



# The Repeater

Spring 2007

Distributed to all Current Members

## Notice of Annual Meeting and Elections

**Date:** April 19th, 2007

**Time:** 7:00 p.m. - 9:30 p.m.

**Place:** VE4WSC Club Rooms  
598 St. Mary's Road  
Winnipeg, MB

The agenda will include approval of the minutes of the semiannual general meeting, business arising, a treasurer's report, a report from our auditor, a membership report, and a technical report. These reports will be followed by new business, and finally, election of officers for the 2007/2008 season.

### Important Dates:

MRS: Thursday at 9:00 pm MRS Semi-Weekly Net  
Sunday at 1:00 pm - MRS Semi-Weekly Net

WARC: Summer 2008 - Wpg Hamfest / RAC AGM

ARES:

WSC: 2nd. Thursday of each month - Breakfast

Other:

Nets: Daily 19:00 Local MB Evening Phone net 3760 KHz  
Daily 01:30 UTC Prairie traffic Net (CW) 3660 KHz  
Daily 02:30 UTC Aurora #2 net 7055 KHz  
Daily 08:30 Local MB Wx Net 3743 KHz  
Weekdays 9:00 Seniors morning net 147.390 MHz +  
Wed. 02:00 UTC MB IRLP Net 147.27 MHz +  
Wed. 9:00 pm Six Meter net 50.238 MHz USB  
Thursday 9:00pm MRS Net 147.390 MHz +  
Sunday 9:00pm MRS Net 147.390 MHz +  
Sunday 7:30 pm VE4BDN net 146.940 MHz -  
Monday 7:30 pm VE4HS net 146.880 MHz -

### President's Report by Ed, VE4EAR

Welcome to spring everyone! I trust you are all as happy as I am to see that winter is ending and another spring/summer is on the way. Please take a few moments to sit back with this edition of the MRS newsletter and catch up on the projects that are underway and some of the plans for the coming months.

It appears our network has also made it through the winter relatively unscathed. Check out Gord's technical report for all the details.

The club appears to be in a strong financial position and this is a good thing. We should have the resources again this year to tackle some of the larger projects and expansions we have been planning. See Harm's financial report for more details.

What would spring be without the MRS Annual General Meeting!. Once again we will be having our meeting in the WSCRC's facilities at 598 St. Mary's Road on Thursday April 19 at 7:00 pm.. The AGM is an opportunity to review the last year's technical progress, establish a budget for the upcoming year and of course elect a new executive. It's also your opportunity to bring forward new ideas and let us hear your feelings. Something new this year... a contest complete with prizes for all members of MRS in attendance at the meeting. Join us at the meeting to participate and learn more.

After the business meeting and elections, please stick around for a brief presentation on repeater fundamentals.

The AGM is also your opportunity to elect a new executive. If you have an interest in joining the MRS executive, we would be glad to hear from you. If you or someone you know is interested in running for an executive position, please contact Dick VE4HK as soon as possible.

Regrettably, the MRS executive is losing Roy, VE4EN from its members. Roy has decided to step down after more than 15 years of service on the executive, most as

## M.R.S. Current Fee Schedule

Current & Renewal Members  
\$25.00 per calendar year

*New members only - Pro-rated quarterly*

January to December \$25.00  
April - December \$18.75  
July to December \$12.50  
October to December \$ 6.25

- First time members are no longer required to pay a one time only initiation fee of \$10.00 on top of the regular fee. Their membership fee is pro-rated for the first year only.

- Family membership is for each additional members residing at the same residence as the initial member. \$10.00 each

### Industry Canada Amateur Centre

Voice 1-888-780-3333 (toll-free)  
Fax: 1-613-991-5575  
E-mail: [spectrum.amateur@ic.gc.ca](mailto:spectrum.amateur@ic.gc.ca)  
Web: <http://strategis.ic.gc.ca/spectrum>

### The Repeater Advertising Rates:

All advertising is black & white and must be submitted in electronic format.  
full page \$75.00  
½ page \$40.00  
¼ page \$20.00  
bus.card \$10.00

For more information or to place an ad please contact any executive member.

