

MRAC Hamateur Chatter

The Milwaukee Radio Amateurs Club

September 2015 Volume 23, Issue 9

One of the World's Oldest Continuously Active Radio Amateur Clubs—since 1917

Presidents Letter

I hope everyone had a fun and relaxing summer. Now that our summer break is over, it is time for us to get back to our regular schedule of meetings and events. At this month's meeting on September 24, we will talk about our ham radio booth at Maker Faire Milwaukee. The second annual Maker Faire will be held on September 26-27 during the free Harvest Fair event at State Fair Park in the Wisconsin Expo Center Hall A. This is a multi-club effort to promote ham radio to the public. Last year, over 30,000 people attended the inaugural Maker Faire over the course of 2 days, so this is a fantastic opportunity for exposure and education about the hobby.

We do need volunteers to help staff the booth over the two-day event. We will set up a special event station in our booth using an ICOM 7600, provide information about the Wisconsin High-Altitude Balloon project, demonstrate Raspberry Pi for ham radio, showcase the history of MRAC, and provide activities for the kids including making their own QSL cards and "callsign" name badges and teaching the basics of morse code. If you are able to help on either day for a few hours, please contact me (KA9WXN) so we can get you scheduled.

If you can't help out, please still stop by the booth and wear your callsign badge. We'd love to see members from all clubs come out and show support for the hobby. Remember that the Maker Faire (and entry to Harvest Fair) is free, however parking on the grounds is \$5.

Also at the meeting, we will discuss ideas for a new logo design. The board has decided to hold a contest to design our new logo to celebrate our 100 years. The winner of the contest will receive a new club jacket with the logo and their name, and a year's free club membership starting in January 2016. Our club members will pick the winning logo at the November club meeting.

You don't need to be a professional artist to enter, so let your creativity shine. We will have a professional graphics designer create the official logo based on your design. Logo submissions are due by the November 19 meeting, which is a week earlier than normal due to Thanksgiving.

Finally, our centennial anniversary is just over 16 months away. We really need volunteers to help plan our year-long celebration. As a club, we need to do something special to commemorate this historic event, and there has been talk about having a banquet, or holding a convention, or applying for W100RH and having several special event stations. This is a huge milestone for this organization, and we will need everyone's assistance and participation. Please start thinking about what you'd like to see for the centennial anniversary, and how you can help.

Look forward to seeing you at the meeting and at the Maker Faire Milwaukee!

73 Dave, KA9WXN



MRAC Officers:

Terms Expiring in 2016

- President – Dave, KA9WXN
- V-President– Dan, N9ASA
- Secretary – MBH, KC9CMT
- Treasurer – MBH,,KC9CMT
- Director – Mark, KB9RQZ

Terms Expiring in 2017

- Director – Al, KC9IJJ
- Director – Hal , KB9OZN

The Club Phone Number is: (414) 332-MRAC or

(414) 332- 6 7 2 2

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www.w9rh.org

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Board of Directors' Minutes

Board of directors meeting called to order at 7:09 pm by Dave Shank, KA9WXN club president.

Director's present: Michael KC9CMT, Dave KA9WXN

Absent: Dan, N9ASA, Al KC9IJJ, Mark, KB9QRN, Hal, KB9OZN

Preliminary Discussion: The Treasurers report was presented by Michael, KC9CMT. The June balance ended with \$20,077.59 in Club accounts. We still will be sending the ARRL Spectrum Defense Fund \$100 in mid 2015. Joe, N9UX will be launching another balloon in September, date and time TBD. September BOD meeting will be on the 21th. The Monday before the club membership meeting as usual. MRAC will be getting a table at the January West Allis Club Swapfest. Open another checking account to facilitate payments from PayPal, at WaterStone Bank. Will need to talk to Redemption church about present and future reserved space for club meetings. Invoices for Food, and supplies from the club picnic need to be submitted to the treasurer.

We will continue to use the Google spreadsheet for the 2016 swapfest. A place has been reserved for the Makers group Faire the last weekend of September for a club special event station.

Meeting programs: The club meeting September 24th will be on our roll at the Makers Faire in September of 2015, and a discussion on the clubs Logo contest. An October meeting about antenna maintenance in preparation for bad weather months was suggested. November meeting - Mesh networks; loading software on wireless access points to gain access to radio bands. No meeting in December, January TBD. February will be the Food Gathering that goes along with the MRAC/MAARS swapfest. Dave, KA9WXN will talk to Don about a program on radio telescopes. Getting press on the Ham Nation Podcast would be good press for our 100th Anniversary in 2017.

Field Day: The MARC field day effort will be at Konkel park in Greenfield again in 2016. The board would like to have a working committee on the field day effort for the 2016 effort. The MRAC will provide food for people that are part of the encampment, not for guests as in past years.

Special Project Committees & Committee reports:

Repeater Report: The Yaesu Fusion repeater that Yaesu gave the club a great deal on, it is on line as of August. The cost of this repeater was a real bargain at \$300. Dave, WB9BWP is the repeater trustee and a control operator. The club would like more than one repeater control operator. A club repeater control operator should be a extra class operator to have the kind of privileges that are necessary to operate field day to its fullest extent.

New Business: The Makers' Faire has accepted our application to be a part of the State Fair Park event. It runs the weekend of the Harvest Faire and draws 35k people. We have asked to be on the Southeast area of the center, where we can be by a door and run cable outside to an antenna setup. The LeFrog group was mentioned has a partner in this venture. The clubs' anniversary is in 2017. Dave, KA9WXN has started discussions on possible events for the clubs' 2017, 100th anniversary.

We need to start planning event stations for the entire year of 2016/17. Dave, KA9WXN will attempt to generate interest among the membership in forming a committee to handle planning. Dave, KA9WXN talked to the people from Gold Medal that does embroidery, such as patches, hats, and jackets. A contest to design a new logo for the club for its 100th year celebration. The winner of the contest will get a one year free club membership. Will the logo be for the 100th yr. or for then on. New logos will be picked by a blind election by the membership. The winner should be picked by the November meeting. 2017 is the 100th anniversary. The contest will be open to club and non-club people, but must hold a Amateur Radio License to be in the contest. Copy to be included in the new Logo, ARRL affiliation, Club 100th year, and callsign with Frequency. Dave, KA9WXN will work on the specifications for the new Logo. The information will be sent out on the Yahoo group page. There has been some talk among the board members regarding a Dinner Party during the 100th anniversary year.

