in for setting up a NKARC team." Anyone else?" Contact Al at the club meeting or by phone at 360-830-3683 or by e-mail at

adw52@msn.com.

TALLY HO.....THE FOX!

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Scouting Anniversary Special Event

Paul, W7PV, published an article last month briefly outlining plans for a Special Event commemorating the 100th Anniversary of Scouting. The intent is to operate several modes on Green Mountain the afternoon of July 31st, 2010, and invite scouts/parents/leaders to participate. During this time the National Scouting Jamboree will be going on at Ft. A.P. Hill in Virginia, and it is likely that a Jamboree On the Air will also be going.

Paul has received feedback from at least one radio merit badge counselor in this area who was very enthusiastic, and he also discussed the event with Sean Neal, who is a senior district executive. This is a good opportunity for Scouts to become acquainted and get hands on experience with ham radio and would perhaps generate more membership in the club.

He is asking the club members who have volunteered for the special events committee to take on coordinating/doing one of these primary tasks:

- Radio logistics: setting up radios, tents, generators, antennas etc.
- Scout logistics: Coordinating Scout/other participation; briefing of Scout participants, signage
- PR: QST/CQ Magazine event notice, Kitsap Sun Coverage
- Certificate/QSL provision

Paul has posted the Radio Merit Badge requirements as an attachment to an e-mail. These requirements are included at the end of this newsletter. There is quite a bit to be done before the Scout can be certified as having qualified for the award. This is a golden opportunity for providing a service to the community and possibly getting some new active hams on the air. Take a look at the requirements, figure where you can help and give Paul a call.

Your thoughts/input are requested and welcome. Paul can be reached via email or cell. Feel free to call H 360-830-9050 or C 360-471-7270.

Local Nets:

There are some local area nets where Hams meet to exchange local information and “rag chew” or conduct round tables. These nets are great for meeting local Hams and establishing contacts. A couple that come to mind are:

The Gathering – Thursday evening at 1930 local on 28.350 Mhz.

The Morning 6 Meter Net – Every morning at 0840 local on 52.560 Mhz.

All are invited to check in and join the group. If you would like to see other local nets started, let us know how we can help.

Bob, N7KTP

RACES/ACS Net Sessions:

The Kitsap RACES/ACS net is held on Sunday nights at 7:30 PM on the 145.43 repeater (-600 offset, 179.9 PL tone). Check in and be informed on emergency communications in Kitsap County.

The packet radio net in on 145.63 Mhz at 7:00 PM. Connect to K7EK-5 and type “convers” at the prompt. If you cannot connect to K7EK-5 directly, connect to the ELYSSA node on the same frequency and then connect to K7EK-5.

If you have 10-meter capability, check into the HF Net on 28.330 Mhz USSB starting at 7:00 PM

There is a 6 meter FM net on 52.35 Mhz starting at 7:00 PM.

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Change Address or Call Sign?

Please notify the club secretary to update the roster if you changed your address, call sign or e-mail address. Include your phone number so that you can be contacted in case of emergency or for assistance. This will insure that you will get the latest news via the club newsletter. Either notify Warren (N7SI) at the meeting or drop a card to NKARC at PO Box 2268, Silverdale, WA 98383-2268. You can also send the changes via e-mail to Warren or Bob Tomas at bobtomas@sprintmail.com

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Keep Kitsap Green:

Help the environment by properly disposing of discharged household batteries. This includes alkaline, regular zinc carbide batteries, and batteries with heavy metals such as ni-cads and lithium ion.

The Solid Waste Facility on Hansville Road accepts the batteries as part of the county-wide recycling program. Ron Sefton, N7EM, reports the Poulsbo recycle center also accepts used batteries including lead acid types. The site is located immediately north of the Hwy 305/Viking way intersection. This is to the east of the "Walmart/Hwy 3 interchange". Otherwise, bring them to the meeting for transfer to the disposal site.

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Spring cleaning in the Shack:

“The Hamfest is cancelled meaning that the chance to get rid of the surplus gear in the shack or the garage is gone. Wrong!!!

During the annual spring cleaning in the garage, keep sorting through those gadgets and help make the XYL happy. Set the items aside and let your editor know that they are up for sale. Or trade. An ad can be placed in Solid Copy for the right price – free.

Another option is to discuss the possibility of setting aside a meeting to let members sell or trade

trade for available items. The meeting could be scheduled in late spring or early summer. It might even be a tailgate party/ meeting. Remember—one man’s surplus (“garbage”) is another man’s treasure. That old TV antenna that you have been meaning to take to the dump can be easily converted to a six meter beam by somebody who needs one and is a little short of cash. The spool of wire will make a nice dipole antenna for the new kid on the block.

