HAMATEUR CHATTER

The Milwaukee Radio Amateurs Club

March 2011, Volume 19, Issue 3

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

Presidents Letter

February was a busy month for MRAC. Besides being a short month, we had the FM Simplex Contest, the first ever Interclub Hamfest with MAARS (and we did make a profit) and a very good meeting about hidden transmitter hunting by Paul WB9ODQ.

We're not letting up in March. First on Saturday Mar 19 was a pancake breakfast in conjunction with MAARS held at our regular meeting place, Redemption Lutheran Church. Then there is our March meeting. Once again the calendar aligns with the planets and MRAC and our meeting falls immediately before AES Superfest. And once again, Gordon West WB6NOA will be our special guest. The other times Gordon was at an MRAC meeting we had attendance of 71 and 53. Let's see how this meeting goes. We will also have a representative of ARRL from Newington in attendance (they will not be doing a formal presentation). If we have a good turnout, there just may be some door prizes given out. And even though it's not in March, the next two days after the meeting are AES Superfest where the club will have a table (and needs volunteers to staff it).

Speaking of Superfest, any existing member who has not paid their dues by the end of Superfest will have to pay $20 (instead of $17) to keep their membership current.

April finds us having the second annual Show-And-Tell meeting program. Bring some pictures or the real thing and show us your latest radio / electronics project or purchase and take a few minutes to tell us about it. It doesn't matter how big or how small. What matters is what you are doing with it.

Also for April, in the first change due to the revised by-laws, we will have an election (the election used to be in May). For this year, as would be even without the by-laws change, 3 director positions are up for election. One of those spots has been vacant for most of the last few years. If you want the club to continue (and the opportunity to have cheap doughnuts once a month) consider running for office. Michael, KC9CMT is heading up the nominating committee (in his spare time).

Something I'm not letting up on is committees to do the work for the club. We have urgent needs for Field Day and for 95th Anniversary. Those two events will happen with or without your help. With your help they should be very interesting for club members and non-members alike and you get to leave your imprint on the events. Without your help, they should still be very interesting, but the priority will be to please those who are working on the events. Will your ideas, wishes and desires be taken into account? Maybe, maybe not…

And, don't forget May is the annual auction. Except for a few years here and there, MRAC has had auctions since at least the 1930's. Start going through your stuff to see what can be auctioned off, either for yourself or for the club. Either way is fine.

Finally, we have yet another MRAC Silent Key. This time it is Sylvester Janczak WD9JKZ, Syl was a member since 1982. He was the first coordinator of the club's testing efforts, when we were just a VE operating under the DeVry VEC. He also had the distinction of being told by Charlie Kaetel that he could not attend an MRAC board meeting to discuss the testing efforts. That little stunt almost cost Charlie his club membership.

MRAC Officers:

Terms Expiring in 2012

- President – Dave,WB9BWP
- V-President– Vacant
- Secretary – Mike, KC9CMT
- Treasurer – Vacant
- Director – Mark, AB9CD
- Director – Dave,KA9WXN

Terms Expiring in 2011

- Director – Al, KC9IJJ
- Director – Hal ,WB9OZN
- Director – Vacant

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

(414) 332- 6 7 2 2

Visit our website at:

www.w9rh.org

Mail correspondence to:

M. R. A. C.

P.O. Box 240545

Milwaukee, WI 53223

Board of Director's Meeting Minutes

Meeting called to order at 7:00 PM by President Dave DeFebo, WB9BWP.

Present: Dave, KA9WXN Mark, AB9CD, Dave DeFebo, WB9BWP Michael, KC9CMT, Al, KC9IJJ.

Absent: Hal, KB9OZN

Dave, WB9BWP made a motion to accept the minutes of the last meeting as published in the HamChatter, seconded by Michael KC9CMT. Accepted by a vote of 5-0

Treasurer report not read. Club has no treasurer.

PRELIMINARY DISCUSSIONS:

Dave, WB9BWP has been talking too some new members about the possibility of becoming directors in the Club.

