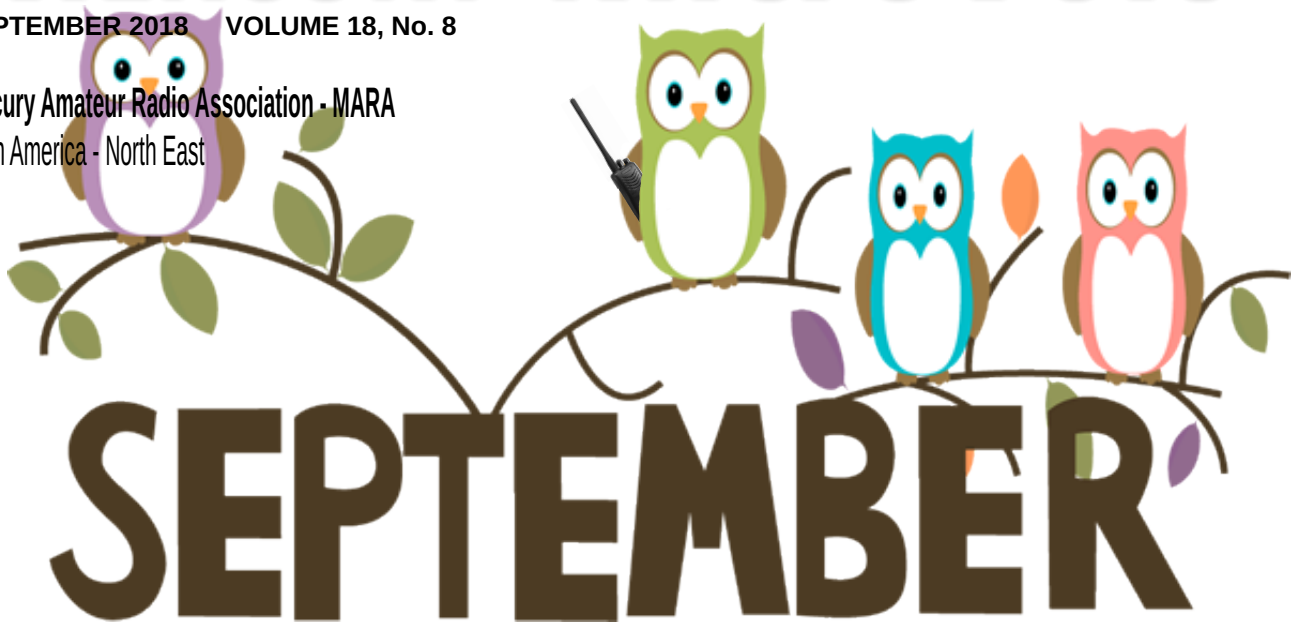
The MERCURY MicroVolt

SEPTEMBER 2018 VOLUME 18, No. 8

Mercury Amateur Radio Association - MARA
North America - North East



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OTHER STUFF

Links that will take you to web locations referenced in this newsletter are shown in italicized blue text.

Past issues of the MARA North East NEWSLETTER may be viewed at http://ne.mara.net/newsletters.pdf

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E-mail your comments, ideas, or submissions to MARAne@mara.net or to VE1VQ@eastlink.ca

FROM THE DESK OF THE PRESIDENT

MORE ABOUT USING F0F2

The following URL will take you to NOAA's list of Ionosonde Graphs which display the value of F0F2. The graphs display the current 24 hour period measurements and are updated every 15 minutes. In addition, the graphs display the prior day's measurements and also the prior four days.

https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/RealTime_foF2.html

On the page displayed by the above URL, you can select from a list of dozens of locales around the world and observe their measured F0F2 with measurements updated every 15 minutes. In addition below are the URL's identified for the Ionosonde sites within the United States. I cannot explain why there are not more Ionosonde sites within the US interior.