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Solar Flares Happening

Early this week, the Internet was buzzing with the news of massive solar eruptions on the sun. Could these be the start of Cycle 24? On May 9th, Horace, K7ORY, sent the following to NKARC members via e-mail:

WEEKEND SOLAR FLARES: This weekend, magnetic fields around sunspot 1069 became unstable and erupted--over and over again. On May 8th alone, the active region produced more than half a dozen flares.

High-resolution movies from NASA's Solar Dynamics Observatory show that even the "minor" eruptions were jaw-dropping spectacles. Visit <http://spaceweather.com> for highlights.

A couple of days later, Dave, WA6PMX, sent the following message about solar flares:

Solar flares are interesting to look at but can cause real damage. There is news that the Galaxy 15 satellite has lost station keeping control and is drifting towards AMC 11. They think this was caused by a solar storm in April.

<http://www.google.com/hostednews/ap/article/ALeqM5jsD1ADq1E1T72pmwbLWgez1asEZgD9FKU1PO0>

If you haven’t visited the web sites, take the time to have a peak at some interesting information. Dave’s message alerts us to a probability we never thought of—Interruption of our TV and phone services. There’s a lot of hardware up there providing us services we are taking for granted.

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Radio Merit Badge Requirements

1. Explain what radio is. Then discuss the following:
 1. The differences between broadcast radio and hobby radio.
 2. The differences between broadcasting and two-way communications.
 3. Radio call signs and how they are used in broadcast radio and amateur radio
 4. The phonetic alphabet and how it is used to communicate clearly.
2. Do the following:
 1. Sketch a diagram showing how radio waves travel locally and around the world. Explain how the broadcast radio stations, WWV and WWVH can be used to help determine what you will hear when you listen to a shortwave radio?
 2. Explain the difference between a DX and a local station. Discuss what the Federal Communication Commission (FCC) does and how it is different from the International Telecommunication Union.
3. Do the following:
 1. Draw a chart of the electromagnetic spectrum covering 100 kilohertz (kHz) to 1000 megahertz (MHz).
 2. Label the MF, HF, VHF, UHF, and microwave portions of the spectrum on your diagram.
 3. Locate on your chart at least eight radio services such as AM and FM commercial broadcast, citizens band (CB), television, amateur radio (at least four amateur radio bands), and public service (police and fire).
4. Explain how radio waves carry information. Include in your explanation: transceiver, transmitter, amplifier, and antenna.
5. Do the following:
 1. Explain the differences between a block diagram and a schematic diagram.
 2. Draw a block diagram for a radio station that includes a transceiver, amplifier, microphone, antenna, and feed line.
 3. Explain the differences between an open circuit a closed circuit, and a short circuit.
 4. Draw eight schematic symbols. Explain what three of the represented parts do. Find three electrical components to match to three of these symbols.
6. Explain the safety precautions for working with radio gear, including the concept of grounding for direct current circuits, power outlets, and antenna systems.
7. Visit a radio installation (an amateur radio station, broadcast station, or public communications center, for example) approved in advance by your counselor. Discuss what types of equipment you saw in use, how it was used, what types of licenses are required to operate and maintain the equipment, and the purpose of the station.
8. Find out about three career opportunities in radio. Pick one and find out the education, training, and experi-

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perience required for this profession. Discuss this with your counselor, and explain why this profession might interest you.

9. Do ONE of the following: (a OR b OR c)

1. AMATEUR RADIO

1. Tell why the FCC has an amateur radio service. Describe some of the activities that amateur radio operators can do on the air, once they have earned an amateur radio license.
2. Using proper call signs, Q signals, and abbreviations, carry on a 10 minute real or simulated radio contact using voice, Morse Code, or digital mode. (Licensed amateur radio operators may substitute five QSL cards as evidence of contacts with amateur radio operators from at least three different call districts.) Properly log the real or simulated ham radio contact and record the signal report.
3. Explain at least five Q signals or amateur radio terms you hear while listening.
4. Explain some of the differences between the Technician, General, and Extra Class license requirements and privileges. Explain who administers amateur radio exams.
5. Explain how you would make an emergency call on voice or Morse code.
6. Explain the differences between handheld transceivers and home "base" transceivers. Explain the uses of mobile amateur radio transceivers and amateur radio repeaters.

2. BROADCAST RADIO

1. Prepare a program schedule for radio station "KBSA" of exactly one-half hour, including music, news, commercials, and proper station identification. Record your program on audiotape or in a digital audio format using proper techniques.
2. Listen to and properly log 15 broadcast stations Determine the program format and target audience for five of these stations.
3. Explain at least eight terms used in commercial broadcasting, such as segue, cut, fade, continuity, remote, Emergency Alert System, network, cue, dead air, PSA, and playlist..