Swapfest Committee: The club would like to promote the 10-10 international radio club. Dan or Dave are going to contact American Science and Surplus, and the Markers' people about having a table at the MRAC swapfest in February of 2016. Tickets will be printed in December, with advanced table sales and ticket orders mailed the last week on January. Photos should be taken of all club activities and uploaded to the club Facebook page and copied to the newsletter editor for insertion into the paper.

Special Projects: The club needs someone to take over the FM simplex contest for February of 2016. The club really needs PR and recruitment, business cards have been printed and will be handed out at all personal activities. The club would like to schedule special outing in the park, on some week night when the club will setup a station and perhaps grill out. Joe, N9UX has postulated about doing another balloon launch in 2016. Work needs to start on the 100th anniversary celebration that falls in 2017. The club needs to get started working on the design of the booth that we will have on Saturday Sept. 26th, and Sunday Sept. 27th, during the Makers Faire, which is held in conjunction with Harvest Fair, at the Wisconsin State Fair Park in 2015. The MRAC has been placed on a waiting list for the State Adopt A Highway program for our nearby area of Milwaukee County.

Clubs throughout the country need to use the spectrum that they have been given. The 220mhz band is not used very often in the Milwaukee area. A Club calendar is a project that the Board of Directors' would like to pursue. We would like to organize meeting programs far enough in advance that a calendar of programs can be produced.

A motion was made to adjourn the meeting at 7:45 pm by Dave, KA9WXN seconded by Michael, KC9CMT. Meeting adjourned at 7:48 pm.

The Library room will be returned to an orderly condition as it was when we came in.

What You Should Know for the 2015-2016 Influenza Season

What sort of flu season is expected this year?

It's not possible to predict what this flu season will be like. Flu seasons are unpredictable in a number of ways. While flu spreads every year, the timing, severity, and length of the season varies from one year to another.

Will new flu viruses circulate this season?

Flu viruses are constantly changing so it's not unusual for new flu viruses to appear each year. For more information about how flu viruses change, visit [How the Flu Virus Can Change](#).

Will the United States have a flu epidemic?

The United States experiences epidemics of seasonal flu each year. This time of year is called "flu season." In the United States, flu season occurs in the winter; flu outbreaks can happen as early as October and can last as late as May. CDC says the flu season begins when certain key flu indicators (for example, levels of influenza-like illness (ILI), hospitalization and deaths) rise and remain elevated for a number of consecutive weeks. Usually ILI increases first, followed by an increase in hospitalizations, which is then followed by increases in flu-associated deaths.

When will flu activity begin and when will it peak?

The timing of flu is very unpredictable and can vary in different parts of the country and from season to season. Most seasonal flu activity typically occurs between October and May. Flu activity most commonly peaks in the United States between December and February.

What should I do to protect myself from flu this season?

CDC recommends a yearly [flu vaccine](#) for everyone 6 months of age and older as the first and most important step in protecting against this serious disease. People should begin getting vaccinated soon after flu vaccine becomes available, if possible by October, to ensure that as many people as possible are protected before flu season begins. However, as long as flu viruses are circulating in the community, it's not too late to get vaccinated.

In addition to getting a seasonal flu vaccine if you have not already gotten vaccinated, you can take [everyday preventive actions](#) like staying away from sick people and washing your hands to reduce the spread of germs. If you are sick with flu, stay home from work or school to prevent spreading flu to others.

What should I do if I get sick with the flu?

Antiviral drugs are prescription drugs that can be used to treat flu illness. People at high risk of serious flu complications (such as children younger than 2 years, adults 65 and older, pregnant women, and people with certain medical conditions) and people who are very sick with flu (such as those hospitalized because of flu) **should** get antiviral drugs. Some other people **can** be treated with antivirals at their health care professional's discretion. Treating high risk people or people who are very sick with flu with antiviral drugs is very important. Studies show that prompt treatment with antiviral drugs can prevent serious flu complications. Prompt treatment can mean the difference between having a milder illness versus very serious illness that could result in a hospital stay.

Treatment with antivirals works best when begun within 48 hours of getting sick, but can still be beneficial when given

later in the course of illness. Antiviral drugs are effective across all age-and risk groups. Studies show that antiviral drugs are under-prescribed for people who are at high risk of complications who get flu. This season, three FDA-approved influenza antiviral drugs are recommended for use in the United States: oseltamivir, zanamivir and peramivir.

When should I get vaccinated?

CDC recommends that people get vaccinated against flu soon after vaccine becomes available, if possible by October. It takes about two weeks after vaccination for antibodies to develop in the body and provide protection against the flu. Doctors and nurses are encouraged to begin vaccinating their patients soon after vaccine becomes available, preferably by October so as not to miss opportunities to vaccinate. Those children aged 6 months through 8 years who need two doses of vaccine should receive the first dose as soon as possible to allow time to get the second dose before the start of flu season. The two doses should be given at least four weeks apart.

Where can I get a flu vaccine?

Flu vaccines are offered by many doctor's offices, clinics, health departments, pharmacies and college health centers, as well as by many employers, and even by some schools. Even if you don't have a regular doctor or nurse, you can get a flu vaccine somewhere else, like a health department, pharmacy, urgent care clinic, and often your school, college health center, or work.

Are there new recommendations for the 2015-2016 influenza season?

Recommendations on the control and prevention of influenza are published annually, in late summer or early fall. Recommendations for the 2015-2016 season will be made available in a Morbidity and Mortality Weekly Report (MMWR). During the 2014-2015 flu season, CDC recommended use of the nasal spray vaccine (LAIV) for healthy* children 2 through 8 years of age, when it was immediately available and if the child had no contraindications or precautions to that vaccine. For more information, see the [2014-2015 MMWR Influenza Vaccine Recommendations](#). However, on February 26, 2015, the Advisory Committee on Immunization Practices (ACIP) did not renew the preferential recommendation for LAIV for the 2015-2016 season. The ACIP recommendations must be approved by the CDC Director at which point they are published in the MMWR and become CDC policy. More information on this vote is available at the [CDC Newsroom](#). (*"Healthy" in this instance refers to children 2 years through 8 years old who do not have an underlying medical condition that predisposes them to influenza complications.)