Election for three Directors seats will take place in April of this year, not May as in the past.

Urgent need to solidify a date for next years swapfest so that flyers can be printed and advertizing can commence.

Old Business:

History DVD's will be updated and made available for the AES SuperFest.

Xmas Party Report: Al, KC9IJJ suggests that we do that Xmas party in February of 2012. He will ask Meyer's about off season events and their cost. This party will also coincide with the club's 95th anniversary.

New Business:

SwapFest: The 2011 SwapFest was a big success, so we are already analyzing the results and suggestions are being forwarded on how we can do better. Such as: Redo the map & add map coordinates, plus makeup a form for vendor check-ins, along with a vendor ticket. Note on new flyer that tables are 6 foot, not 8 as usual. Push advance ticket sales next year. Number tables next year? Need new flyers printed out by the May Ozaukee SwapFest.

Club Anniversary: MRAC will be Celebrating our 95th anniversary in the year 2012. We will be using our Call sign of W9RH when we coordinate with AES to have our event during their SuperFest. This is so far in the planning stages.

Volunteers: Need volunteers for group activates such as Field day, AES Superfest table staffing, and this years election committee.

Field Day: Dave, KA9WXN will head the Field day activities this year at the Greenfield Firehouse grounds. We will be operating under the call sign AB9NRA. We are attempting to get the ARES van at our site this year. Bathrooms are available on site. Field day is on June 25th and 26th this year before the regular club meeting.

FM Simplex Contest: Report Forms are coming in to Joe, N9UX. Joe stated that the MRAC did well in the contest. We should consider training rovers for next years contest.

Net Committee:

John KB9SXH and Poncho KA9OFA, have been running the 2 meter and 10 meter nets that the club offers.

Programs:

March: The Gordon West Show. Gordon West Will present a program in advance of the next days opening of the AES SuperFest.

April: Show & Tell Night. Fix ups Etc.. Projects or New Purchases from the Membership. Election of new Board of Director members.

May: The annual Auction. Hosted by Dave DeFebo.

June: Open

July & August: No Meetings.

Motion to adjourn at 8:55 PM . Motion made by Dave WB9BWP, Second by Michael KC9CMT. Passed by a voice vote of 5-0.

Room returned to condition as found upon arrival.

Respectfully submitted,
Michael, KC9CMT

Membership Meeting Minutes

General Membership assembly called to order at 7:02 pm by president Dave DeFebo, WB9BWP.

Mic sent around the room for introduction of membership.

being a liability to the club.

Tonight's program was by Paul, WB9ODQ on Fox hunting equipment and techniques.

Fox Hunting, What is fox Hunting?

Hams searching for hidden transmitters. During the Mid 50's to early 70's this was done on 80 meters. The Milwaukee Fox Hunt Club was established about 1975. Organized hunts started with car mounted units and then progressed to what we see today.

International organization ARDF. Most hunting now is done on 2 meters. Some of the equipment used is: Quad Antenna's, Doppler Units & Attenuation units. Paul brought along a one of the popular tape measure antennas being used today, and discussed its use.

Hunting on 80 meters still is being done in Europe with loop of ferrite rods as antennas. This type of setup looks for the Null & injects the out-of-phase signal into the receiver.

Some popular approaches: 2 meter, Take a 360 degree sweep to find the target, take readings while moving and watch for reflections. On 80 meters: Reflections are not an issue.

Business meeting called to order at 8:05 pm after a 10 minute break, by Dave, WB9BWP.

The secretaries minutes were accepted as published in the Chatter by a unanimous vote of the membership.

No treasurers report.

Joe, N9UX, requested that all submissions of FM contest forms be in by March 15th. Certificates will be ready by the AES SuperFest.

The clubs SwapFest with the MAARS group was successful. Our club needs a swapfest committee. We would like to be recognized by ARRL next year. A form needs to be submitted for that purpose.

The MAARS group will be holding a pancake breakfast at the church on March 19th between 8 am and 11 am.