Comments or if you just want to reach us :

**Newscaster Editor**  
**Manitoba Repeater Society**  
C/O VE4WSC  
598 St. Mary's Road  
Winnipeg, MB R2M 3L5  
<http://www.ve4.net/mrs/>

membership coordinator. We appreciate the countless hours of work that you have put in and we are going to be at a loss to find a way to end our meetings. All the best Roy, enjoy your retirement!

Amateur radio is changing! New modes, new regulations, and new members. The best way to stay up on all the changes is to become involved with your local clubs. Get out to the meetings, get on the air and communicate. Make a point to try something new this year. Perhaps give VHF SSB a try, how about satellites? Maybe contesting will be for you? VHF and UHF is a great place to experiment with antennas.

What about digital repeaters? Are they legal? What protocols can be used? Are there any benefits or any roadblocks ahead? Perhaps we can address some of these at the general meeting.

I know I am looking forward to an active and exciting year ahead for amateur radio and in particular, the Manitoba Repeater Society. I look forward to sharing some of these experiences with you.

### MRS - Help Wanted

The Manitoba Repeater Society Inc. is looking for technical assistance on our repeaters. Some background in radio electronics and electronic diagnosis and repair is preferred. Our Technical Committee members can train on our specific requirements, but we cannot train from scratch. Contact Dick VE4HK, Gord VE4GLS or Derek VE4HAY to volunteer.

## M.R.S. Current Executive

President	Ed Richardson	VE4EAR	254-8425
V/President	Al Seddon	VE4AJO	889-9692
Secretary	Dick Maguire	VE4HK	256-3143
Treasurer	Harm Hazeu	VE4HAZ	669-6425
Membership	Roy Maguire	VE4EN	669-1355
Technical	Gord Snarr	VE4GLS	746-2743
Directors	Yori Tsuji	VE4ACX	453-3786
	Walter Bezpalko	VE4VB	284-3054
	Bill Simm	VE4ALW	857-9266
Past Pres.	Phil Barton	VE4QB	253-0505
	Derek Hay	VE4HAY	257-1420

## Minutes of Semi-Annual General Meeting August 19, 2006 - Austin, MB

Meeting began 2:06 p.m., VE4HAY presiding  
VE4HAY welcomed members to the meeting  
Each member introduced themselves  
Minutes of April 20, 2006 Annual General Meeting approved as printed in the Newsletter  
Moved - VE4RA, Seconded - VE4UA, CARRIED

### *Treasurer's Report*

No report, VE4HAZ suddenly unable to attend  
VE4HAY mentioned that MRS may move our account to a credit union, due to problems with banks

### *Membership Report*

No report, VE4EN unable to attend

### *Technical Report*

Presented by VE4HAY, who requested that members read report in the Newsletter

VE4HAY discussed the ongoing problems with VE4WPG. Difficult to figure what is causing the problem. Someone must be at the site to hear what is happening. Problem not due to inversion

VE4GIM has problems with interference. The executive is considering a move to a Prairie Mobile Communications tower at Winnipeg Beach. A test repeater on 146.91 will be installed very soon. Some of the problem at VE4GIM is caused by corrosion from Seagrams Distillery.

VE4MRS at Bruxelles. (VE4HS site) Bottom element of antenna fell off. MRS will be installing our own wide area, linked repeater at Bruxelles, using VE4MRS call sign. Brandon Amateur Radio Club does not want VE4HS linked. (This is part of the agreement with Southwest ARC, when BARC took over VE4HS). We expect to do the installation this fall when Prairie Communications is ready.

Plans are to link to VE4NEP in Minnedosa, then on to Foxwarren etc.

The link from VE4FAL to Kenora is down, due to a problem at the Kenora end. VA4GD stated that the problem was probably an antenna. Kenora group cannot afford a tower climber.

Winkler repeater will be linked to VE4CDN, using a simple antenna. Paterson elevator at Morris is undergoing a major power upgrade. VE4CDN will be serviced after the upgrade is completed. VE4VB stated that the Winkler repeater has a range of 60 miles into the States.