What flu viruses does this season's vaccine protect against?

Flu vaccines are designed to protect against the main flu viruses that research suggests will be the most common during the upcoming season. Three kinds of flu viruses commonly circulate among people today: influenza A (H1N1) viruses, influenza A (H3N2) viruses, and influenza B viruses. All of the 2015-2016 influenza vaccine is made to protect against the following three viruses:

- an A/California/7/2009 (H1N1)pdm09-like virus
- an A/Switzerland/9715293/2013 (H3N2)-like virus
- a B/Phuket/3073/2013-like virus. (This is a B/Yamagata line-age virus)

Some of the 2015-2016 flu vaccine is quadrivalent vaccine and also protects against an additional B virus (B/Brisbane/60/2008-like virus). This is a B/Victoria lineage virus. Vaccines that give protection against three viruses are called trivalent vaccines. Vaccines that give protection against four viruses are called quadrivalent vaccines.

How effective is the flu vaccine?

Influenza vaccine effectiveness (VE) can vary from year to year and among different age and risk groups. For more information about vaccine effectiveness, visit [How Well Does the Seasonal Flu Vaccine Work?](#)

How long does a flu vaccine protect me from getting the flu?

Multiple studies conducted over different seasons and across vaccine types and influenza virus subtypes have shown that the body's immunity to influenza viruses (acquired either through natural infection or vaccination) declines over time. The decline in antibodies is influenced by several factors, including the [antigen](#) used in the vaccine, the age of the person being vaccinated, and the person's general health (for example, certain chronic health conditions may have an impact on immunity). When most healthy people with regular immune systems are vaccinated, their bodies produce antibodies and they are protected throughout the flu season, even as antibody levels decline over time. Older people and others with weakened immune systems may not generate the same amount of antibodies after vaccination; further, their antibody levels may drop more quickly when compared to young, healthy people.

For everyone, getting vaccinated each year provides the best protection against influenza throughout flu season. It's important to get a flu vaccine every season, even if you got vaccinated the season before and the viruses in the vaccine have not changed for the current season.

Will this season's vaccine be a good match for circulating viruses?

It's not possible to predict with certainty if the vaccine will be a good match for circulating viruses. The vaccine is made to protect against the flu viruses that research indicates will likely be most common during the season. However, experts must pick which viruses to include in the vaccine many months in advance in order for vaccine to be produced and delivered on time. And flu viruses change constantly (called drift) – they can change from one season to the next or they can even change within the course of one flu season. Because of these factors, there is always the possibility of a less than optimal match between circulating viruses and the viruses in the vaccine.

Over the course of the flu season, CDC studies samples of circulating flu viruses to evaluate how close a match there is between viruses used to make the vaccine and circulating viruses.

One of the ways that helps CDC evaluate the match between vaccine viruses and circulating viruses is with a lab process called '[antigenic characterization](#).' Results of antigenic characterization testing are published weekly in CDC's [FluView](#).

Can I get vaccinated and still get the flu?

Yes. It's possible to get sick with the flu even if you have been vaccinated (although you won't know for sure unless you get a flu test). This is possible for the following reasons:

- You may be exposed to a flu virus shortly before getting vaccinated or during the period that it takes the body to gain protection after getting vaccinated. This exposure may result in you becoming ill with flu before the vaccine begins to protect you. (About 2 weeks after vaccination, antibodies that provide protection develop in the body.)
- You may be exposed to a flu virus that is not included in the seasonal flu vaccine. There are many different flu viruses that circulate every year. The flu vaccine is made to protect against the three or four flu viruses that research suggests will be most common. Unfortunately, some people can become infected with a flu virus the flu vaccine is designed to protect against, despite getting vaccinated. Protection provided by flu vaccination can vary widely, based in part on health and age factors of the person getting vaccinated. In general, the flu vaccine works best among healthy younger adults and older children. Some older people and people with certain chronic illnesses may develop less immunity after vaccination. Flu vaccination is not a perfect tool, but it is the best way to protect against flu infection.

Weather Awareness

Fall Season Safety Tips



By [Kate Miller-Wilson](#)

As the air turns cooler and leaves drop from the trees, it's important to keep a few important fall safety tips in mind. With proper precautions and safety awareness, your family can enjoy that crisp autumn weather while avoiding some of the dangers that come with the season.

Fire Safety Tips for Fall

When the weather turns cold most people spend more time inside their homes using fireplaces, furnaces, and heaters to keep warm. There's

nothing quite as cozy as a fire, but it presents some safety hazards. Keep these tips in mind.

Service Your Furnace

Before the cold autumn and winter weather sets in, be sure to call your heating and cooling company to service your furnace. A specialist should inspect the furnace to make sure everything is in working order and that there are no leaks.

Use Fireplaces Safely

Keep that fire in its proper place by using a fireplace screen to keep sparks from flying out of the fireplace. Never leave a burning fire unattended, and make sure a fire in a fireplace is completely out before going to bed.

Use Caution with Space Heaters

A space heater can be an effective way to warm up a chilly room, but it's essential that you read the instructions on the unit before you use it. If your space heater requires venting, make sure you have vented it to the outdoors. Never use your stove or oven to heat your home; only use space heaters that are approved for this purpose. Always allow at least three feet of empty area around space heaters.

Reconsider Leaf Burning

The [Air Defenders](#) reports that burning leaves produces dangerous and cancer-causing chemicals and urges homeowners to avoid disposing of leaves this way. If you decide to burn leaves, wear a protective mask. Burning leaves should only be attempted far away from a house or other structures on a homeowner's property. Always check the weather forecast before starting to burn leaves. This activity should not be attempted in windy conditions.

Exercise Candle Caution

Candles are a great way to give a room that warm glow, but they can also cause fires. According to the [National Candle Association](#), almost 10,000 home fires start with improper candle use. Never leave candles burning if you go out or go to sleep, and keep your candles away from pets and kids.