Our next club meeting will be March 31st when Gordon West will give his presentation to our group. We hope to fill the

Membership Meeting Minutes Continued

basement for that event. A representative from ARRL will also be in attendance. We are expecting 50 plus people to attend and are now considering some door prizes. Their will most likely be no business meeting at the March meeting due to the presentations. AES SuperFest will be starting the next day, April 1st.

Aprils meeting will be a show & tell event along with the directors election. May is the clubs annual auction to be conducted by Dave, WB9BWP. We really need an election committee to start immediately; Michael, KC9CMT has offered to head that up again this year.

The MAARS website has their monthly breakfast scheduled well in advance if anyone wishes to access it.

The WI QSL party will be on March 20th this year, the same day as the Jefferson SwapFest. The West Allis club sponsors this event.

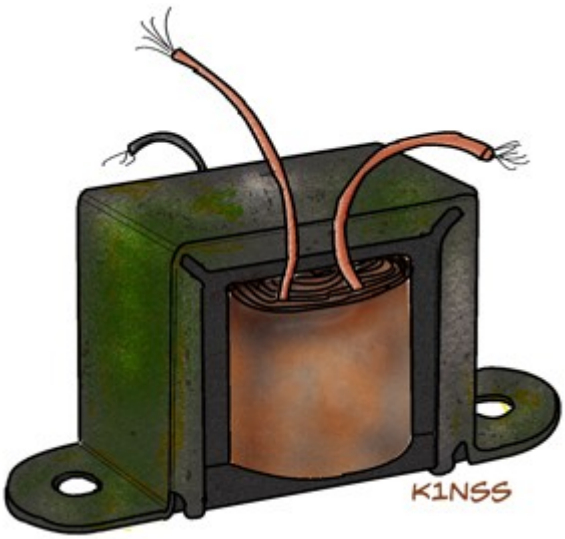
A motion was made to adjourn the meeting at 8:41 pm, by Al, KC9IJJ and seconded by Poncho, KA9OFA. The meeting for February was thus adjourned.

Election of new directors will take place at the April meeting starting in 2011.

Raffle table items and refreshments were available after the meeting.

Respectfully Submitted,

Michael, KC9CMT



Next Regular Meeting

The next meeting will be March 31st at 7:00PM. We meet in the Fellowship Hall of Redemption Lutheran Church, 4057 N Mayfair Road. Use the south entrance.

Please do not call the church for information!

Club Nets

Please check in to our nets on Friday evenings.

Our ten meter SSB net is at **8:30 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) 332-MRAC or 332 - 6722

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: **Kc9cmt@earthlink.net**

or by Post at:

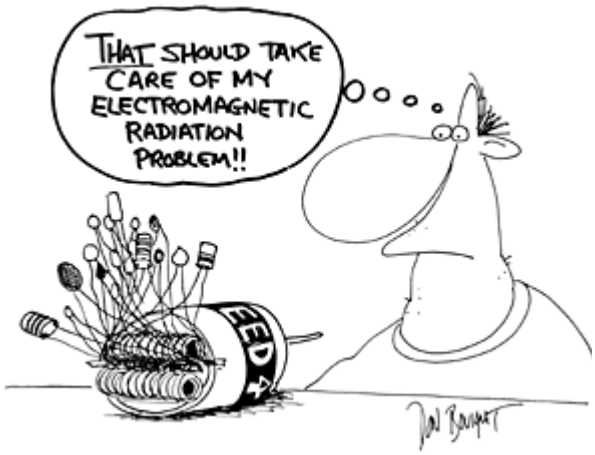
Michael B. Harris

807 Nicholson RD

South Milwaukee, WI 53172-1447

Electromagnetic Interference Reduction

Just like audible noise is any unwanted excessively loud sound, electrical noise is unwanted excessively strong electromagnetic radiation. Just as audio noise can make it difficult to hear what we want to hear (such as our conversation partner in the midst of a crowd), electrical noise makes it difficult for our plane's radio receiver to "hear" the signal from our transmitter.