Winnipeg Amateur Radio Club Inc is working on IRLP computer on VE4WRS. VE4MGR reported on the Seniors Net on August 18, that VE4WRS has been blacklisted, since the squelch tail is too long. This was the first report of a problem. There is actually no squelch tail on the repeater in IRLP mode. VE4HAY is donating a Pentium P3 computer to replace the one currently at VE4WRS. VE4DRC is too busy right now, to install it. He had to move twice, within a couple of months. VE4HAY solicited help with the IRLP computer from a UNIX expert. VE4EDE initiated a discussion about low output power on VE4WRS IRLP. It was explained to him that VE4WRS was desensed, to prevent out of Winnipeg autopatch calls.



VE4AEW asked if VE4CDN is presently linked to VE4MAN. VE4HAY answered that VE4CDN will be repaired after electrical work is completed at Paterson elevator. The upgrade should clear up our interference problem at VE4CDN. VE4MAN will be repaired later, and a new antenna will be installed.

VE4LB asked about the new frequency at Bruxelles. VE4HAY advised that it was being coordinated by VE4EAR. Coordination must involve North Dakota, due to proximity. Frequency may be close to 146.88, or far away, depending.

### *New Business*

VE4HAY announced that MRS was working on lots of repeaters. Refer to Technical Report published in the Newsletter. We are working to link as far as Yorkton, SK.

VE4HAY spoke to the Dauphin group. They are unable to assist us. The Interlake group showed some interest.

VE4HAY recommended that all RAC members sign the form to support Bj VE5FX, who is running for office with Radio Amateurs of Canada. Bj is doing an excellent job.

VE4HAY encouraged all amateurs to join RAC, since they are our voice with government etc.

VE4HAY announced that CBC contract for the Starbuck tower had returned to haunt us. A lawyer recommended signing the contract. Cost is \$1.00 annually. We must demonstrate in writing that we use VE4MAN for emergency preparedness. We can use 2 meter MRS nets, Canwarn nets, SET's etc. Must demonstrate community service. Commercial users should not be a problem

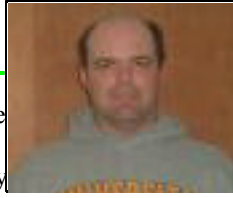
### *Notices for the Good and Welfare*

VE4HK spoke on behalf of VE4MBQ, thanking MRS for use of repeaters for Canwarn nets

No further business - Adjourn 2:37 p.m. VE4GWN

## Technical Committee

### Submitted by Gord, VE4GLS



Well springtime seems to have arrived (at least for now; we do live in Manitoba!); the snow is slowly disappearing, reminding us of all the work that needs to be done. Several projects on the go; upgrades to Starbuck, Links to Morris and further south need to be repaired, a new repeater to put up at Buydens Hill (Bruxelles), and moving the Gimli repeater to it's new site.

Starbuck (VE4MAN) is still operating but is giving occasional problems with noise and intermittent poor sensitivity. We have a brand new antenna waiting to go up the tower to replace the old one that has seen several decades of service. We are also working on a duplexer to replace the current filters; they have been exposed to high moisture levels and have some corrosion that is affecting repeater operation.

We have to wait for the CBC crew to perform service on their equipment before they will be able to change out our antenna, combining the work with theirs. Yori is working on the new hybrid ring duplexer, a really time-consuming task.

The UHF link radios have been giving us trouble and we also plan to replace L2 and L3 radios shortly to provide the backbone to Morris and Portage.

The link to Morris hasn't been working for a couple of years. This link is quite critical this time of year because this repeater would be instrumental in any ARES activities involving spring flooding as well as Canwarn activities. Hopefully we can set something up soon just in case. Flooding forecasts do not look as bad this spring as last year so far.

The Buydens Hill Project (Bruxelles) has been an ongoing operation. We did have our link system connecting to Brandon via this site but Mother Nature, in the form of lightning, caused a major disruption last spring. The repeater is up on a hill that is difficult to access even in good weather so we have to wait till things dry up before planning that trip. We have two MSR radios and a controller to re-install. We hope to have this operating before the Hamfest at the Peace Gardens, depending on weather and our availability.

