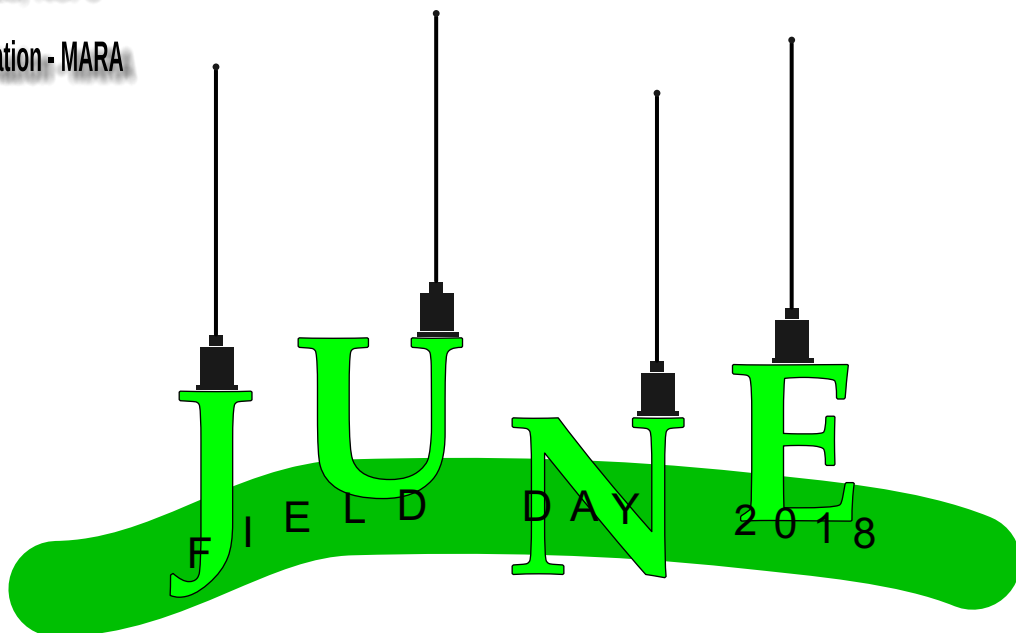


The MERCURY MicroVolt

JUNE 2018 VOLUME 18, No. 6

Mercury Amateur Radio Association - MARA
North America - North East



CONTENTS

2

FROM THE DESK OF THE PRESIDENT

A MONTHLY MISSIVE FROM WD4HXG - BE AWARE

3

GRANDMA MARA'S RAMBLINGS

• THOUGHTS OF AN OLDER PERSON - GETTING READY FOR FIELD DAY

4

TECH & OTHER STUFF

- REPAIR THE BIRD 43 ELEMENTS
- PI HOLE REVISITED - A CURE FOR A PROBLEM
- READY FOR FIELD DAY?

6

CHAPEL BULLETIN BOARD MARA NOTICE

• REACH OUT AND FIND SOMEONE

7

QUOTE OF THE MONTH

• BUDDHA

7

DI-DAH-DI-DAH-DIT

• CAN WE BELIEVE ANYTHING WE HEAR?

OTHER STUFF

Material contained in this newsletter is copyrighted © by the Mercury Amateur Radio Association North East, or by the individual author where so noted.

Reproduction of material appearing in this publication is encouraged, as long as the source credit is given. Permission to reproduce articles copyrighted by an author must be obtained from that individual.

Links that will take you to web locations referenced in this newsletter are shown in [italicized blue text](#).

Past issues of the MARA NE NEWSLETTER may be viewed at <http://ne.mara.net/newsletters.pdf>

This site does not use or place cookies or tracking whatzits of any kind on your computer.

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

Situational Awareness

Professional Forces train to be alert for hazardous situations when in uncontrolled surroundings. They use the term 'Situational Awareness' to define the state they maintain during a high risk action. In each cycle of training the concept is reviewed. It is one of myriad tools leveraged too enhance the individual's security.

Like Professional Forces, we need to be cognizant of our surroundings. While we may not be facing an armed individual, we do encounter risky situations. Like the proverbial Boy Scout motto, 'Be Prepared'.

Your Computer & Situational Awareness

Most computers today arrive with a built in camera that can provide a live video feed of you and your background. This marvel of engineering is like a double edge sword and one needs to be aware of the risks this device and built in audio services in computers bring to the home, especially areas we consider private.

Opportunistic schmucks (aka actors) using malware tools can compromise your computer, allowing the actor to intercept the camera video and often the microphone audio. Unlike old wireline telephones where clicks were heard when J. Edgar's elite surveillance teams were listening in on Capone, you will not see or hear any warning that someone else is watching and/or listening.