Sources of Noise

The very first radio transmitters, such as the one used by Marconi to transmit the first signal across the Atlantic Ocean, consisted of the equivalent to an automobile ignition coil and a spark plug. Whenever a spark was generated, electromagnetic waves were created. When these waves crossed a wire (such as an antenna), a current would be induced into the wire, and a headphone attached between the wire and the ground would emit a slight burst of static.

A brushed electric motor as used in many of our planes is basically a whirling collection of ignition coils and spark plugs. As the motor's armature turns and different windings are energized and de-energized, sparks are generated between the commutator and the brushes. A perfect motor, with infinitely small brushes and commutator gaps, perfectly timed for the load and speed it is being used at, might possibly not produce any sparks, but any real motor will always exhibit some amount of sparking.

Unlike a finely tuned transmitter, a spark will transmit across a wide range of frequencies, some of which are bound to coincide with 5 to 10kHz wide band used by a typical R/C receiver. If the magnitude of the noise at that frequency is much higher than that of the signal the receiver is supposed to receive, then the receiver will have trouble picking out the signal from among the noise.

Furthermore, since the source of the noise is so close to the receiver, it can also affect the intermediate stages of receiver, thus causing interference even if none of the noise coincides with the receiver's frequency.

In addition to the noise created by the way the motor works, more noise can be created by the on-off switching of the electronic speed control (ESC) at partial speed.

Symptoms

Noise Transmission

Noise from the motor can get into the receiver in a number of ways, but they all boil down to some combination of two methods: *radiation* and *conduction*.

Radiation

One way for motor noise to get into the receiver is the same way that the transmitter signal gets there, namely by electromagnetic radiation (don't worry, although the same word is used, this is not the same thing as nuclear radiation). Electromagnetic waves created by the sparking in the motor will travel through the air, and will be picked up by the receiver's antenna or by components of the receiver.

Conduction

The other way for noise to get to the receiver is by conduction. Since the motor is connected to the ESC, and the ESC is connected to the receiver, it is not surprising that some electrical noise can flow through wires and components to get all the way to the receiver's reception circuitry.

ESCs with a battery eliminator circuit (BEC) are theoretically more likely to cause noise problems, because not only is the ESC connected to the receiver, but the receiver gets its power from the motor battery (through a voltage regulator). Any noise conducted from the motor back to the battery might make it through the voltage regulator and into the receiver. In practice, effective filtering built into most BECs makes this a non-issue.

ESCs with optical isolation prevent conduction of noise directly from the motor to the receiver by not having a direct connection between the two. Instead, the signal from the receiver controls an optoisolator chip, which transfers the signal to the rest of the ESC via an optical (LED and phototransistor) connection.

A Bit of Each

Most cases of interference caused by electrical noise are not just simple cases of radiation or conduction. Instead, a combination of factors is usually involved. For example, electrical noise could flow from the motor, along the wires through the ESC, back to the motor battery. The battery (and the motor wires) can act as an antenna, radiating the noise. This might then be picked up by a servo lead, which conducts the noise into the receiver.

Noise Suppression Methods

To stop electrical noise from interfering with reception, we have to determine how the noise is getting from the motor to the receiver, and then how to reduce the noise level to the point where it's low enough that the receiver can reliably detect the intended signal from the transmitter.

The amount of twisting need not be excessive. One full twist every 2 inches (5cm) or so is more than adequate for power wires. Servo wires, being thinner, are easily twisted several times per inch. I prefer to separate the three wires of a servo lead and then braid them together, since this can't undo itself like a twist can.