Prairie Mobile offered a spot on their tower at Winnipeg Beach for our VE4GIM repeater. The tower is much taller with the VHF antenna right at the top. This should improve coverage east, west, and south of the current configuration. There may be improvements to the north as

well due to the increased height of the antenna. The link path should also improve and we are hoping for a 100% link from the new location. Expect to see the move sometime in the summer depending on our other projects.

#### *VE4EMB, 147.36+ MHz, Hadashville*

-Hot-linked to VE4FAL. Reports are that the link is only one-way from FAL to EMB.

#### *VE4MIL, 145.21- #42 Milner Ridge*

-Working fine. Link to Selkirk still pending. We need to install a tone generator to access the VE4MBR system in Selkirk.

-There have been power outages at this site; we plan on replacing a circuit breaker that may be causing the trouble

#### *VE4GIM, 146.85-, #44 Gimli*

-Working fine but the link is intermittent at times. We may be moving this repeater to a new site at Winnipeg Beach. The new site (Provided by Prairie Mobile) has a much higher VHF antenna and should provide better coverage to the Interlake area. The tower also has a UHF yagi already installed.

#### *VE4VJ, 443.500+, #45 Winnipeg*

-Working excellent! Great range and easy to work within 50 km or so of the city from a mobile. This system is under utilized for the coverage it has. UHF has less intermod and other interference when downtown. It is a great backup for VE4MAN until that system is repaired.

#### *VE4WRS, 145.45-, Winnipeg*

-Both IRLP and phone patch are working well. Made some improvements to the IRLP/phone patch systems so they get along a bit better.

#### *VE4WPG, 147.39+, #45 Winnipeg*

-Our most used repeater.

-Make sure the frequency is clear before bringing up the "link", and please ID. We seem to get the occasional complaint about this. Please set a good example for others.

#### *VE4MAN, 146.61-, #46 Starbuck*

-Operating at reduced output and receiver sensitivity until service can be performed.

-Requires antenna replacement and duplexers. Replacement planned this year.

-Requires link radios for western and southern repeater links.

**VE4CDN, 145.27-,#47 Morris**

-Working fine as a stand-alone system since 2005. Covers from Winnipeg South Perimeter to well south of the Canada/US border. Audio adjustments were made this fall to improve readability. Requires a 127.3 Hz tone for access.

**VE4PLP, UHF link site, S of Portage La Prairie**

-2 back-to-back UHF radios facilitate linking to Bruxelles site

-UHF link planned to connect to VE4PTG repeater in Portage

**VE4MRS, 145.31- #48 Buydens Hill (Bruxelles)**

-Link and repeater installation pending, hopefully before the Peace Garden Hamfest.

-Waiting for antennae to be installed and snow to melt.

**VE4NEP, 147.21+, #50 Minnedosa/Neepawa**

-Still operating in stand-alone mode. No link.

-We have a new VHF transceiver and a controller set aside for linking this repeater.

-We hope to have it linked in sometime this year.

Just received word we need to move this repeater By May 1st.

**Pinetree Inter-tie**

Just received word that the link from Falcon to Kenora is down.

**MRS Web Site:**

Sorry our web page has been unavailable for some time now. We are looking into getting it going again through a new domain.

**Special Credits:**

Murray VE4RE and staff at Prairie Mobile

-Supplying equipment, sites, and support for our club  
Yori VE4ACX and Walter VE4VB

-All the many hours of traveling, tuning, building, modifying, and hauling equipment for repair and service on our extensive network. These are the real technicians behind MRS!

We are in need of long runs of 7/8" Helix or LMR-400 transmission cable. If you know of roll ends or good quality used cable available please contact anyone on the board.

**WARC - Help Wanted**

The Winnipeg Amateur Radio Club Inc. is looking for one or more volunteers to take over administration of the IRLP system that is shared with Manitoba Repeater Society. Duties and capabilities include, but are not limited to the following

- login procedures
- audio alignment procedures
- other basic file management pertaining to IRLP
- basic computer skills are required
- must be able to run remote login software at home on a secure network/system. SecureCRT is recommended
- command line entry & GUI LINUX RedHat 9+
- ability to maintain strict security with passwords, IP addresses etc
- some experience setting audio levels, FM deviation,
- some knowledge of repeater setup and maintenance
- must be able to be allowed physical access to the VE4WPG secure site.