3. SHORTWAVE LISTENING

1. Listen across several shortwave bands for four one-hour periods - at least one period during daylight hours and at least one period at night. Log the stations properly and locate them geographically on a globe.
2. For several major foreign stations (BBC in Great Britain or HCJB in Ecuador, for example), list several frequency bands used by each.
3. Compare your daytime and nighttime logs ; note the frequencies on which your selected stations were loudest during each session. Explain the differences in the signal strength from one period to the next

A to D Converters – How They Work

Part 2 – Components -- Resistors

Now that we have had a brief overview of the fundamentals we can start talking about some components.

Resistors are components manufactured to have a specific value of resistance, and are used to control circuit current. There are two types of resistors, fixed and variable. Fixed resistors have a constant resistance value and do not change except for temperature or aging. Variable resistors may be adjusted for a wide range of resistances.(1)

Carbon resistors come in a variety of shapes and sizes. The chemical composition of the carbon filler determines their individual resistance. Most carbon resistors have a range from 1 ohm to several mega-ohms (millions of ohms). In most common electrical and electronic applications the resistor tolerance is acceptable and they are cheap to produce. The down side is that they do change in value and have a limited power-handling capability.(2)

Wire wound resistors are made from a copper-nickel-zinc (Cu-Ni-Zn) alloy. The quality of the alloy as well as the quantity of each metal determines the resistance of the wire. They have a high power-handling capability, and have very accurate values and tolerances, but they are expensive to produce and can be bulky. They also have the disadvantage of being somewhat inductive (more on that in a different discussion). One of the more common applications is as a potentiometer or a rheostat. A potentiometer has two fixed connections and one variable connection, used to tap various voltages from the circuit. A rheostat has one fixed and one variable connection, used as a true variable resistor.(3) As a note, the drawings following this article are NOT to scale.

Think about this for a while: If you are designing a circuit and you desire high efficiency, then make sure that the resistance of the load is high with respect to the source. If you are designing a circuit and you desire maximum power transfer, then make sure that the resistance of the load is equal to the source resistance.(6) Doesn't this sound like what you need to do to get your antenna to work well?

(1) Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

(2) Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

(3) Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

(4) Drawing from Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

(5) Drawing from Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

(6) Nuclear Field "EM" A-School notes of FN Stafford, June 1998, March 1998 Edition.

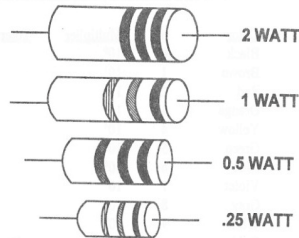
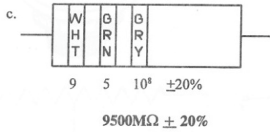
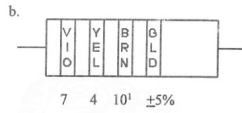
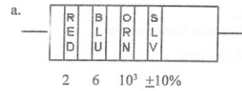
Resistors aren't the only component in your radio. Soon we will talk about the other components such as inductors, capacitors, and solid state components. In the mean time try not to let the magic smoke out!

73, Kris (KF7GWG)

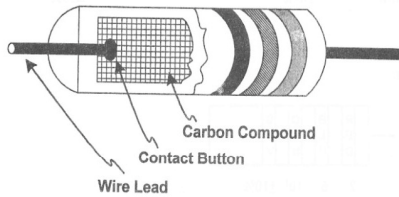
Resistor Color Code Chart

Color	#	Multiplier	Tolerance	Reliability
Black	0	10^0		
Brown	1	10^1		1%
Red	2	10^2		0.1%
Orange	3	10^3		.01%
Yellow	4	10^4		.001%
Green	5	10^5		
Blue	6	10^6		
Violet	7	10^7		
Gray	8	10^8		
White	9	10^9		
Gold		10^{-1}	$\pm 5\%$	
Silver		10^{-2}	$\pm 10\%$	
None			$\pm 20\%$	

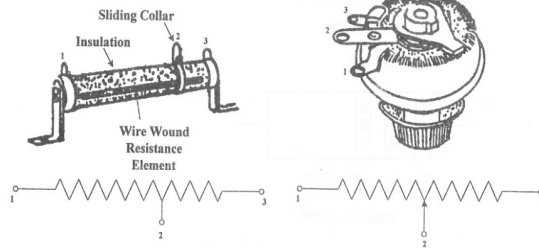
Examples:



(5)



Carbon Resistors



Wire Wound Resistors