Separation

Even with the most elaborate filtering, shielding, and noise cancellation, you can still suffer a noise problem if the motor or power wires are too close to the receiver or servo leads. For example, if the receiver were placed right next to the motor, or if a servo lead were to pass around the motor, you

Tuning

The best place to start with a noise reduction strategy is at the source. All brushed motors will produce electrical noise, but the amount of noise they produce can vary greatly. The most important factor is motor timing. The position of a motor's brushes relative to the magnets needs to be set properly for the conditions under which the motor is operating. One way to set the timing is to start at neutral, and then advance it until the no-load current increases by 10% of the expected operating current. Another way is to run the motor under the intended operating conditions (i.e. desired). propeller and number of cells), and then adjust the timing in a darkened room until the sparking is minimized. (Be careful! Tinkering with a motor that has a propeller churning away at full power is dangerous, especially in the dark.)

A motor with poorly fitting, pitted, or cracked brushes will also produce more sparks, and hence more electrical noise, than one with smooth well-seated brushes. Whenever you purchase a new motor, or install new brushes, run the motor for a few hours with no load at a low voltage to properly seat the brushes (some motors have had this done at the factory, but it still needs to be redone if you replace the brushes).

Filtering

Even a motor in perfect condition will produce some electrical noise, so some form of filtering is needed to keep that noise from getting to the receiver. The simplest filters consist of one, two, or three capacitors, as shown in Figures 1 to 3.

Figure 1. A single-capacitor filter. The capacitor is simply soldered across the motor terminals.

A capacitor is an electronic component that will conduct only currents that are changing at a high frequency. A single capacitor wired across the motor terminals will act as a short circuit for high-frequency electrical noise, while not affecting the power to the motor at all. This reduces conduction of noise along the motor wiring.

Figure 2. A two-capacitor filter. Each capacitor has one lead attached to a motor terminal, and the other lead attached to the case.

When two capacitors are used, each one is connected between the motor casing and one motor terminal. This has the effect of shorting the casing and terminals together from the noise's point of view. Including the casing in the circuit will reduce radiated noise by making the casing a shield.

Figure 3. A three-capacitor filter. This is basically a combination of the one- and two-capacitor circuits.

The three-capacitor filter is just a combination of the one- and two-capacitor versions. One capacitor is connected across the motor terminals and one is connected to each terminal and the motor casing. This is the filter that I use on all my aircraft, and I've only had noise problems once (which turned out to be due to an out-of-tune receiver). I use a 0.1µF (micro-Farad) capacitor across the terminals, and a 0.047µF capacitor between each terminal and the case. Photo 1 shows the capacitors installed on a motor.

Photo 1. A typical three-capacitor filter installation on a ferrite motor. These particular capacitors are older style high-voltage ones; newer ones would be smaller. The black cylinder is the ESCs freewheeling diode.

When using a high-rate ESC (which all modern ESCs are), never use electrolytic capacitors for noise filtering. The high switching frequency from the ESC will cause such capacitors to explode. Always use ceramic disc or similar capacitors.

Some motors, such as the Graupner Speed 400 series, come with a two-capacitor filter already installed inside the motor. Additional filtering is often not necessary, although it would do no harm.

Another method of noise filtering is to loop each motor lead several times through a ferrite ring or bead. One or more such loops of wire, either around a ferrite core or just in midair, is called a choke. A choke is the opposite of a capacitor, in that it will conduct only low frequency signals (such as the power to the motor), while blocking higher frequencies.

It is possible to construct more elaborate filters using multiple capacitors and chokes. Since chokes conduct motor power and block noise, they are wired in-line with the power leads instead of across the terminals. Figure 4 illustrates a capacitor-choke filter, and Photo 2 shows a commercially available unit sold by Graupner.

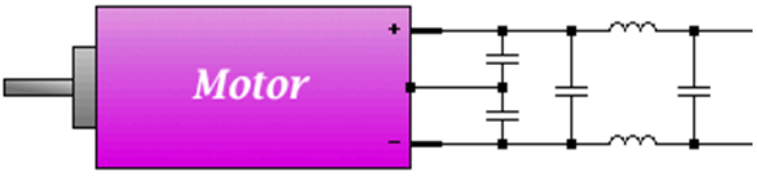


Figure 4. A capacitor-choke filter. These are usually assembled on a separate circuit board which is then soldered to the motor terminals.