Contact Derek VE4HAY if you are interested in applying for this position

**CANWARN Spotter Training**

**By Jeff, VE4MBQ  
EC WPGARS, DEC Manitoba ARES**

CANWARN Spotter Training will be held 0930-1230h SAT 12 MAY at Union Station 123 Main Street Winnipeg (where Prairie and Arctic Storm Prediction Centre is located). Talk-in on VE4WPG 147.390+ MHz if required until 0930h. Exact room location will be announced during MRS Nets SUN 6 MAY & THURS 10 MAY. Location will also be posted on WPGARES web-site 2nd week of May [www.winnipegares.ca](http://www.winnipegares.ca)

This session is for new and experienced Spotters. The only prerequisite is that you must be a licensed Amateur. If planning to attend please register with you local ARES Emergency Coordinator or me by Fri. 27 APRIL.

We have booked a group lunch at The Old Spaghetti Factory at The Forks after Spotter Training. Cost is \$10.50 per person including gratuity and taxes. Lunch includes:

Salad with house dressing, Sourdough Bread, Spaghetti with meat sauce, Spumoni ice cream and choice of coffee, tea or soft drink. Please indicate when registering if you will be attending the group lunch after Spotter Training (we need at least 20 people).

## NUMBER SYSTEMS

By Ellis, VE4AJ0

From an early age we are taught to count in groups or multiples of ten; the decimal system and as anybody has tried to divide an object into 10 equal parts without aid of measuring devices has found it is not easy to achieve reasonable accuracy. On the other hand to divide an object in half and then quarters then subsequently eighths and on it is easy to obtain a fair accuracy.

Computer system and all digital equipment function with the binary numbering system. Each digit to the left being double the previous digit's weight. In the decimal system it is ten times the preceding digit

Binary	Hex
8 4 2 1	
0 0 0 0	0
0 0 0 1	1
0 0 1 0	2
0 0 1 1	3
0 1 0 0	4
0 1 0 1	5
0 1 1 0	6
0 1 1 1	7
1 0 0 0	8
1 0 0 1	9
1 0 1 0	A
1 0 1 1	B
1 1 0 0	C
1 1 0 1	D
1 1 1 0	E
1 1 1 1	F

In decimal these values are 1's 10's 100's 1000's etc. Binary on the other hand are 1's 2's 4's 8's 16's etc. Conversion from one system to the other is an exercise in basic arithmetic.

To convert 352 decimal to binary:

1. Find the largest power of 2 that when subtracted from 352 leaves a positive value
2. Doubling 1,2,4,8,16,32,64,128,256,512 we

find 256 is the value

3. Subtracting 256 from 352 leaves 96
4. Our most significant binary bit is a 1
5. Proceeding back to step 2 we must account for each number less than our starting value. We cannot subtract 128 from the remainder in step 3. Therefore our second binary bit is a 0
6. Subtracting 64 from 96 leaves 32. Our next bit is a 1.
7. Thus far we have 101XXXXXX
8. The next subtraction is 32 this leaves a remainder of 0
9. So our binary number is 101100000. The conversion is complete. Remember we must use zeros to hold positions as we do in decimal.

To convert 101100000 binary to decimal we count from the right side of the binary counting 1 2 4 8 16 as we move toward the first bit of a value of 1. The first 5 bits are zeros. 32 is the first 1 bit the next is the 64 bit. Added to 32 yields 96. The next bit 128 is a zero nothing to add. The last bit is

256 and it is a one so add 256 to 96 we arrive at 352 our starting value.

This leaves us humans with a long string of ones and zeros. If we were looking for a problem in a piece of digital equipment an oscilloscope would show us the corresponding voltage levels to our computed binary number. A mismatch would indicate the area of the problem.

But to communicate long strings of binary numbers for humans is a very difficult chore. A way to combine the binary into a short form was developed. This is Hexadecimal notation.