List of Ionosonde Sites of Interets to MARA Ops

Alpena, MI
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/AL945_foF2.png

Austin, TX
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/AU930_foF2.png

Boluder, CO
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/BC840_foF2.png

Elgin AFB, FL
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/EG931_foF2.png

Eielson, AK
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/EI764_foF2.png

Gakona, AK
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/GA762_foF2.png

Hanscom, MA
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/HAJ45_foF2.png

Idaho Falls, ID
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/IF843_foF2.png

Millstone Hill, MA
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/MHJ45_foF2.png

Vandenberg, CA
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/PA836_foF2.png

Wallops Island, VA
https://www.ngdc.noaa.gov/stp/IONO/rt-iono/realtime/WP937_foF2.png

Using the graphs

In my case, Wallops Island is less than 100 miles distant. So I pick it as the facility which will provide measurements which I believe will affect me the most. I can go to the graph on the internet and using the current value of F0F2 to determine what the highest frequency is that I can expect to support NVIS type communications. The general rule of thumb is that long haul communications can be sustained at a frequency of 3 times the F0F2 value. As an example, if my current F0F2 frequency is 3 MHz I can anticipate frequencies up to 9 MHz will support long distance communication. It does not forecast the quality of the link, but in general, my experience has shown the frequencies can support SSB comms running 100 watts at distances up to about 1500 to 2000 miles. It will not be armchair copy but it will be usable.

Lastly, if you follow a link and the graph is not displayed try again later. Periodically the links display blank pages.

73,
Chuck
WD4HXG

Grandma Mara's RAMBLINGS...

There are so many things to do these days, I don't know how I ever got things done before I retired. My father used to say the same thing and I didn't understand what he meant, but I do now that I've reached the same stage in life. What with responsibilities at home, at church, and with the other organizations I belong to, along with the things that Walter and I have in our "bucket list", I think I'm going to have to give up something to gain more time. Maybe I can do with less sleep. I know I could cut back on time spent eating and most likely be better off for it!

Walter says he is the same, with seemingly no time for a lot of the things he is so fond of doing.

Guess we both have to prioritize the tasks at hand.

One thing we both like to do is to travel. Not overseas, as the world seems to be to very hostile to strangers these days. And there are so many things to see and experience on our own continent. We decided it was a good time to travel up to VE1VQ's side of the 49th, what with the Canadian dollar being so much in our favor this year. The price of their gas is higher than ours but that same $ imbalance works to our benefit and helps even it out somewhat.

With our two dollars so out of wack, seems like a lot of Canadians were staying home or sticking to their own country for vacations. There were a few nights that we couldn't find a place at a camp ground for the RV and had to over night in a WalMart parking lot. Everybody was very friendly, with several folks we met even offering to let us stay in their driveway for free! Even though VE1VQ wasn't around, he had previously told us to make ourselves at home at his place. A couple of his neighbors stopped by to check, when they saw our RV in his front yard, like good neighbors do (or used to do in other places before they didn't want to "get involved"), and were happy to sit and chat when we told them we were "ham radio friends" of Dave.

All in all, we spent a couple of weeks wandering around Nova Scotia, New Brunswick, and Prince Edward Island before crossing the line back into the state of Maine.

We found the coastlines of New Brunswick and Nova Scotia to be much like that of Maine. Lots of rocks, marshy land, and short salt-stunted trees.

Figure 1 - Photo taken about ten miles from VQ's place of the Chebogue (pronounced Sha Bōg) River emptying into the Atlantic salt water.

Not at all good for supporting high-in-the-air wire antennas! Perhaps that's why we don't hear many stations from Atlantic Canada?

TECH AND OTHER STUFF

After several attempts at keeping the kite pole in the upright position, without the assistance of my granddaughter, in the presence of anything over a very slight breeze with the weight (small crushed rocks) in the bucket, I gave up and strapped it to the lawnmower tire with bungee cord. I suppose I could have added more stones, but the extra weight needed might have exceeded my ability to easily lift it out of the trailer. Since my garage is around the front and the grassy area is at the rear of the property, I will use the lawnmower and trailer to transport it anyway. If it was going to be anything but a temporary installation put up and taken down on the same day I would have added two guy sections of

