

The NEWSLETTER

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

E-mail your comments, ideas, or submissions to marane@mara.net or to ve1vq@eastlink.ca

Grandma Mara's RAMBLINGS

SOLAR POWER

by Rick - VE3ATM



MY BASIC SOLAR CHARGE SYSTEM FOR EMERGENCY COMMUNICATIONS

For a number of years I have wanted to build a small solar charge system for a battery for my Ham Station. This year, I finally accomplished that task. I first purchased a single 100W solar panel on eBay, and had it delivered to my daughter in Florida as there was free shipping to the lower 48 states, and we were going to baby sit my grandson for a week in early March. I was very pleased with the quality of the unit so I ordered a second one before even getting the first one installed. Again I had it delivered to Florida as we were going back down in late March for a vacation with our daughters, sons-in-law and grandson.

One of the reasons I wanted a second panel was because of the additional research I had done.

One of the reasons I wanted a second panel was because of additional research I had done. I learned the **Maximum Power Point Tracking – MPPT Charge controller** is far more efficient at charging batteries. A charge controller will not charge a battery until the solar panel is above the voltage of the battery. MPPT controllers allow you to put your panels in series so they will charge a battery even on overcast days as the voltage in series will be much higher both earlier and later in the day, and even higher on overcast days than a single panel. In addition, MPPT controllers will increase the current output when the voltage is higher than the battery voltage. I also sourced a 100 foot, 10ga. solar panel extension cable on eBay. I cut it in half and then mounted Power Pole connectors on the end. That was a bit of a challenge as the cables are double insulated to protect them from chaffing on the roof, so they are quite thick in diameter. I had to trim the outer insulation from the cable to install the Power Pole connectors on the end. The other end has the usual connectors to mate with the solar panels.

My eBay search did not stop there. I found ten 7.5w LED strip lights at a very affordable price that I thought I would

After simplifying my life, as I mentioned in last months column, I had all kinds of time to do the things I wanted, instead of what was expected of me! Now my friends, who were going to be my bridesmaids, can still be my friends without fretting over the color scheme I had chosen, because it didn't suit this one's complexion, or made that one look fat. No one ever complained about being too skinny! Now they can wear whatever color or combination they desire.

I'm writing this in the first week of June, just before we leave, in order to get it in before our departure. The RV is packed and ready to go. Walter has checked out all the rigs and antennas. We have all of the paper work and the appointed day has been set for the ceremony. The tentative post ceremony route is loaded into the GPS. We have our passports in case we want to cross the border into Canada.

I'm sure we've forgotten at least one thing. I always manage to leave something behind whenever I go. It wouldn't seem like a real trip unless you left something home.

After leaving DC, we'll just head out on the back roads. We both like to explore and have no plans on being anywhere in particular. We'll drive until we feel the need to stop for the night, or until we see a nice place that strikes our fancy. The GPS will come into play if we get so lost that we can't find our way, and don't know which way is which. That's pretty difficult these days as there's a McDonalds in every little town in the country, and there's always someone there who can point you back to civilization.

We're also not sure when we'll be back. There has been some talk about whether or not we'll be home for Field Day. We told Wendy and her family not to plan on us, just in case we got lost and the GPS died!

By the time you read this, the new chapter in my and Walter's life will have begun. And maybe, if you're lucky, you'll hear one or both of us on 40 or 20 meters, or through a repeater, from some salt water beach or mountain top lake location.



use to light up the area around my radio station. We were so impressed with their output that I have mounted two of them in the basement washroom and in the back hall as a light to leave on when our son is out for the evening.



The next task was to find a good quality charge controller; from the research I did, everyone said the Morningstar controllers were the best quality, so back to eBay to find the [SunSaver MPPT controller](#)¹ from [Morningstar](#). Being the techi-type, I also wanted to monitor the system, so I purchased the Remote Meter (RM-1) for the Morningstar controllers. Again, free shipping to the lower 48 so I had that shipped to my daughter's. The other advantage was, by vacationing for forty-eight hours or more in the US, we Canadians can bring back up to \$800 (CDN) duty and tax free, so I saved the shipping and the duty... I know - it just helped to offset some of the cost of travelling to the US - but we were going there to visit anyway.

While in Florida, I also picked up a Deep Cycle Battery from [Sam's Club](#). From what I have learned, if you are going to have the battery in your basement you want to use the Absorption Glass Mat battery (AGM) as they do not put out the fumes that a typical lead acid battery does when being charged. All I can say is, you folks in the US have so much more choice, and at a lower cost, than we do here in Canada.