High-rate ESCs make use of a Schottky diode for more efficient operation. At part throttle, during the time that the ESC's MOSFETs are switched off, the diode serves to recirculate motor current. Most ESCs have an on board diode, but some might require you to solder the diode across the motor terminals (with the banded end towards the positive terminal). Do not omit the diode in this case, as it will result in reduced efficiency and increased noise. If your ESC has a diode on board, you should still install one on the motor if the ESC is far from the motor, or if you are operating more than one motor from one ESC. Schottky diodes are available at most hobby shops that carry R/C car supplies.

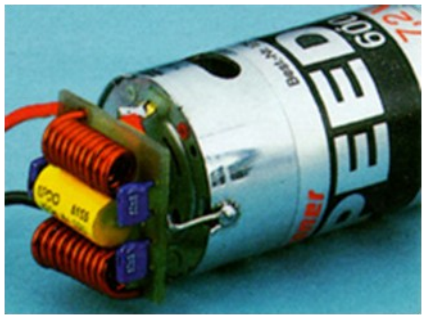


Photo 2. A capacitor-choke filter sold by Graupner, designed to be soldered directly to any 05-sized can motor, such as a Graupner Speed 600. Graupner also sells a Speed 400 sized

Any filtering should be done close to the motor, preferably right at the motor terminals. If the filtering is done further away from the motor (e.g. at the ESC output), then the noise must travel along the motor power wires before reaching the filter. The wires would then radiate the noise.

Shielding

Filtering is designed to stop conducted noise (and hence indirectly, radiated noise). Shielding on the other hand is designed to stop radiated noise. If you've ever attempted to operate a transistor radio or a cellular phone inside a metal-clad building, you will have witnessed the effects of shielding. There are a number of things that can be shielded in an electric flight system. One is the receiver. Many modelers have solved their electrical noise problems by wrapping the receiver in aluminum foil, with only the antenna sticking out. This way, the only way for a signal to radiate into the receiver is via the antenna, and thus, only signals within the receiver's frequency range will be accepted.

Cancellation

When a wire runs a long distance in the presence of electromagnetic radiation, the wire acts like an antenna, and the radiation induces a current in the wire. If there is a source of radiated electrical noise nearby, then the wire will turn this into conducted noise, and conduct it into whatever it is connected to (for example, a long servo lead connected to the receiver). When more than one wire is involved, as in a 3-wire servo lead, noise pickup can be dramatically reduced by twisting or braiding the wires.

Two or more parallel wires will pick up a level of noise depending on how far they are away from the source and from each other. The distance between the wire causes a voltage difference between them, and hence current flow. By twisting them, the wires take turns being closer to the noise source, and the voltage difference in one section will be of opposite polarity to the voltage difference in the next section, resulting in a cancellation of the noise along the wire as a whole.

Just as twisting servo wires together can reduce the pick up of radiated noise, twisting power wires together can reduce the amount of noise radiated by the wires in the first place. This is especially important with long power wires, such as those feeding wing-mounted motors.

would very likely have a noise problem. To prevent such problems, keep the receiver, servos, and associated wiring as far away as possible from the motor, ESC, and battery. On a multi-motored aircraft with long power wires and long aileron servo leads, keep them as far from each other as possible. When wires must come near each other, try to have them cross at right angles to one another.

Recommendations

So, how far do you have to go to prevent electrical noise problems? In general, not very far. If you equip your motor (s) with a typical three-capacitor filter, time it properly, and keep your power wiring away from you receiver and servo wiring, you shouldn't have any problems. A range check with the transmitter antenna down should provide reliable servo operation at half-throttle from at least 80% of the distance you get with the motor off. With my JR radios, I can get 100ft (30m) even with the motor running.