Bad Actor's Search and Exploitation of Lax Situational Awareness

When we let our guard down and become complacent we tend to let little things slide. While failure to maintain any one step in your computer security may not be the straw that breaks the camel's back, it can allow an intruder entry into your Home LAN. Using tools such as NMAP

(available from www.nmap.org)

and Kali Linux (available from www.kali.org) , actors ranging from curious adolescents (think the teenager next door) to state sponsored miscreants (think underemployed Russian Computer Scientist), can use NMAP to rapidly search entire blocks of IP Addresses in search of an improperly configured router or router which has not had the firmware updated in years.

Tracking a hacker down is labor intensive, and assuming the hacker is identified, he/she may be in another nation on another continent making apprehension and prosecution unlikely.

Defensive Methods and Techniques

- Turn off your computer when not in use.
- In light of recent CERT warnings relative to routers, power cycle your router daily. (To make it easier buy a mechanical security lamp timer at Lowes or other home supply store and insert it into the Power going to your router. Set the timer to turn off at 2 AM and back on 15 minutes later. Or you set the timer to turn the router off for longer periods when not in use.
- Update the Operating Systems on all your devices regularly, Windows, Linux, macOS, Android, iOS, etc. Turn on Auto-Update.
- Update your router firmware to the most recent release.
- Update the firmware on each device, computer, mobile, laptop, IOT, etc.
- Cover the camera lens with a piece of paper or tape if there is not an integral lens block.
- Turn off the microphones in software and if a hardware switch is used on your device turn off the microphone switch. If there is no switch but an external microphone jack is provided, use a microphone plug to open the integral switch in the microphone jack which normally disconnects the internal microphone physically. Most jacks are 3.5 mm and can be purchased online for about \$1.00.
- Get on [CERT's alert distribution list](#) for earliest possible notification when a new threat is identified.

See the sample web page from their site in Figure 1.

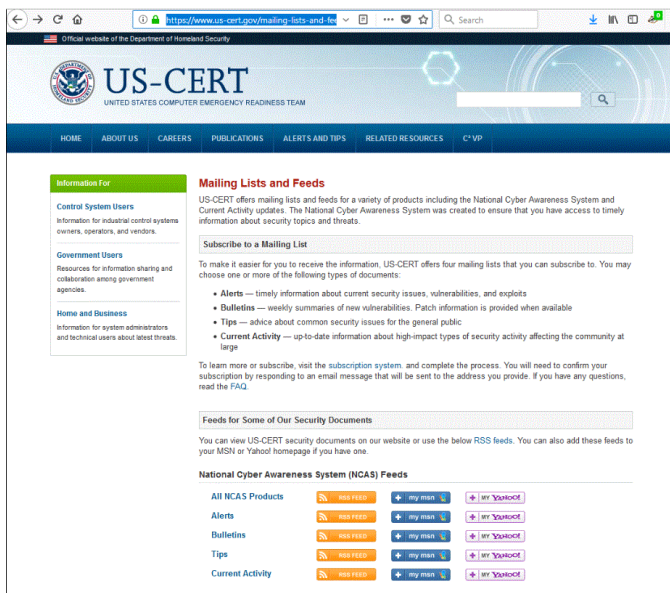


Figure 1 - Screen capture of the US CERT website at <https://www.us-cert.gov/ mailing-lists-and-feeds>

Maintain your computer situational awareness. Otherwise your image and/or something you say may go viral.

Grandma Mara's RAMBLINGS...

Walter tells me to get over it, that this is another part or phase of life and to enjoy the “ride” while I can. This being a reference to last month when I was moaning or lamenting the fact that I didn’t have a motorcycle any longer. I think his actual word was “whining”! It’s hard though, this change in my life, what with having ridden or owned one since I was in my teens. Grandma can remember when you didn’t have to wear a helmet when you were on a bike! Although not doing so now seems to be rather stupid when you think about the damage to your skull that can result from sudden and speedy contact between one’s noggin and the asphalt.

On the positive side of things, Walter’s heart specialist has given him the go-ahead to resume his normal activity level, which means that we can make

definite plans for a road trip or two this summer. I guess all of this walking we’ve been doing has paid off. We’ve even lost a few pounds from that and cutting back on the extra food intake, especially the sweets and treats between meals, and the unnecessary excess of soft drinks we used to partake of.

Walter teases me that it was all the fault of my culinary abilities that he had put on that extra twenty pounds since we’ve gotten hitched. Whatever the reason, we are both feeling better for it.