The next challenge was to figure out the best angle to mount the panels to get the maximum power out of them year round. I found a

page on the Internet for [calculating the best solar angle](#) for my location. Be sure to scroll down to the bottom of the page and not get fooled by the Angle Calculator listed near the top. For my location, the average angle was 47 degrees. My roof was only 26 degrees.

A friend from church, who does metal fabrication, sourced the aluminum material required, cut, and MIG welded the mounting bracket, to give me the average angle for the panels.

Some of the aluminum was not anodized, so to protect it my friend recommended using an etching primer. That was a bit of a challenge to find, but after an Internet search I found that [Rust-Oleum](#) makes a self-etching primer for aluminum. I went to a few dealers in the area

until I found one that would order it in for me. The top coat was then done with an interior/exterior Krylon which bonded nicely to the primer. The panels have a 25 year warranty so the brackets have to last at least that long.

All hardware is stainless steel. Finding stainless lag bolts was a challenge, but I did locate them at an industrial dealer in quantity of ten, so I now have a few extra if anyone needs some.

Unfortunately, my friend was busy so I didn't get the mounting brackets to mount everything until late May. I started with just one panel to see how much power I would get out the single panel. I was quite surprised. The first day was a beautiful and sunny one, when I got it mounted and all wired up by mid-day.

The charge controller meter showed 18.21 volts, higher than the rated V_{mp} (Voltage at Maximum Output) of the panel of 17.6 V. I checked the meter in the evening at 8:30 p.m. with the sun below the horizon and was surprised to see it was still over 12.8 volts, but that soon dropped to zero by 9 p.m.

I was planning on getting the second panel up the next day, only to wake to rain, so I was delayed. Again though, with overcast skies I had over 12.8 volts by 6 a.m. and as the day progressed and the overcast persisted, it floated between 12.8 to 18.21 volts. The current was obviously low as it did not build the charge on the battery, but I did run my LED lamps most of the day and the voltage on the battery did not change.

I used aluminum plates under the rubber mounts between the roof and mounting brackets; as recommended by many on the Internet. I tried to find the roof trusses, but missed on the first bracket, so I moved the second one over a little to the left and just caught the edge of the truss.² To play it safe, I used 3 lag bolts per bracket instead of the two that I had originally planned. I had purchased a 40 year acrylic/silicone sealer at the industrial dealer where I found the lag bolts. I thought I had purchased black, but I was wrong, and anyway who's going to see it... I had to remove a couple of nails from the shingles, by going in between them with a long flat bar, to get the aluminum plates up under the shingles. While doing that I managed to crack the edge of one and the others were raised up a little over the aluminum plates so I used a lot of sealant to seal everything. I also filled the holes before putting in the lag bolts. All I can





Here is a photo of the final roof panel installation.

hope for is that I do not see any leaks.

If I were to do it again, I would try to lift up the shingles enough to get a long, small diameter drill bit under them and drill into the roof to find the trusses. I was off by about 1/2 inch from hitting the edge of the first one, so about 7/8 of an inch from centre. Not much room to play when you are trying to hit a 2 x 4 that you cannot see.

My plan is to monitor the system for a while, and if it looks as if it can support the extra load I will be purchasing a second AGM battery on our next trip to Florida, and a 300w Inverter through eBay to run our on-demand hot water heater. Having a power outage this past winter, we immediately lost hot water. The inverter will ensure we never run out of hot water if the power goes out again while someone is in the shower. I got the generator up and running to get power to the water heater again, but the blast of cold water was not enjoyed. The heater is

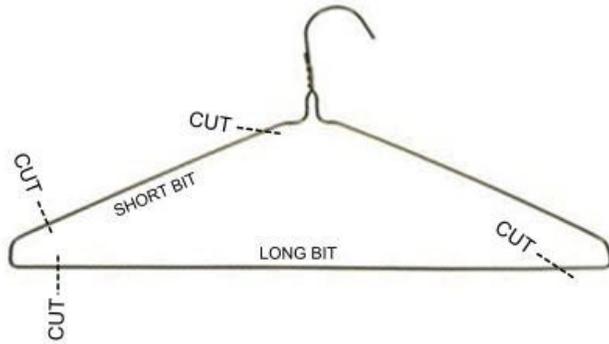
a natural gas unit, but requires a maximum 300w supply for the blower and controls.

If you would like more detail, feel free to contact me at ve3atm@hotmail.com

¹ SunSAVER controller manual in PDF format.