If you get poorer range, you may have to resort to more drastic measures such as a more complex filter, shielding, rearranging your equipment to increase separation, or using an ESC with an optoisolator. If these tactics still don't help, consider having your transmitter and receiver checked by a qualified technician. I once had a radio that would glitch horribly with the motor running, even at very close range. It turned out that my receiver was out of tune, and thus barely detecting the signal from the transmitter. The addition of a bit of motor noise drowned it out almost completely.

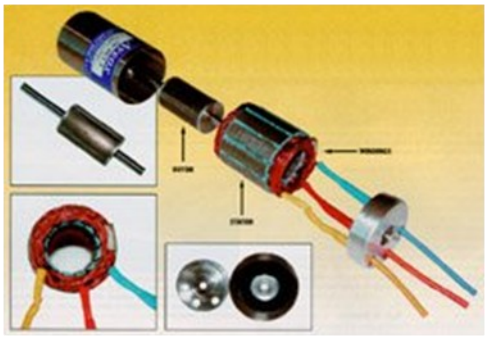


Photo 3. The components of an Aveox 36/30/1.5 brushless motor. www.Aveox.com

Article reprint with the permission of author Stefan Vorkoetter, **http://www.stefanv.com/electronics**

Early Radio: The Vietnam War

Laying Tiles At Mary Baker

I'll never forget the time I got orders to report to KR6MB. It was the year before the first ground action in Vietnam would begin, 1964, The routine rotations of units arriving for the Far East tour as a part of battle readiness training called Lock On, would end with our tour. Training took us from Okinawa, to Mt. Fuji Japan for cold weather, several amphibious exercises in Taiwan and all the rest in Okinawa. Around mid tour came the infamous Fifty Mile March up into the great Northern Training Area. I'm proud to say I was a Grunt.

On liberty call I used to drop by Mary Baker and shoot the bull with the operator, whose name I've forgotten. BSing with him, I learned of the whole Amateur Radio network (soon to become the Navy MARS network) and I naturally shared my own Amateur Radio experiences with the operator. Before I'd shipped out of Pendleton in the U.S. for Lock On, I'd dropped by W6IAB's old Quonset hut antenna farm in some dusty gulch and Bob Rotella had snapped up my FCC license information. So during forced marches in Okinawa, I'd be humping along with the 3.5 Rocket Launcher on my shoulder and flash a glance up at Mary Baker as we departed the base.

My weapons platoon was billeted in the last barracks on the south side of the road, right next to the ocean. I shudder to think how much that real estate actually cost. One day while squaring away for inspection my Squad Leader said, "Report to the company office." I walked up a few buildings and reported in the usual formal way, standing at attention..."Private Malsbary repor".....the Top interrupted me before I could finish. He was real loud.

"MALSBARY HOW DID YOU GET THESE $#%^& ORDERS!!!!! "

"I guess they need an operator for the radio station," I said reaching for my wallet, "I have a license...."

"Pack you gear! You will report to that station by 1700!" He might have said "dismissed" or "Good luck." he might have said "Why don't you give me fifty push ups before you leave." It didn't matter. Next thing I know, I'm on the road with my sea bag heading up the hill to KR6MARYBAKER! T..A..D! I later found out that Corporal Littleton the head of the Marine Corps stations on Okinawa had arranged for my orders. For some reason I could understand Top did not have a spare jeep to take me up to the station,

The operator of Mary Baker was due to leave the next few days, 'cause somebody had to let me in. In a day or so I was alone in the station with a full compliment of Collins radio equipment, gear the operator had trained me on during a few of my visits. Now, up to then my equipment as a kid had been with a 75 watt CW transmitter, a World Radio Laboratories- *Globe Trotter* with a *Knight Kit VFO*. At Mary Baker, I was tuning up a Kilowatt Linear Amplifier! Collins! And ohhh the signals that came over that receiver! I loved the Marine Corps more than ever. One morning during that first week I opened the front door of the station to watch my units with full combat gear rattling up the road, heading out for that Fifty Mile March. At that moment I missed them and felt very lonely, I even didn't want them to see me watching, so I guess I must have *turned too* on making Mary Baker better than ever. Some one had left some black tiles and mastic in the corner of the block building.