Change Smoke Alarm Batteries

Change the batteries in your smoke alarms and carbon monoxide detectors when you turn back your clocks for Daylight Saving Time. Make sure to check the alarms with the new batteries installed. Check and replace any home fire extinguishers that have expired.

Safety Tips for Fall Driving

There's nothing more beautiful than a [fall drive](#), but this season brings some unique hazards for drivers. Being aware of these potential dangers can help keep you and your family safe and prevent accidents.

Be Aware of Poor Visibility

Falling leaves, while beautiful, can obscure your vision, as can rain and fog. Shorter days are part of the fall season, making it more difficult to see children playing or people walking and riding bicycles. Be aware of limitations in your visibility, and slow down if you can't see well. Use your dimmed headlights in bad weather with decreased visibility. If possible, try not to be on the roads when it's hard to see.

Watch for Children

Children love to play in piles of leaves, so use extra caution where leaves are piled at curbside. In addition, the school bus will be making its rounds now that school is back in session. In addition to educating children about [back-to-school safety](#), it's important to stay vigilant as a driver.

Slow Down on Wet Pavement

In many areas of the country, rain is common during the autumn. If it's raining, keep a safe distance from the car in front of you. Wet roads make it more difficult to stop. When wet leaves are on roadways, they make the pavement slippery, and it can be difficult for drivers to get good traction.

Be Prepared for Bright Sunlight

When sunrise occurs later in the morning, it can also present challenges for drivers. Have a pair of sunglasses in the vehicle to wear when the sun is bright is a good strategy. If it becomes too difficult to see because of bright sunlight or glare, a good strategy is for the driver to pull over until he or she can see again.

Watch Out for Ice

As the temperatures drop further at night, a driver will need to spend some extra time in the morning scraping frost off his or her vehicle. Shady spots on the roadway may be home to black ice, which a driver may not be aware of until his or her car starts to skid on it.

Safety Tips for Fall Boaters

According to a report from the [US Coast Guard](#), autumn boating accidents are far more likely to be fatal than those that occur during the summer months. Although there are many more boating accidents in the summer season, boaters involved in accidents during the fall months are exposed to cold water and other weather hazards. Keep these tips in mind for safe autumn boating.

Be Prepared for Changing Weather

Since fall weather can change quickly, you should always be prepared for possible cold, windy, and wet weather even if the sun is shining. Stay closer to shore, so you can turn back if the weather changes. Bring appropriate clothing, such as warm coats, rain gear, and gloves.

Watch for Signs of Hypothermia

Small open boats combined with cold, wet weather can lead to possible hypothermia. According to the [Mayo Clinic](#), these are a few of the signs you should know:

- Shivering or trembling
- General lack of coordination, including stumbling and dropping things
- Drowsiness, confusion, and apathy
- Mumbling and slurring of words

Weak pulse and shallow breathing

Tell Others About Your Trip

Make sure you tell a friend or family member your boating plan and your expected return time. There are fewer boaters in the fall to help in the case of an accident or emergency.

Always Wear Life Jackets

Wearing your life jacket, while always a smart move, is even more important in the fall. If you should accidentally fall overboard, the cold water will quickly drain away your strength.

Autumn Home Maintenance Safety Tips

Fall is the time for yard clean-ups and readying your house for the cold winter ahead. Keep these safety tips in mind as you work.

Look Up Before Pruning Trees

If you have decided that your yard needs to be spruced up by trimming your trees, be sure to look up and survey the area carefully before you start. Make careful note of where power

lines are located before you set up your ladder so that it is positioned away from them.

Use Caution on Ladders

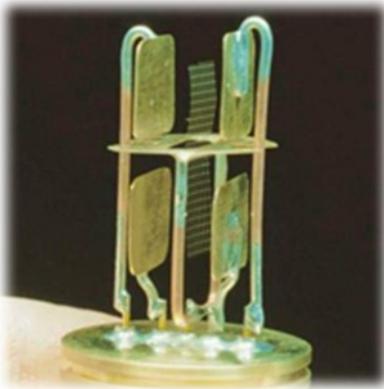
Wearing appropriate footwear is important when using a ladder; shoes or boots may be wet, causing you to slip as you climb the ladder. The ladder should be positioned on a flat surface before use. Be sure that the tools you are using are specifically designed for this purpose and are in good condition before starting work.

Clean Up Fallen Leaves

Keep your driveway and walkway clear of falling leaves. Wet leaves can create a hazard for pedestrians in the fall by making sidewalks slippery. Later in the season, snow may mix with leaves to increase the risk of falling. Homeowners should mulch or rake up fallen leaves and dispose of them according to local bylaws.

The Experimenters Bench

How Oscillators Work



Oscillators produce electronic signals.

Oscillators are important in many different types of electronic equipment. For example, a [quartz watch](#) uses a [quartz oscillator](#) to keep track of what time it is. An AM radio transmitter uses an oscillator to create the carrier wave for the station, and

an AM radio receiver uses a special form of oscillator called a **resonator** to tune in a station. There are oscillators in [computers](#), [metal detectors](#) and even [stun guns](#).

To understand how electronic oscillators work, it is helpful to look at examples from the physical world. In this article, you'll learn the basic idea behind oscillators and how they're used in electronics.

Oscillation Basics

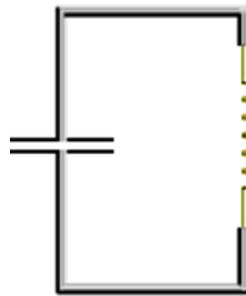
One of the most commonly used oscillators is the [pendulum](#) of a clock. If you push on a pendulum to start it swinging, it will [oscillate](#) at some **frequency** -- it will swing back and forth a certain number of times per second. The length of the pendulum is the main thing that controls the frequency. For something to oscillate, energy needs to move back and forth between two forms. For example, in a pendulum, energy moves between **potential energy** and **kinetic energy**. When the pendulum is at one end of its travel, its energy is all potential energy and it is ready to fall. When the pendulum is in the middle of its cycle, all of its potential energy turns into kinetic energy and the pendulum is moving as fast as it can. As the pendulum moves toward the other end of its swing, all the kinetic energy turns back into potential energy. This movement of energy between the two forms is what causes the oscillation.