This year it seems like Field Day snuck (sneaked) up on us. Oh, we have been informally discussing over these late winter/early spring months just what it was we wanted to do, but it seems like we never formalized those plans. Walter had booked our usual place where we have been for the last several years, so that was secure. His bout with his heart and Wendy and her boyfriend moving off to university and mission respectfully kind of messed with the rest of the plans. Good thing the seniors were on top of it and have it all under control. They informed us they will have all of the food taken care of, and have contacted individuals about using their rigs and other equipment. Walter’s portable antennas were checked out after last year’s Field Day and are already to go for this year other than a visual inspection and ohm meter check when they are unpacked.

We’ll have our usual CW and SSB and “newbie” stations, as well as a PSK-31 position. New this year will be an FT-8 setup provided by Walter.

Something else new this year safety-wise is a GFCI (Ground Fault Circuit Interrupter) protected distribution system for power from the generators. We’ve never had a problem but Walter figures it’s better to be safe. We may be seniors but we want to stick around for a while yet.

Our original FD activity that started out with a couple of people and has now turned into a group of over fifty. Since we don’t have enough rigs to provide operating positions for everybody, we have sign-up sheets for those who would like to get some air time or to help with the logging. When they are not operating, logging, or eating, people sit around and do what hams do best when they get together - they talk to each other.

REPAIR BIRD 43 WATTMETER ELEMENTS

When I was an active sub-contractor for one of the major computer companies, servicing ATMs, or printers, or desktop or laptops, customers would often say to me that the work must be really, really difficult. My reply was that ninety-five percent of repairing anything is figuring out how to get the darn thing open or apart so that you can figure out exactly what the problem is.

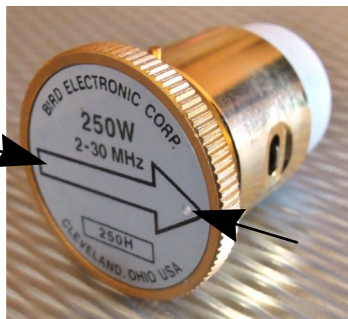


Figure 2 - Bird 250H element with arrows showing the supposed rivet locations.

That seems to be the way with Bird 43 elements. There is a lot of information on-line about various ways of opening them up but I suspect a lot of it is incorrect. It may be the case of one person saying something first and others repeating the same “fact” over and over again.

I’ve seen it stated that the labels on some are fastened with a rivet or rivets. The “method” to open these is to drill out the dimple in the point of the arrow head. Others say you have to drill a second location in the center of the arrow’s tail end. Pictures I’ve seen of the element after the label has been removed show no trace of a hole for a rivet in the body. What is shown is a hole that the dimple in the label uses as a locator to position itself. Traces of old adhesive are also shown after the labels are removed. I suspect they have used an adhesive for a long time, perhaps from the start. Glue is a lot cheaper and easier to install than any rivet.

Before you get all set up with your cutting torch and jack hammer equipment, take a moment to think through the problem with the element.

There is a way to perform a test without using a

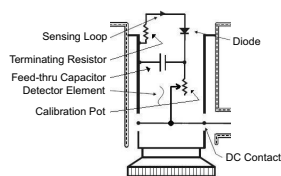


Figure 3 - Diagram of the Bird 43 element.

transmitter. Using the resistance measurement function on your VOM or digital meter will give you a rough idea of the problem. If you look at Figure 4 which is a

simplified version of Figure 3, you can see that there are only five things in series - a terminating resistor, a sensing loop, a diode, a calibration pot(entiometer) and the DC contact plate.

Using your meter on a high resistance scale, or “auto” on a digital meter, measure between the metal

ring (shown in Figure 4 with the red colored meter probe) and the either of the two “contact” points. On the non-working 250H element that I have the two readings were 80K one way and 800K the other (leads reversed from the first reading). This says that the element should be working! Measurement of a 2500H slug (which worked the last time I used it) gave me similar resistance readings.

The most likely reasons for slugs to fail would be from excessive RF power (terminating resistor, sensing loop, diode, or calibrating pot failure), or general age related failure of terminating resistor, diode, or calibrating pot.

Value of the terminating resistor can be read from the body of the component. A replacement for the pot is given by one source as Digikey 3329H-1-253LF-ND. No real information was found for a replacement diode.

Some have written to say that the calibration pot has been a common failure point. In fact, there is a video on YouTube where the author raps the element on the table to clear an intermittent potentiometer failure.