² To drill exploratory holes in your roof, or elsewhere, take a metal wire coat hanger, cut off a section to length with heavy wire cutters. Trim one end at a 30-40 degree angle to act as the drill point. This "drill bit" will cut through wood quite easily. Drilling through an asphalt shingle will dull the end. No need to use a grinder or a file, just clip a fresh end with your cutters. This makes for a very small, easy to seal hole. See the drawing on page 5.

- Ed



In the September issue of the newsletter, VE3ATM will conclude his article with a materials list, a block diagram, and some thoughts for the future of his sun “catcher” system.



TECH AND OTHER STUFF

by VE1VQ

ODDS AND SODS

I love gadgets! There - I said it - I-love-gadgets. I’ve been known to see something in a hardware store and buy it, just because it is “neat”, and I just “have” to have it. I don’t have a use for it when I buy it, but I just know I will some day. When that day finally arrives and I locate and blow the accumulated dust from the tool, I am justified in my purchase, and I am filled with the knowledge and a euphoria that I was totally prepared. Hmmm, seems to me I’ve heard the same feelings happen to addicts when their fix takes effect! Perhaps I need help here...

MORE KEYS

One of my hobbies is handgun shooting. I admire the craftsmanship that goes into a fine shooting, good looking firearm. The same goes with a fine Morse key, whether a standard hand key, a bug, or a paddle for an electronic keyer.



The MERCURY paddle by BENCHER. Ball bearings, with magnetic instead of spring tension. Pretty, ain’t it!

Take a look at [W.R. Smith’s website](#). W4PAL showcases keys that he has restored and those he designed and built. A professional watch and clock-maker, these are really works of art.

Another web site showing keys of various kinds is [The Western Historic Radio Museum](#). Lots of pictures of older regular and bug style keys. Nothing modern here.

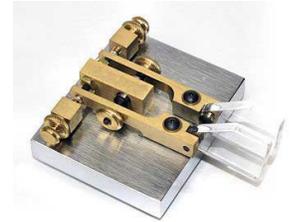
Check out [VIBROPLEX’s](#) site for new keys and bugs from probably the world’s oldest company still making keys. Now owned by Scott Robbins, W4PA (formerly of TenTec) who purchased the company in December of 2009 from Felton “Mitch” Mitchell, W4OA, who had owned the business for the previous 15 years.

Then there’s the [MORSEMAD](#) web site showing about every key ever made. If you have one that isn’t pictured here, you must have a very rare key!

Here are a couple of pages from a web site, just for the [J-37](#) and [J-38](#) straight keys. There were a lot of variations and a lot of manufacturers. After World War II, these keys were dumped on the surplus market and were snapped up by hams looking for a good solid key at a good price. They are still being sold. Take a look on E-BAY. There are even counterfeits being pedaled as the real thing. The prices for the genuine article might scare you! Unless you were like Grandma Mara and bought a bunch some years ago.

I found [G3YUH’s](#) web page where he gives step-by-step instructions, with pictures, on how to make your own quality straight key using only basic tools.

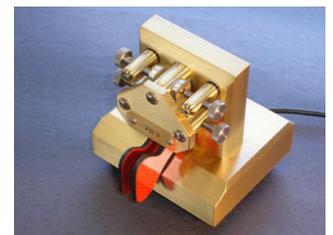
There is a surprising number of small companies and individuals turning out keys, both straight and paddle. You have to wonder why? After all, the world-



The VIBROPLEX CODE WARRIOR JR. in the chrome version.



Surplus J-37 key from WWII. Your basic standard key. That and the somewhat similar J-38 can be found in many ham shacks around the world.



The N3ZN vertical iambic paddle. A different design for those who want something a little out of the ordinary.

wide market for Morse keys isn't at all what it was in the last half of the 20th century. Most of these, I suspect, are one person shops doing it mainly for the love of the hobby, by creating something beautiful. Check out [IIQOD's](#) web site. Then there's a [German](#) site, and an American one by [N3ZN](#), whose keys are very highly rated.

Before you plunk down your plastic for your must-have key, you might want to check out the reviews on [E-Ham](#). The advertising by the manufacturer and the reviews by actual users do not always agree. Funny about that!

There are some fine looking keys on these sites. Makes me want to tune up in the CW part of 80 meters again. Do they still have a novice segment? I might be able to copy 10 W.P.M. - if the wind is blowing in the right direction.

GENERATORS FOR APARTMENT DWELLERS

When we speak of generators, we don't usually think of that word in conjunction with apartment dwellers. When you do consider it, power failure affects those people just as it does those of us who live in our own or rented residential family dwellings.