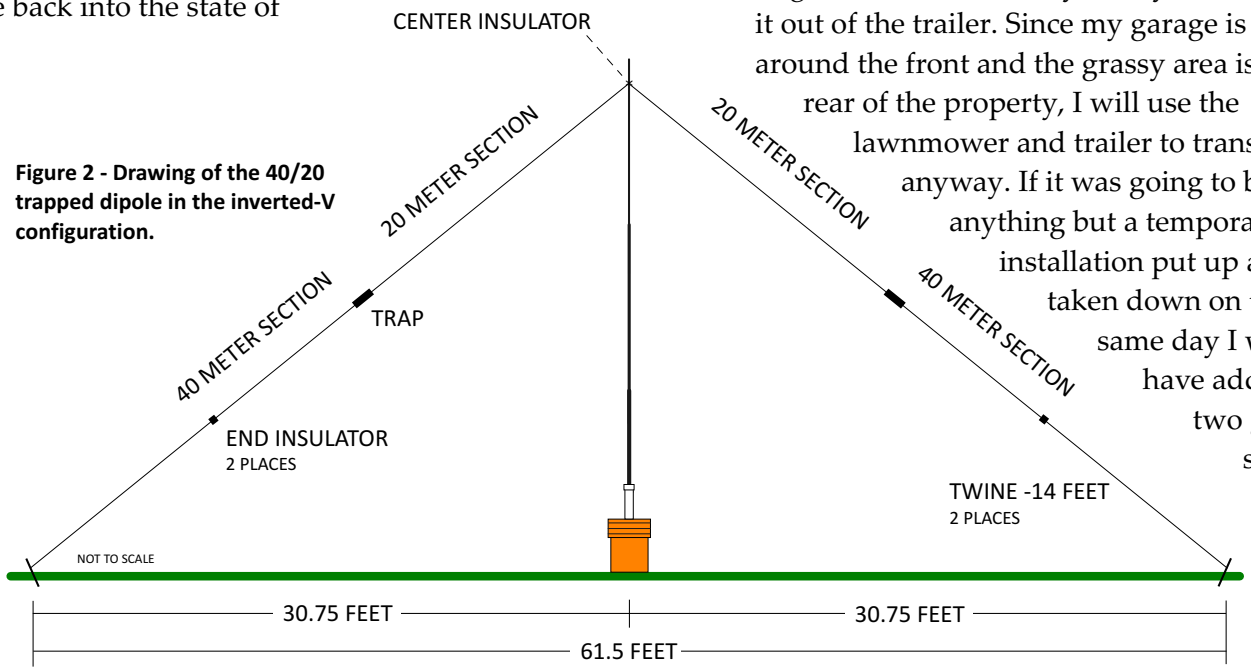

Figure 2 - Drawing of the 40/20 trapped dipole in the inverted-V configuration.

twine tied half way up the pole and offset from the antenna by ninety degrees.

Figure 3 - Bucket with pole strapped to the side of the lawn tractor wheel with bungee cords.

Before I dismantled the set-up after June's efforts and tests, I measured the length of twine from the ends of the outer wires of the antenna to the pegs (fourteen feet) and the distance between pegs sixty-one and a half feet). When I get the chance to do some more work on it I'll be able to set it quickly to the same place.

EASY TEN TEC JUPITER ENCODER FIX

My main station rig for many years has been a Ten Tec Jupiter (538). For those of you who keep track of such things, it is the earlier model with the green screen.

Slowly, over the years, two of the front panel rotary controls have gone intermittent - the BANDWIDTH and the MULTI. These are encoders rather than potentiometers. Years ago, before the company went out of business, I ordered some replacements just to have on hand.

Before the original encoders failed completely forcing me to swap the old ones out, I came across a possible easier ***fix on YouTube***. The guy who produced the video started out to replace his but changed his mind part way though and chose the simpler way. That one requires only a partial disassembly and the use of spray cleaner.

1. Remove the eight Phillips head screws holding the top and bottom covers on.

2. Remove the five additional smaller Torx (T10) head screws holding the top cover in place at the rear of the cover.

3. Carefully slide the top cover to the rear to clear the other two screw heads and remove it from the radio. Follow the speaker leads to the circuit board and disengage the connector. This and the connectors that follow that have to be disconnected are numbered as are the male connectors on the circuit boards.

4. Remove the small five Torx screws holding the bottom cover in place. Slide it slightly back to disengage the lip on the forward edge.