Others have said cleaning the two contacts with the light touch of a soft eraser will often fix a non-working element. It wouldn’t hurt to clean the metal barrel with some mild cleaner and a soft cloth.

If none of the non-intrusive methods fix the problem then opening up the element is the next step. Most likely any defective element you come

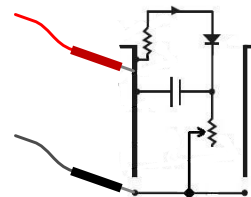


Figure 4 - Same as Figure 3 but with only the electrical section shown. Test meter leads have been added to show measuring points.

across will be the one with adhesive holding the label so proceed accordingly unless you find out otherwise.

Some said you had to first manually pry off the label with a couple of small thin flat screwdrivers (which would likely destroy the aluminum label), some said you had to drill one or two holes in the label at the point and/or end of the arrow and then use the screwdrivers (which would definitely ruin it!).

Another page mentions using a heat gun on its lowest setting to warm up the label for a few minutes, to soften the adhesive, then using a dental pick to lift it from the element.

Recently, I saw one where you soaked the label end of the slug in a very shallow amount (about an eighth of an inch) of solvent. Now, that way (or the heat gun method above) made more sense than the prying and drilling methods. I can't see Bird or Coaxial Dynamics using such destructive ways to start out a repair.

Two solvents were mentioned in the web pages I looked at: the first was **MEK (methyl-ethyl-keytone)** and the second a commercial product called **Goof Off**.

Goof Off is readily available at places like Home Depot, Lowes, WalMart, Canadian Tire, and even Amazon.com. MEK is available from MG Chemicals and Amazon.ca. Whatever solvent you choose, common sense says you use it in a well ventilated area, avoid skin contact and breathing of fumes. While your watt-meter slug is soaking, keep the container covered to avoid evaporation. A twenty-four hour soak time was suggested by one writer when using MEK, and less time than that (unspecified) for the Goof Off. Once the label has been removed, use compressed air to remove any left over solvent, or let it air dry.

Once the element is open individually check the



terminating resistor, diode, and the calibration pot.

For various web pages I found that deal with these repairs see the links below.

PI HOLE REVISITED

When I originally added the PI HOLE advertisement killer to my Nova Scotia and Alberta networks, it would not let me view sites which I found when doing a GOOGLE search, that were prefaced with [AD]. This I found happened when using "8.8.8.8 (GOOGLE's server address) as the "alternate DNS Server setting" (under "Use the following DNS Server addresses"). Also, if I wasn't connected to either of my networks but to say, one in a hotel, my laptop would not connect to the Internet at all when using the alternate (8.8.8.8). I would be forced to change to "Obtain DNS server address automatically".

I recently tried 208.67.222.222, the setting for OPEN DNS HOME. Changing from 8.8.8.8 to this address has fixed all of the above problems. Now I don't have to switch every time I leave home, to the auto option, instead leaving it on the second setting ("Use the following DNS Server addresses:") all of the time.

Computer life at home and on the road has just become easier.

FIELD DAY 2018

Amateur Radio Field Day is almost upon us. This year it will be held on the 23rd and 24th of June. Find a field, a park, or a back yard, or even your regular station location and get on the air if you can.



<https://www.chuckmartin.com/Wattmeter-Repairs.htm>

<http://www.hayseed.net/~jpk5lad/BIRD%20Slugs/birdslug1.htm>

<https://www.youtube.com/watch?v=8joUN60OUJU>

<http://www.repeater-builder.com/projects/bird-element-tour/bird-element-tour.html>

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!

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.

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

Happiness does not depend on what you have or who you are. It solely relies on what you think

Buddha

DI-DAH-DI-DAH!

Field Day is almost upon us, that time each year when hoards of enthusiastic ham radio operators go out to an often rustic location, install temporary and quite possibly somewhat unsafe antennas, praying that the forecast wind and rain will hold off for another twenty-four hours. They eat food that may or may not be properly and fully cooked, afterwards claiming it was the best tasting they'd eaten in months!

When not operating, they sit around swapping ~~lies~~ tales about the rare DX station they managed to make contact with through hundreds (if not thousands) of other interfering stations trying for the same one, and by long path (or on their dummy load - depending on who they tell it to) just to make it more challenging.

They sleep sprawled in camp chairs, on the ground under picnic tables, or in the back seats of their vehicles, or at least they claim they did.

And at the next club meeting, they will spend the entire time (except for the refreshments portion) regaling each other with their weekend exploits.

Isn't life grand!

Until next month,
VE1VQ

“They eat food that may or may not be properly or fully cooked....”