Eventually, any physical oscillator stops moving because of **friction**. To keep it going, you have to add a little bit of energy on each cycle. In a pendulum clock, the energy that keeps the pendulum moving comes from the spring. The pendulum gets a little push on each stroke to make up for the energy it loses to friction. See [How Pendulum Clocks Work](#) for details. An [electronic oscillator](#) works on the same principle.

Oscillator Circuits

Energy needs to move back and forth from one form to another for an oscillator to work. You can make a very simple oscillator by connecting a [capacitor](#) and an [inductor](#) together. If you've read [How Capacitors Work](#) and [How Inductors Work](#), you know that both capacitors and inductors **store energy**. A capacitor stores energy in the form of an electrostatic field, while an inductor uses a magnetic field.

Imagine the following circuit:



If you charge up the capacitor with a [battery](#) and then insert the inductor into the circuit, here's what will happen:

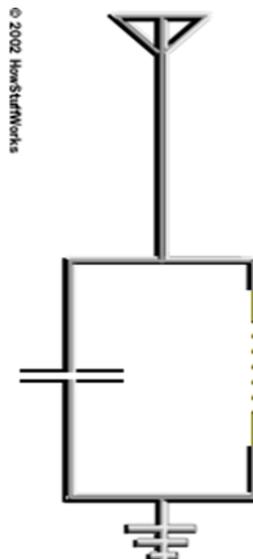
- The capacitor will start to discharge through the inductor. As it does, the inductor will create a magnetic field.
- Once the capacitor discharges, the inductor will try to keep the current in the circuit moving, so it will charge up the other plate of the capacitor.

Once the inductor's field collapses, the capacitor has been recharged (but with the opposite polarity), so it discharges again through the inductor.

- This oscillation will continue until the circuit runs out of energy due to **resistance** in the wire. It will [oscillate](#) at a frequency that depends on the size of the inductor and the capacitor.

Resonators

In a simple [crystal radio](#) (see [How Radio Works](#) for details), a capacitor/inductor oscillator acts as the **tuner** for the radio. It is connected to an antenna and ground like this:



Thousands of **sine waves** from different radio stations hit the antenna. The capacitor and inductor want to resonate at one particular frequency. The sine wave that matches that particular frequency will get **amplified** by the resonator, and all of the other frequencies will be ignored.

In a radio, either the capacitor or the inductor in the resonator is **adjustable**. When you turn the tuner knob on the radio, you are adjusting, for example, a [variable capacitor](#). Varying the capacitor changes the resonant frequency of the resonator and therefore changes the

frequency of the sine wave that the resonator amplifies. This is how you "tune in" different stations on the radio!

Sine Wave Oscillators:

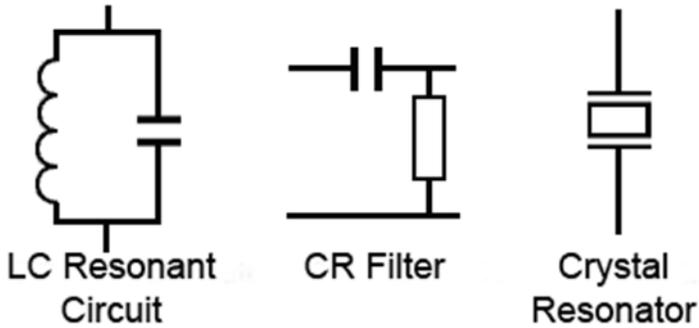


Fig. 1.0.2 Frequency Control Networks

These circuits ideally produce a pure sine wave output having a constant amplitude and stable frequency. The type of circuit used depends on a number of factors, including the frequency required. Designs based on LC resonant circuits or on crystal resonators are used for ultrasonic and radio frequency applications, but at audio and very low frequencies the physical size of the resonating components, L and C would be too big to be practical.

For this reason a combination of R and C is used to a control frequency. The circuit symbols used for these frequency control networks are shown in Fig. 1.0.2

LC oscillators

Inductors and capacitors are combined in a resonating circuit that produces a very good shape of sine wave and has quite good frequency stability. That is, the frequency does not alter very much for changes in the D.C. supply voltage or in ambient temperature, but it is relatively simple, by using variable inductors or capacitors, to make a variable frequency (tuneable) oscillator. LC oscillators are extensively used in generating and receiving RF signals where a variable frequency is required.

RC (or CR) oscillators

At low frequencies such as audio the values of L and C needed to produce a resonating circuit would be too large and bulky to be practical. Therefore resistors and capacitors are used in RC filter type combinations to generate sine waves at these frequencies, however it is more difficult to produce a pure sine wave shape using R and C. These low frequency sine wave oscillators are used in many audio applications and different designs are used having either a fixed or variable frequency.

Early Radio: Military Communications

AMBUSH

During my time in Viet Nam the ambush was the major form of operations used in my area. In the early part of my tour company and platoon operations were the norm. By the time I left the typical day would find my company broken down into five man ambush patrols. It took a lot of fun out of being a company commander when you rarely saw them all together.

The ambush patrol was honed to a fine art in Ranger School and I was well prepared for this kind of warfare. The thing that made it different in Viet Nam (other than the real bullets) was the fact that we did it day and night.

Most people would probably think that a soldier on an ambush in a real war would have trouble falling asleep. Wrong! It may be true on your first 'bush but pretty soon you have the opposite problem. It is extremely difficult to stay awake after humping all day. The typical ambush might have 100% alert until midnight, 2 people plus radio watch until stand to some ungodly hour in morning when you would go back to 100 percent.

It's pretty scary when you wake up to find everyone asleep. Occasionally I would fire a signal flare to wake everyone up and incidentally scare the sh*t out of them. It's easy to imagine that you see movement in your kill zone. Then you quietly wake everyone and get ready to detonate your claymores. False alarm. You don't know whether the troops are mad that you woke them or glad that they avoided a fire fight. One night I kept imagining that I heard music. I crawled over to my radio watch to find that he had a transistor radio stuck in his ear. I'm afraid that I violated noise discipline when I broke the damn thing over his helmet. The jungle can be a noisy place at night. I remember spending most of a night shaking a bush to silence a cricket. He chirped so loud, I couldn't hear a thing. Two other interesting sounds were the "Re-Up" bird and the "f**k you" lizard. Re-up is GI slang for reenlist. When the bird's comment was answered by the lizard, the troops were always amused and generally shared the sentiment.