5. Place the two covers somewhere safe where you won't drop or step on them.

6. Remove the four Phillips flat head screws holding the front panel to the chassis (two on each side).

7. Carefully disconnect the smaller flat ribbon cable going from the front panel to the main radio. Use your thumb and fingers close to the connector to wiggle it slightly and pull it straight out. It will have some resistance but should come out without difficulty. Either end

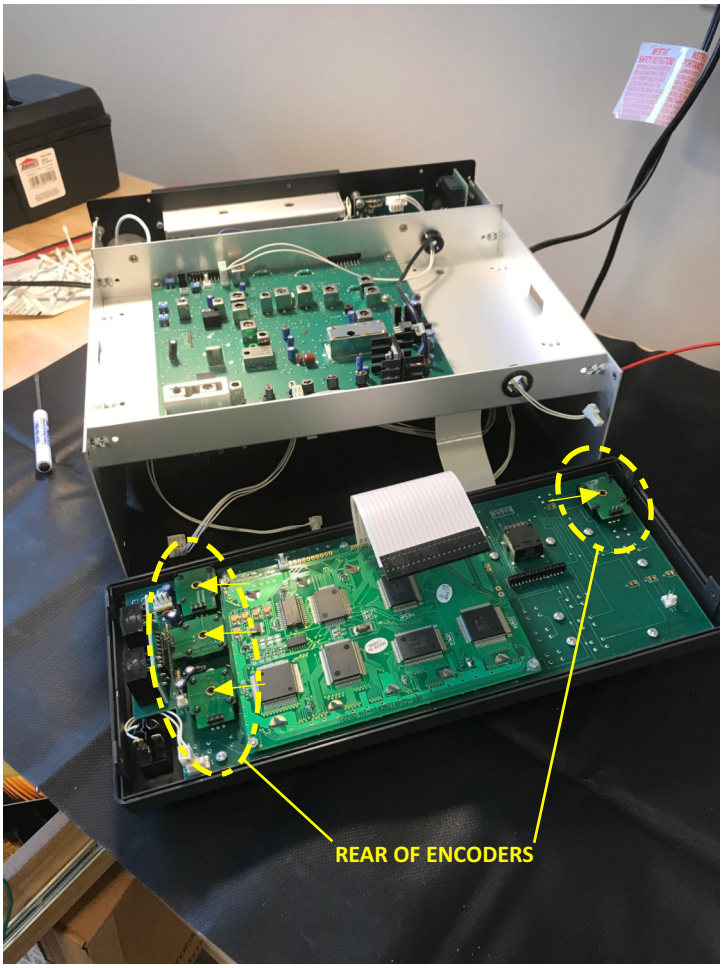

Figure 4 - Ten Tec Jupiter apart on the workbench on an anti-static mat. The front panel has been unscrewed from the main chassis and the cables have been disconnected. Three encoders (BANDWIDTH, PBT, and MULTI) are shown circled on the left and the fourth on the right (RIT/XIT). The four arrows indicate the place (end of encoder shaft) to spray the cleaner.

may be removed.

8. Carefully disconnect the larger flat ribbon cable at the chassis end. This cable has a flat connector on it and will lift straight off. Pull on the connector rather than the cable.

9. Remove the white wired connectors from the front panel circuit board. These will be numbered on both the connector shells and the board.

10. Remove the knob outer rings by pulling them straight off. This will expose the single hex head screw in the side of each knob.

11. Using a 0.050 hex key, loosen the hex screws and remove the knobs on the four control shafts.

12. Remove the rubber O-ring from each shaft. These O-rings provide friction for the knobs.

13. Spray a few drops of cleaner into the circular depression at the rear of the encoder shaft housing (indicated in Figure 4 by the arrows). Let it soak in for a minute and then rotate the shaft from the front. Spray a few drops around the shaft at the front panel side. Wait a minute and rotate as before.

14. Repeat for all of the encoders.

15. The YouTube video shows also spraying around the side of the encoder. I considered that a waste of time and cleaner but you can do it if you want.

I couldn't get the ECG cleaner he used, here in Canada, short of purchasing a whole case. I matched the specifications up with ***MG Chemicals ELECTROSOLVE Contact Cleaner for Electronics, Catalog # 409B*** in the 140 gram spray can (MG-409B-140G) and ordered it from ***ABRA ELECTRONICS***. It says it leaves zero residue and is safe on plastics.

Hoping for the best, I sprayed each control as above. I repeated the process several more times with a half hour or so wait in between applications.

Reassembling in the reverse order to where the front panel was fastened to the chassis, I temporarily connected the speaker and the power leads and applied power. Wonders of wonders the radio powered on and the previously intermittent controls now worked like it was just of of the box!. Using a short length of coaxial cable with connectors and a clip lead for an antenna, I searched a "dead" twenty meter band until I found a very weak W1AW sending code.

Sometimes the simplest fixes are the best!