While in decimal we have 10 digits hexadecimal has 16 digits. DECIMAL: 0 1 2 3 4 5 6 7 8 9

HEXADECIMAL has the above 10 plus the 6 more borrowed from the alphabet and are used as digits. 0 1 2 3 4 5 6 7 8 9 A B C D E F

As we can see it is reasonably easy to convert binary to hexadecimal up to the value of 9 by placing 8 4 2 1 at the top of the column and adding the weight when a one is present. After 9 some memory hooks are needed. Remember to think of the Hex A as 1010 or better "ten ten" Skip the B for the moment and form the letter C with the first two finger of the left hand, now point the fingers vertical and we have 1100. Skipping over D to Hex E and following the same procedure our fingers pointing up show 1110 Hex F is Full or all Four Fingers.

Converting the numbers we skipped B is one more than A or 1011 D also one more than C or 1101.

This is a simple way to convert to and from hexadecimal notation. Conversion to and from decimal to hexadecimal is easiest done by converting to binary then to either hexadecimal or decimal form.

**Looking for a few good HAM's**

**Are you a member of RAC yet?**

If not maybe it's time you looked once again at joining. You know you looked at joining in the past, but put it off for some reason. Maybe it was the cost of membership. But have you considered the savings alone on liability insurance for your tower. That's right as a RAC member you automatically are covered for Liability insurance on your tower. Talk to your insurance agent, figure out what it costs you on your policy. And compare it to the cost of a RAC membership.

**Treasurers Report**  
**By Harm, VE4HAZ**

**Manitoba Repeater Society**  
**Year End Financial Report**

The financial position of the Manitoba Repeater Society Inc. as of December 31, 2006 is as follows:

Opening Balance as of Jan 1, 2006		\$5053.99
Self Insurance	< <u>\$2000.00</u> >	
Subtotal		\$3053.99

*Revenue:*

Memberships	\$2700.00	
Donations	<u>\$ 375.00</u>	
Cash Available for Use		\$6128.99

*Expenses:*

Equipment Maintenance	\$ 580.66	
New or Replacement Equipment	\$ 29.92	
Newsletter	\$ 158.64	
Insurance	\$ 150.00	
MTS (phone patch)	\$ 558.39	
Licenses and Fees	\$ 0.00	
Misc	<u>\$ 385.00</u>	
Total Withdrawals		<u>\$1862.61</u>
Total left for expenditures		\$4266.38

Self Insurance	<u>\$2000.00</u>	
Ending Balance December 31, 2006		<u>\$6266.38</u>

**Manitoba Repeater Society**  
**2007 1st Quarter Financial Report**

The financial position of the Manitoba Repeater Society Inc. as of March 31, 2007 is as follows:

Opening Balance Jan 31	\$6,266.38
Allowance for Insurance	<u>-\$2,000.00</u>
Usable Cash	\$4,266.38

Revenue:

Memberships	\$1190.00
Donations	<u>\$35.00</u>
Total Revenue:	<u>\$1225.00</u>
Cash Available for Use	\$5,491.38

Withdrawals:	Actual	Budget	+/-
Equipment Maintenance	\$0.00	\$700.00	-\$700.00
Equipment Reserve	\$0.00	\$3,000.00	-\$3,000.00
Test Equipment	\$0.00	\$1,200.00	-\$1,200.00
Newsletter	\$43.57	\$200.00	-\$156.43
Insurance	\$0.00	\$200.00	-\$200.00

MTS (phone patch)	\$140.73	\$600.00	-\$459.27
Licenses and Fees	\$0.00	\$50.00	-\$50.00
Misc	<u>\$11.85</u>	\$300.00	-\$288.15
Total Withdrawals		<u>\$196.15</u>	\$6,250.00
Total left for expenditures		\$5295.23	-\$6,053.85

Insurance Add back	<u>\$2,000.00</u>
Ending Balance March 31	<u>\$7295.23</u>

**Interference Hunting Using a Portable Radio**  
**Part 2**

**By Gord, VE4GLS & Paula, VE4MHZ**

In the Spring, 2005 issue of The Repeater, VE4s GLS and MHZ touched on the topic of Interference Hunting Using a Portable Radio. They described some techniques to aid in locating the source of the interference, which don't require any equipment other than an HT, your body and your brain.