I remember a few memorable ambushes. Soon after I joined Delta Company at Ft Apache an ambush almost resulted in my being physically assaulted by the mess sergeant. I had set up a textbook ambush about 500 meters from Apache. After a few hours our starlight scope picked up a Vietcong to our rear. Damn! I guess that he didn't read the same textbook that I did.

The only real problem was that Ft Apache lay in the line of fire. There was a lot of pressure on us to produce a body count so I decided to give it a go. I called the radio watch at Apache and told him to warn everyone to get down. A few seconds later I told the machine gunner to fire a burst. My first confirmed kill. The next day we marched back to Apache for a rest. I was eager to present my trophy to the company commander and claim the accolades due the conquering warrior. As we approached the gate I saw the mess sergeant with his hands on his hips.

His eyes were wide open and he was obviously overwrought. When I pulled up next to him, I heard him babble something that sounded like, "G*dda**it EL TEE, (LT or Lieutenant) didn't they teach you at Fort Benning not to shoot up your G*dda**ed mess hall. I thought he was going to strangle me. Mess deflated my euphoria somewhat and I began to wonder if I had done the right thing.

I went in the corrugated metal building where the CO and the platoon leaders bunked. CPT Blue seemed in a fairly good mood. I only later found out that he had scratched his butt sliding on the rough concrete floor trying to put on his pants. He was too gracious to point out the new bullet holes in the 4

x 8 sheet of plywood that served as a company manning chart just by his bed. The other LT on ambush that night discovered a hole in his gas mask that had been in a duffle bag in his bed. He was not as gracious as the CO. The next day Mess showed me the several bullet holes through the walls of the mess hall, just above the oil drum revetting and a few feet above his bunk. I guess he didn't trust himself to say anything. I kept quiet too.

A favorite ambush was one where nobody got hurt, in fact, our intended victim literally felt no pain. New Year's Eve, 1968, found us on the inevitable ambush, this time near a small village. My men laid out the ambush with practiced dispatch and we settled in for the night. Around midnight, I heard some singing. We could see fairly well, perhaps because of the moon. I don't remember. The singing grew louder and louder. We were all awake and ready to kill. In a few minutes, a skinny old man on a bicycle weaved his way into sight. He was taking swigs on a bottle he was carrying and singing. My finger tightened on the clacker of my claymore. As he reached the center of our kill zone, he fell off of his bicycle. He sat there laughing and singing. He tried to get back on his bike only to fall again. He kept laughing and singing. I heard other laughter around me as my men couldn't hold it back at the comical sight. Pretty soon we were all laughing. I didn't have the heart to kill him. The next morning several men came up to me and said they were glad I let him go. So was I. Hell! He was probably the local party secretary.

Before I took over the Recon Platoon they had an interesting ambush that some of the participants told me about later. The mission was to stop the nighttime use of the main road between Saigon and Long Binh. That was kind of like ambushing I-35. They were told not to blow any holes in the road as that would slow up the legitimate daytime traffic. After a while they saw a headlight heading south toward Saigon.

They opened up on motorcyclist with small arms and M-60 fire. Tracers went through his spokes and ricocheted all around the rider's head. He wailed on through until his lights faded in the distance. It was kind of embarrassing, not the kind of thing to enhance the Recon Platoon's warrior reputation. Vowing to do better next time, they waited.

A little while later two widely spaced headlights approached from the north. The same thing happened. They must have fired half their basic load at the guy. The sky turned red with muzzle flashes and tracers to no avail. Their effort was rewarded only by a slight shriek from the rider. The third guy must have seen what happened because he stopped and headed back north. He stopped after a hundred meters or so and turned around again. He approached the area of the ambush and stopped, apparently weighing the situation. His need to get to Saigon was greater than his respect for Recon's accuracy and he decided to go for it.

I don't know whether it was out of respect for the guy's bravery or out of fear that they would miss again but the platoon leader decided to let the guy go. I think the guys swore each other to secrecy because I never heard the story from anyone else.

Another kind of ambush that was widespread was the "mechanical ambush. Some unit came up with the idea and got lucky killing almost a whole platoon of enemy. USARV got word of it and decreed that each ambush patrol would set up two mechanical ambushes.

It was really a booby-trap made of claymores daisy chained with detonating (det) cord. This nasty device was activated by a trip wire. We took a the handle of a plastic C ration spoon and put a small hole in one end to which the trip wire was attached. Then we put electrical wire on a clothes pin so that the ends of the wire touched when the jaws were closed. The clothes pin was attached to a stake and the end of the spoon was inserted into the clothes pin preventing electrical contact. The wire was stretched across a trail, the whole thing was camouflaged and only then was the battery attached.

When the unsuspecting quarry tripped the wire, the electrical spark set off the claymores and hundreds of small steel ball bearings would mow down anyone in the kill zone. There were a few problems with the mechanicals. First of all, since they were unattended, Charlie could (and did) move your ambush so that the troops retrieving them in the morning would wind up the victim. Also, you had to be absolutely sure where you were when moving into your AP location so you did not stumble into a mechanical employed by another unit. I hope the damn things killed more gooks than friendlies. Another interesting ambush happened soon after I joined Delta Company. One of my fellow platoon leaders had set up an ambush on a main rice paddy berm. A berm was much larger than a paddy dike and was usually used for travelling between villages. He had set up a strange ambush with a very small kill zone. He was in good shape if the enemy came through the rice paddy but that was unlikely. As it was, only one or two people could bring fire to bear to the front or rear of the berm. A claymore had been set up at either end of the berm.

It was almost a success in spite of the poor tactical setup. A bad guy came diddy bopping down the berm. He was picked up by the starlight scope and the platoon leader got ready to blow the bush. He coolly waited for the guy to get close so that he would blow the hell out of him with the claymore. When the guy was in the right place the PL squeezed the claymore clacker, causing an electrical spark to ignite the blasting cap that was screwed into the claymore. Instead of a huge explosion there was only a loud pop. It seemed that someone had taken the C4 out of the claymore and used it to heat his C rations. All the blasting cap did was blow the back off the claymore.