INTERNET MODEM RESET TIMER

A few months ago, the ***US-CERT (United States Computer Emergency Readiness Team)*** issued ***a notice about malware affecting Internet modems***. Their suggestion was to periodically power cycle your home or small office Internet modem to clear the malware.

Originally, I simply unplugged the power to the modem. After a few times of doing that, it became a bit of a task to remember when I did it last and when I had to do it next. I found one of the AC timers we use for interior Christmas lights, but that rebooted it every twenty-four hours, which was not bad except that every night my battery back-up sump pump Internet connection would register a power fail and a re-start, with two text messages. Not so good in the wee hours of the morning if I forgot to turn my cell phone off.

Searching on Amazon.Ca I found the ***Kuman Digital Timer*** good for 15 amps/1800 watts and programmable for group or individual days of the week with several on/off events per day.

The unit has an internal battery to retain user settings during a power failure or moving it from one room to another. Before doing anything with it when you open the package, plug the timer into an outlet for a few hours and charge the battery.

The first thing you do then is to press the

"RESET" button with the end of a paper clip or something similar, to clear anything that may be in the memory. Then set the day of the week and the time of the day. After those are complete, you can begin the actual programming.

It took a little while to figure out the way to get it to turn OFF for a few minutes and then back ON for the rest of the week. Usually, people want to turn something ON for a length of time, then turn it OFF.

When you enter the programming mode, the first item you see will be the settings for the ON time. Choose the day. I picked Sunday for no real reason. Now, set the ON time. I set mine to 2:30 am. Next, set the OFF day again to Sunday and the OFF time to a time ***BEFORE*** the previously set ON time. I arbitrarily set mine for 2:20 to give me a power off time of ten minutes.

You will most likely have to wait for the ON time to occur and the outlet socket is powered up. Only then will you be able to move the timer and plug your modem into it and have it work.

In my experimentation to arrive at the above, I set the OFF and ON times for the day I was testing it and a five minute time difference. I plugged a table lamp in the socket so I would know for certain. The timer has a bright blue LED on the front to indicate when power is being supplied to the outlet but I wanted to be sure it was working as expected.

Once I was satisfied the timer would switch off for a short period on the same day, I changed the programming to Sunday, moved it to the furnace/electrical room, and plugged the modem into it. On Sunday morning when I awoke and turned my cell phone on, there were two text messages from my sump pump on-line account telling me the power to my Internet had failed and then re-started. If I hadn't had this way to test whether it was working or not then I could have looked in the modem settings to see how long it had been since the last re-boot.

I checked ***AMAZON.COM*** but couldn't find the same timer and maker listed. Instead, I found a very similar looking one supplied by a company called ***UKOKE*** for $10.99 USD. I checked the specs and they appear to be identical.

DID YOU PARTICIPATE IN FIELD DAY 2018?

Did anyone get on the air for Field Day this year? It doesn't matter if you did it on your own or with a group. If you did, we would like to hear about it. Send a write-up of what you did, in an e-mail to ***ve1vq@eastlink.ca***

For those of us who try (unsuccessfully) to get on the air for Field Day each year, it will give us hope that, maybe, just maybe, it will come to pass next year!

Pictures, if you have any would also be nice.

THE MOVE IS UNDER WAY

As I write this in early to mid August, we are in the process of moving the NE MARA E-Mail Reflector from YAHOO GROUPS over to GROUPS.IO. So far, I've got the new group set up for testing, with myself and WD4HXG as members. I've started the (supposedly simple) process to transfer the YAHOO membership over but so far it hasn't happened, possibly because it is a weekend and everybody at GROUPS is away. Or I did something wrong that would cause the whole process to come off the rails. Whatever! I'm sure it will get figured out eventually. If the "simple" transfer process doesn't work then I'll do it by posting a message on the YAHOO reflector page to invite you all.

The new reflector should give us more options.

And, if you haven't noticed, YAHOO has had its share of problems over the last few years.

> "In September 2016, Yahoo revealed a hack that compromised 500 million user accounts. In December, the company revealed yet another hack, this time affecting a record 1 billion accounts. On Tuesday, Yahoo updated that number to all 3 billion accounts its service (sic).
>
> The hack exposed names, email addresses, telephone numbers, dates of birth, encrypted passwords and unencrypted security questions."
>
> From a CNET article 3 Oct 2017

This week, several of our members noticed messages coming from the MARA NE reflector were being repeated several times. While we were not the only YAHOO group to which this was happening, it was the final annoyance that triggered our president, WD4HXG, to ask me to hasten the change.