If you recall, the basic technique is to use your body to shadow the signal, effectively creating a directional antenna. By watching the S meter on your HT, you can determine the direction of the source of the interference, that which coincides with the direction of maximum signal strength.

The antenna response or directivity using such an antenna "system" can be broad enough that it is not very useful, especially close to the signal source. However, replacing the whip antenna on your HT with one of the many hand held, directional antennas (usually a Yagi antenna) will only deliver a sharper response when you're far away from the source. Once you get close in again, you'll find that no matter where you point the antenna, your S meter will be "pegged".

The article in the Spring issue hints at a solution to this problem. Will it help if we reduce the signal entering the receiver by using an attenuator or listening to the third harmonic of the signal? Well, the answers to these questions are "sometimes" and "it depends".

If we use an attenuator, it will help for a little while. The ultimate attenuation of practical attenuators is only around 80 dB. Furthermore, however, a small portion of signal enters the HT directly through its plastic case, bypassing the attenuator. This influences the directivity of the antenna, and as we get closer to the source, more and more of this signal enters through the case. We end up back at square one with a broad, perhaps even misleading antenna response.

If we listen to the third harmonic, a frequency in the 70 cm band, we must use an antenna designed for that band (the directive pattern of a 2 m antenna operating at 70 cm may be quite unpredictable). The advantage to this method is that a 70 cm antenna, similar in boom length to a 2m antenna, is more directional. The sharper directivity (and higher forward gain) of the antenna, however, is a double-edge sword; again we end up with excessive signal strengths that make using the S meter impossible.

Each of these methods enables us to get closer to the source of an interfering signal. However, the tools that gets us another avenue closer (an antenna with better directivity) will ultimately lead to another roadblock (an antenna with higher forward gain resulting in useless S meter readings). At least we're getting closer.

One more tool in the back of tricks will appeal to home brewers: the active or offset attenuator. The offset attenuator, which is placed between a directional antenna and HT, addresses the problems of limited attenuation and signal bypassing by using a mixer whose conversion efficiency can be controlled. For example, suppose an interfering signal is on a frequency of 146 MHz (let's keep the math simple), and the local oscillator in our offset attenuator operates at 4 MHz. We could set our HT to 150 MHz (146 MHz plus 4 MHz) to listen. If there is some radio service already on that frequency, set the HT to 142 MHz (146 MHz minus 4 MHz) instead. Either way, what we hear is the interfering signal mixed to the new frequency (142 or 150 MHz), and the S meter won't be affected by the original signal leaking in through the plastic case of the HT on 146 MHz. Furthermore, the attenuation can be easily adjusted to over 100 dB. With the aid of a directional, hand held antenna, this method allows for close-in, accurate direction finding.

Do not attempt to transmit through the offset attenuator. Doing so could damage the attenuator, your transceiver or both.

For further information on constructing or purchasing an offset attenuator, simply enter the phrase "offset attenuator" into your favourite search engine.

### **Membership Report**

**By Roy, VE4EN**

Just a reminder that your membership may have expired at the end of December. Membership will be taken at the WARC flea market (see below for info) and at the MRS AGM (see page one for details)

## **MRS Elections**

Isn't it about time you put back into the club at least a fraction of what you have gotten out it.

Please put your name forward. Contact any executive member if you are interested .

### *What have you done to "promote amateur radio this week"*

That line we credit to an old News stalwart, Peter Parker with using in his old VK1 and VK3 casts many years ago and it still stands true --WIA

**QTX~**

**By Derek, VE4HAY**

*Welcome to Spring*



Did you notice the box in the top right corner of the page. Yes Elections are coming. And maybe it is time for you to think about joining the board of the Manitoba Repeater Society. Time to give back just a little for all you have gotten out.

Anyone going to Dayton ?? I am. I will be working somewhere at the show. My daughter needed help for her company, so I volunteered to help and to get a free trip. She promises that I will have free time to look around and shop.

73

## **Semi- Annual WARC Flea Market April 15, 2007 Heritage Victoria Community Club 950 Sturgeon Rd.**

Buyers doors open at 10:00 am  
Door prize draws 11:30 am  
**\$3.00 Entrance fee**