My colleague swung up his CAR 15 to shoot the guy but only got off one round before it jammed. It just wasn't his day. The gook shot him in the arm and disappeared into the dark. I was designated by the battalion commander to conduct an investigation into what went wrong. I had plenty to write about. While checking out the area I found a CHICOM pistol, complete with holster and belt. I foolishly gave it to the platoon leader who had been shot. I kept the belt and the plastic poncho that was on the belt. Early into the war the M-16 rifle had a reputation for jamming easily. That problem had largely been solved but not on the CAR 15. Its proper nomenclature was XM 177, Submachine gun, Commando. It was really neat looking.

It was like an M-16 but with a short barrel and a telescoping stock. I later got one when I was recon platoon leader. I kept it for a week or so. One day I decided to test fire it and it would jam every three or four rounds. I sent it to the rear and asked the armorer to send me out an M-16.

The Dead Man in the O-Club

We had just returned to the DiAn after a particularly trying mission. The company had lost four men to booby traps -- luckily none were killed. Booby traps are very frustrating to the troops. On top of the normal fear you are pissed that you can't kill anybody.

We were tired to the bone. All we wanted was to shower and to get quietly drunk. After cleaning up, I went to our battalion Officer's Club to start on the latter when I was joined by my platoon leaders. We started a poker game. The stakes were low as were our spirits. We were playing only as a prop for our drinking.

After a while I heard a commotion at the bar. Chief Jimmino, our battalion maintenance warrant was having an argument with Jack, one of the company Executive Officers. Jack was rather obnoxious and Chief was very direct. I looked up to see Chief cold-cock Jack who fell over backwards, his head hitting the floor with a sickening thud. It didn't look good for him.

Jack lay there for about five minutes. I wasn't too interested as Jack wasn't on my morning report and besides, he was an as**ole. "Kitch," one of my platoon leaders folded and got up for a refill. I told him he might as well check Jack since he almost had to step over him anyway.

Kitch looked down at Jack, felt a pulse and said, "He's dead" in a matter-of-fact tone of voice. One of the REMF officers said unbelievably "He's WHAT???" Kitch confirmed with "He's DEAD!!!" I got up to look at Jack and what Kitch said seemed to be a fact. Jack's eyes were wide open and fixed and I didn't detect any breathing.

I shrugged my shoulders, said that there was nothing we could do and went back to our poker game. Jack lay there for about fifteen minutes when some medics with a stretcher arrived and hauled him off. A few minutes after that the battalion Executive Officer arrived and closed the club for the night. We felt that closing the club was unnecessary, especially because we were behaving ourselves.

The next morning we found that Jack survived with nothing worse than a bump on his head and a hangover. I slept well that night. Before I drifted off I did think about Jack though. I was sure as hell glad that I wasn't signed for him.

Welcome

Silent Key: Everett J. Hokanson, K9PXS

Hokanson, Everett J. "K9PXS" Passed peacefully on September 15, 2015 at the age of 73 years. Residence Milwaukee. Beloved son of the late Everett P. and Ruth B. (nee Jung) Hokanson. Dear brother of Paul R. (Pamela) Hokanson. Proud uncle of Jennifer (William) McBee, Rebecca (Jason) Cooper, Erin (Paul) Slider and Stephen (Erinn) Hokanson. Great uncle of Joey, Colin, Quentin, and Anna McBee, Zachary, Jacob and Conley Cooper, Charlotte Slider, Madeline and Nicholas Hokanson. Nephew of the late Robert Jung and Emil (Emily) Hokanson. Survived by other relatives and friends. Everett was born in Milwaukee on February 15, 1942 and lived in Milwaukee his entire life. He was an avid licensed amateur radio operator achieving the highest class of Extra. Everett was a active member of the MRAC for many years before his untimely passing.

NOAA Weather Awareness Video

Since September is National Preparedness Month here is a timely new video from the NWS on lightning safety. It runs about 5 minutes. Please share and redistribute this message.

<https://youtube/rMOFxrAWquk>

Regards,

Skip Voros
Executive Director
Milwaukee Area Skywarn Association

SimCom 2015: Wisconsin Hosts Major Interoperability Exercise

Winnebago (Wisconsin) County Emergency Management in conjunction with Wisconsin Emergency Management and the Wisconsin National Guard - Joint Operations Center, invited agencies to attend *SimCom-Vital Communications 2015* at the Sunnyview Expo Center in Oshkosh, Wisconsin last May for three days of exercises. It provided an opportunity to educate, coordinate and test mobile emergency communications platform assets from federal, state, tribal and local jurisdictions. ARES/RACES organizations were on board.

The exercise focused on strenuous testing of voice and data communication capabilities during field operations. Exercise planners developed a challenging series of inject messages that were sent to exercise participants by an expanded simulation cell (SimCell) center to provide exercise participants with a true test of interoperable communications ability. While this year's focus was on strenuous operational communications testing, there was also the opportunity to meet with other emergency communications professionals and ARES/RACES volunteers from around the region and the state for networking and getting to know each other.

Objectives included geographic Divisions' data sharing, radio bridging/patching, fixing net failures, contingency communications, establishing an incident Communications Center and repeaters in each geographic area, HF/VHF/UHF operation, and interoperable communications between all participants and zones.

Next Regular Meeting

The next meeting will be on Thursday, **September 24th**, at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance. Access the MRAC Yahoo group for important details about the February Meeting.

Meeting Schedule:



October 29th 2015 - 7 pm

Please do not call the church for information!

The MRAC/MAARS join picnic will be on August 8th, 2015 at Greenfield park, picnic area number 2.

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:00 p.m.** at **28.490 MHz USB** Our two meter FM net follows at **9:00 p.m.** on our repeater at **145.390 MHz** with a minus offset and a **PL of 127.3 Hz.**

Visit our website at: www.w9rh.org

Or phone **(414)-459-9741**



Name of Net, Frequency, Local Time	Net Manager
Badger Weather Net (BWN) 3984 kHz, 0500	W9IXG
Badger Emergency Net (BEN) 3985 kHz, 1200	NX9K
Wisconsin Side Band Net (WSBN) 3985 or 3982.5 kHz, 1700	KB9KEG
Wisconsin Novice Net (WNN) 3555 kHz, 1800	KB9ROB
Wisconsin Slow Speed Net (WSSN) 3555 kHz, Sn, T, Th, F, 1830	NIKSN
Wisconsin Intrastate Net - Early (WIN-E) 3555 kHz, 1900	WB9ICH
Wisconsin Intrastate Net - Late (WIN-L) 3555 kHz, 2200	W9RTP
ARES/RACES Net 3967.0 kHz, 0800 Sunday	WB9WKO
* Net Control Operator needed. Contact Net Manager for information.	