The station had established schedules with W6IAB and the station at 29 Palms. But with everyone off the base for the march, there were few Marines calling home. So after running a few calls, I started laying tiles. The previous operator told me he definitely didn't like the cement floor. He wore starched white Special Services shirts with KR6MB embroidered on the pocket and kept his gear and quarters very squared away, so I took a lesson and continued the esprit by doing the same plus laying this tile floor. I worked all day and on into the night. I didn't want anyone to say that I or my station was not squared away. It was good duty and I wanted to perform well without *any* trouble.

By midnight the floor looked terrific. I guess the tile floor had been the plan all along because there was an old filthy buffer and some floor wax in the back of the station. So on into morning, I waxed and buffed, the heater going and I remember there were spots where I had put too much mastic and if you stepped on it with bare feet, you could see an imprint of your toes. But I learned to thin out the mastic as the job progressed and as the wax build up toward morning, the floor looked great. With the heater and the flammable mastic its a wonder the whole station didn't explode. Job done. Deck waxed, my rack was tight, Mary Baker was spotless and I was ready for *any* visitors. If there was ever such a thing as a Gung Ho radio operator it was I.

Today, during correspondence with a young Marine in Iraq he said he had just come from duty at Schwabb, So as history and the Corps march on dealing with the awful realities of this troubled world I know that tile floor or at least Mary Baker and Schwabb are still out there looking out toward the East over the wide Pacific. That tile floor with all that wax should by now look *unbelievable.*

Semper Fi Mike Malsbary, February , 2007, Corporal - Weapons, 81 Mortars 3/7/3, MARS, FMF PAC 1964-1967

MARINES
THE FEW. THE PROUD.

Testing & Local Swapfests

VE Testing

Testing Session on March 26th, 10am-noon, April 2nd, 10am-noon.

Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Swapfests

Tri County Amateur Radio Club Swapfest March 20th.

Jefferson County Fairgrounds, Activity Center

503 North Jackson Avenue, Jefferson, WI 53549

AES SuperFest April 1&2, 10—3 PM Saturday, Friday, 3-7pm.

Amateur Electronic Supply 5720 W. Good Hope Rd. Milwaukee, WI 53223

Working Committees

Field Day

- Open

FM Simplex Contest

- Joe – N9UX
- Jeff – K9VS
- Brian— K9LCQ

Ticket drum and drawing

- Tom – N9UFJ
- Jackie – No Call

Newsletter Editor

- Michael-KC9CMT

Webmaster

- Joe Schwartz—N9UX

Refreshments

- Michael – KC9CMT

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) 332-MRAC (6722)

Address correspondence to:

MRAC, Box 240545, Milwaukee, WI 53223

Email may be sent to

w9rh@arrl.net

Our YAHOO newsgroup:

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

CLUB NETS:

- Our 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 127.3)

Milwaukee Area Nets

Mon.8:00 PM 3.994 Tech Net

Mon.8:00 PM 146.865- ARES Walworth ARRL News Line

Mon.8:00 PM 146.445 Emergency Net

Mon.8:00 PM 146.865- ARES Net Walworth

Mon.8:45 PM 147.165- ARRL Audio News

Mon. 9:15 PM 444.125+ Waukesha ARES Net

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

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

Tue. 7:00 PM 145.130 MAARS Trivia Net

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

Wed. 8:00 PM 145.130 MAARS Amateur Radio Newsline

Wed. 9:00 PM 145.130 MAARS IRLP SwapNet d FM-38 Repeaters (IRLP 9624)

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

Thur. 9:00 PM 146.910 Computer Net

Fri. 8:30 PM 28.490 MRAC W9RH 10 Mtr Net SSB

Fri. 9:00 PM 145.390 W9RH 2 Mtr. FM Net

Sat. 9:00 PM 146.910 Saturday Night Fun Net

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 146.91 Information Net

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

Sun 9:00 PM 146.91 Swap Net

2 meter 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.