UPDATE - 15 August - Nothing had progressed in the last few days so I sent a query to GROUPS IO support. In less than an hour, I had an e-mail from them indicating a jump start of the process. After that, things progressed as advertised. Several days later, the names of members had been transferred to the new group.

At some point in the near future we will be discontinuing and disabling the group - so long YAHOO!

COMING UP

MARA NORTH EAST ANNUAL MEETING

The 2018 Annual Meeting will be held on Saturday, the 29th of September, at 10 am Eastern. Watch the mail from the e-mail reflectors (NorthEastMara@Groups.Io and mara_ne@Yahoogroups.com) for further information. At this point in time, it is still being decided what means will be used to hold the meeting. Skype is one possibility, Google Hangout is another. Free phone conferencing is still another.

Items to be considered will be

1. Vice President and Secretary positions are up for a vote. Steve, K2KEL, and Dave,VE1VQ, are both re-offering. Steve would not be unhappy if someone else wanted the VP's job!

2. Change in the Constitution to set a fixed annual meeting date.

3. Change in the Constitution so that if the executive has not convened an annual meeting within 45 days of the established annual date, the members may set a date to hold the meeting without further direction or input from the executive.

4. A possible name change for Mercury Amateur Radio Association (MARA) North East. Seeing as other MARA groups have disbanded and some of the members of those groups have joined us, as well as those from other parts of the world, perhaps it is time to come up with another name.

5. Change our Constitution's Preamble/Mission Statement to better reflect current circumstances.

> Whereas the membership of MARA-NE desire to retain our mutual association as church members, and
>
> Whereas no direct relationship should be purported or implied that MARA-NE has a direct support role for the LDS Church (The Church of Jesus Christ of Latter-Day Saints),
>
> Therefore, be it resolved that the MARA-NE Constitution Preamble be amended as follows:
>
> We, the Membership, wishing to secure for ourselves the pleasures and benefits of an association of persons in the LDS Church or otherwise commonly interested in Amateur Radio, and in developing and maintaining emergency communication skills, constitute ourselves the Northeast Mercury Amateur Radio Association (hereafter known as "the club") and enact this constitution as our governing law. It shall be our purpose to further the exchange of information and cooperation between members; to promote radio knowledge, fraternalism and individual operating efficiency; to conduct programs and activities to advance use of Amateur Radio for emergency communications; and to provide training, support and encouragement for those who would serve in emergency communications.
>
> Therefore further, be it resolved that the MARA-NE constitution "Article 1 - Membership" be amended as follows:
>
> All persons interested in providing emergency communication services by Amateur Radio shall be eligible for membership. Membership shall be by application and election upon such terms as the club shall provide in its By-laws.

The Constitution, By-Laws, and Resolutions may be seen in their entirety at ***http://ne.mara.net/constitution.pdf***

…continued on page 9

CQ-CQ-CQ-CQ-CQ-CQ

LATTER-DAY SAINT AMATEUR RADIO OPERATORS

If you are an amateur radio (ham radio) operator and a member of The Church of Jesus Christ of Latter-Day Saints, we would like to hear from you!

We are the Mercury Amateur Radio Association (or MARA), formerly the emergency communication arm of the Church. With the changes in policy over the years, we are no longer associated with the Church in that capacity. Instead, we are a social group made up of members of the Church and their friends who are amateur radio operators.

If you have an interest in finding out more about MARA or if you are simply interested in learning about amateur radio, please contact us.

By e-mail - ve1vq@eastlink.ca

By HF radio - Saturday mornings - informal round table starts at 0630 Eastern with formal net beginning at 0715 Eastern on 3.8725 MHz SSB. No time shift for Standard or Daylight Savings.

If you choose to join us, there are no dues - and we will never ever send missionaries to your ham shack!

Here is the MARA notice you can print out and pin to your ward or branch chapel notice board.

Use the one that best suits the space available to you, or you may enlarge or reduce the size to suit.

Unless you are the Bishop, the Branch President, or the building representative, it is always best to ask for permission to post it. Doing this keeps toes from feeling like they have been stepped upon.