Chatter Deadline

The **DEADLINE** for items to be published in the **Chatter** is the **15th of each month**. If you have anything (announcements, stories, articles, photos, projects) for the 'Chatter, please get it to me before then.

You may contact me or Submit articles and materials by e-mail at: W9rhmrac@Gmail.com

or by Post to:

Michael B. Harris
807 Nicholson RD
South Milwaukee, WI 53172-1447

VE Testing:

September 26th, 9am—11:30am

No testing: June, August, or December

Location: Amateur Electronic Supply Time: 9:30 AM (Walk-ins allowed)

ALL testing takes place at: Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Area Swapfests

Sept. 26th. [Ozaukee Radio Club's Annual Regional Fall Swapfest](#) Location: Cedarburg, WI

Type: ARRL Hamfest Sponsor: Ozaukee Radio Club

Website: <http://ozaukeeradioclub.org>

Oct. 11th, [SEWFARS Swapfest](#) Location: Hubertus, WI

Type: ARRL Hamfest

Sponsor: Southeastern Wisconsin FM Amateur Repeater Society Website: <http://www.sewfars.com>

MRAC Working Committees

100th Anniversary:

- Dave—KA9WXN
- Dan—N9ASA

Net Committee:

- Pancho, K9OFA

Field Day

- Dave—KA9WXN,
- Al—KC9IJJ

FM Simplex Contest

- Joe - N9UX
- Mark - AB9CD

Ticket drum and drawing

- Tom - N9UFJ

Newsletter Editor

- Michael-KC9CMT

Proofreader

- Pancho-KA9OFA

Webmaster

- Dave, KA9WXN

Refreshments

- Hal—KB9OZN



Membership Information

The Hamateur Chatter is the newsletter of MRAC (Milwaukee Radio Amateurs' Club), a not for profit organization for the advancement of amateur radio and the maintenance of fraternalism and a high standard of conduct. MRAC Membership dues are \$17.00 per year and run on a calendar year starting January 1st. MRAC general membership meetings are normally held at 7:00PM the last Thursday of the month except for November when Thanksgiving falls on the last Thursday when the meeting moves forward 1 week to the 3rd Thursday and December, when the Christmas dinner takes the place of a regular meeting. Club Contact Information

Our website address <http://www.w9rh.org>

Telephone **(414)-459-9741**

Address correspondence to:

MRAC, PO Box 26233, Milwaukee, WI 53226-0233

Email may be sent to: w9rh@arrl.net . Our YAHOO newsgroup:

<http://groups.yahoo.com/group/MRAC-W9RH/>



CLUB NETS:

- The Six Meter SSB net is Thursday at 8:00PM on 50.160 MHz USB
- Our Ten Meter SSB net is Friday at 8:00PM on 28.490 MHz ± 5 KHz USB.
- Our Two Meter FM net follows the Ten meter net at 9:00PM on our repeater at 145.390MHz - offset (PL)



The MRAC HamChatter is a monthly publication of the Milwaukee Radio Amateurs' Club. Serving Amateur Radio in Southeastern Wisconsin & all of Milwaukee County

Club Call sign - W9RH

MRAC Website: <http://www.W9RH.org>

Editor: Michael B. Harris, Kc9cmt, kc9cmt@Earthlink.net

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARRL Newsline

Mon.8:00 PM 146.445+ Emergency Net

Mon.8:00 PM 146.865- Walworth County ARES net

Mon. 8:00 PM 442.100+ Railroad net, also on EchoLink

Mon. 8:45 PM 147.165- ARRL Audio News

Mon. 8:00 PM 442.875+ WIARC net also on EchoLink 576754

**Mon. 8:30 PM 146.820 Waukesha ARES Net —
on the 1st, 3rd, and 5th Monday of each month.**

Mon. 9:00 PM 147.165- Milwaukee County ARES Net

Tue.9:00 AM 50.160 6. Mtr 2nd Shifter's Net

Tue. 9:00 PM 145.130+ MAARS Hand Shakers Net

Tue. 8:00 PM 7.035 A.F.A.R. (CW)

Wed. 8:00 PM 145.130+MAARS Amateur Radio Newsline

Wed. 8:00 PM 147.045+ West Allis ARC net

Wed. 8:00 PM 28.365Mhz 10/10 International Net

Wed. 8:00 PM 147.270+ Racine County ARES net

Wed. 9:00 PM 145.130+MAARS SwapNet, Allstar FM-38

Thur. 8:00 PM 50.160, 6 Mtr SSB Net

Thur. 8:00 PM 443.800+ Tech Net

Thur. 9:00 PM 146.910+ Computer Net

Fri. 8:00 PM 28.490 MRAC W9RH 10 Mtr SSB Net

Fri. 9:00 PM 145.390+ W9RH 2 MTR. FM Net

Sat. 7:30 AM MW Classic Radio Net , Freq.—3885 AM

Sat. 8:00 PM 146.910+ YL's Pink HAMsters Net

Sat. 9:00 PM 146.910+ Saturday Night Fun Net

Sun 8:00 AM, State ARES Net 3967/3977.5/145.470

Sun 8:30 AM 3.985 QCWA (Chapter 55) SSB net

Sun 9:00 AM 145.565+ X-Country Simplex Group

Sun 8:00 PM 146.910+ Information Net

Sun 8:00 PM 28.365 10/10 International Net (SSB)

Sun 9:00 PM 146.910+ Swap Net

Daily: Milwaukee — Rag Chew Net: 7:00 AM, 3850 SSB + Florida Net 7 am, 14.290 mhz.

2meter repeaters are offset by 600KHz - - 70 centimeter repeaters are offset by 5 MHz
SSB frequencies below 20 meters are LSB and for 20 Mtr and above are USB.



Fall is Here!