CQ-CQ-CQ-CQ-CQ-CQ

LATTER-DAY SAINT AMATEUR RADIO OPERATORS

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Should you have any thoughts on any of these proposed items of business, or you wish to have another item added to the list, please send them to VE1VQ@eastlink.ca (Secretary Mercury Amateur Radio Association - North East)

The Mercury Microvolt Newsletter is always looking for articles or pictures of interest to LDS Hams.

If you have a radio related project, or simply something you think might be of interest to the readers, please contact Dave at VE1VQ@eastlink.ca

Perhaps it's an antenna you made or a new station you assembled, a two meter mobile installation, a new handheld or an HF rig you bought, a field day operation or a mini DX-pedition to the field behind your house that you could write about. Whatever it is, we would sure like to hear about it.

QUOTE OF THE MONTH

I want to inspire people. I want someone to look at me and say "Because of you I didn't give up."

Unknown

DI-DAH-DI-DAH DIT

By the time you read this, my XYL and I will have travelled across the continent twice, once from Alberta east to Nova Scotia at the end of July by car, and again from Nova Scotia to Alberta at the end of August by air. The eastern leg will be be largely via the Interstate highways of the northern United States (from Alberta down into Montana across to New Jersey and up and out of Maine into New Brunswick and then to Nova Scotia).

It used to be that we didn't mind fifteen hour driving days, eating in the vehicle while we drove, stopping only for gas and bathroom breaks, and could do the trek a lot quicker. Now, we tell ourselves that we want to stop and see some of the sights and attractions along the way, not that we are getting older and can't take the long days like we used to do! Good thing we both like to travel by road - good thing for remaining married!

The return trip in August will be by air. Much faster, and most likely - with the price of gas and hotel rooms - less expensive.

The "thrill" of flying wore off years ago, and is even less lovable now with the sometimes hassle of

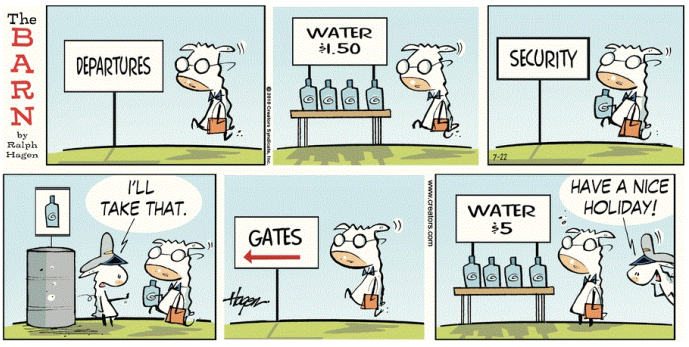

Figure 5 - Comic strip *"The Barn" by Ralph Hagen* showing one of the joys of travel by air. You can read many of your favorite comic strips free on-line each day at *GoComics.com*.

over-zealous power anxious security people, increasingly narrower space between rows of seats meaning less leg and knee room, extra charges for luggage, and smaller over head bins forcing you to pay for more checked baggage. Besides all of these and other things to love about flying the friendly

skies, I get motion sick unless I take two kinds of motion sickness medications.

I always book the window seat so I have some some place for my arms that you don't get in the middle or isle seat, and so I don't have to get up when somebody in my row wants to go to the wash room, or so my arm doesn't get bashed by the drinks cart or other travellers staggering down the isle to that same wash room at the rear end of the plane.

Figure 6 - One of those attractions was the Badlands National Park in South Dakota. A 244,000 acre volcanic up-thrust in the middle of flat prairie land. Signs warn visitors to stay on the trails and walk ways because of the snakes. There were young children and teenagers climbing the smaller accessible mounds and sticking their hands in holes and crevices. These are the ones whose parents would likely sue if their dumb offspring got bitten.

My ideal flight is to fall asleep as we pull back from the terminal and to wake again when the wheels touch the ground at the other end. I've come close but some well-meaning flight staff person always gets on the PA system and announces we are starting to descend for landing in a half hour, waking me up!

For me, the only good things about flying are that I get a chance to read (which I can't do in a vehicle - same motion sickness), to catch up on my sleep (helped by the two motion sickness pills), and that it is faster than any other mode of travel.

Otherwise, give me travel by road any day! Now, if I could only convince my XYL to let me install a VHF mobile rig to help pass the time between those attractions…

Until next month,
VE1VQ