A 3.25 KW apartment sized generator by GENERAC

Check out this [preparation site](#) about having and using a generator on the balcony of your apartment. There is an error or two in the write-up, such as having to drain the oil from the unit if you are not planning to use it. I can't imagine why you would do that (unless you're not using it for many, many years). Draining the gas from the fuel tank - certainly. But not the oil.

Another thing is having as large a generator as they do. You could certainly get by with a smaller unit and running the devices to be powered (refrigerator, freezer, etc.) one at a time. A 3kw (4kw peak) generator would work nicely, probably cost less, certainly weigh less, and require less fuel to operate.

And speaking of the latter, if you don't have a balcony upon which to operate it, leave it in the store. You'll live a lot longer that way.

PICAXE PROBLEM

I had a problem when I tried to install the **PICAXE LOGICATOR** program. My AVG Free Edition anti-virus software did NOT like it and blocked it, saying it had several nasty viruses. I checked on-line and found that this is a known problem between the two, with AVG

giving false positives (saying there is a virus when there isn't).

There are two solutions here. The first is to un-install AVG and replace it with another "more friendly" anti-virus program. The second is to disconnect the PC from the internet (for your own protection since you have the anti-virus software disabled), disable AVG, do the installation and then add the program to the AVG exceptions. Once the latter is done, re-enable AVG and reconnect your internet.



I took the easy way out and installed the other programming software instead; the PICAXE Programming Editor. Not quite as simple to use, as you have to understand a bit about actual coding. I look at it as a brain exercise.

Once you've written the software, this program has a neat simulator feature to test your code without any hardware. You can run the program normally, or in a step-by-step manner so you can see where things go wrong (if you have a problem). It also lets you make an input high or low and view the results on the output pins.

My advice to someone just starting out is to write code in small sections, use the simulator to make sure it works before writing the next section. Make sure you add comments - lots of comments. Next month or next year when you want to modify the code, do you think you will remember why you did things the way you did? Not likely!

Save your file under a different name every time you make a change (e.g. software1, software2, etc.), and in additional places other than your PC hard drive. Unless you want the fun of re-doing your project because the hard drive crashed. Or you can't find the file, like one of mine just recently. It had been several years since I originally wrote it, and it was nowhere to be found on the computer or on any of my flash drives or cd's!



Contesting!

Is there anybody out there active in contesting - either CW, SSB, or digital - who would like to write a basic how-to article (or series of articles)?

Drop an e-mail to VE1VQ@eastlink.ca so we can talk about it.

QUOTE OF THE MONTH

“Little men with little minds and little imaginations go through life in little ruts, smugly resisting all changes which would jar their little worlds.”

Zig Ziglar



How About It?

How about sending a picture of you and your station? If so inclined, send me a bit of a write-up about your ham radio career. And if you have one, send a copy of your QSL card.

Did you get a piece of ham equipment for a birthday or as a “self-gift”? Write up a little piece describing how it worked (or didn’t work!) for you. Since we have no advertisers, we can *tell it like it is!*

Did you operate Field Day (either the normal one or the LDS version). Share some pictures with us.

You’re thinking, “no one wants to hear about me!” That’s not true, because everyone has an interesting story to tell.

Send it to VE1VQ@eastlink.ca in whatever format you want - even scribbled in pencil on a piece of paper.



Looking for...

Someone who instructs or has instructed Morse code classes and/or someone who has learned the code, either in a formal class setting or as self-taught. We’re looking for articles for future newsletters on teaching and learning the code.

Send an e-mail to VE1VQ@eastlink.ca with your ideas.

DI-DAH-DI-DAH

Attending MARA North East annual meetings has always been a favorite thing of mine. It was especially nice to be able to be present at the formation meetings in the middle 1990s. When I attended that first meeting, I was amazed to see how many others there were “like me” - LDS hams! There was and

is something special about getting together with amateurs who are Latter-Day Saints. Actually seeing the face of the voice we hear on the net. Not only do we share the common interest of amateur radio but also the common beliefs of the Church. We most likely have different positions in our Wards, Branches, and Stakes, etc. Whatever calling we “are” has no bearing on the friendships we develop by actually meeting, and being part of the group.

Unfortunately, I haven’t been in a position over the last few years where I could attend the annual meetings, as much as I wanted to.

If we have one this year, and I’m not sure that the collective will is present in enough people to make it happen, would someone take the minutes, and forward them to me for the official records? I’ve never seen any for 2012, so we have a gap.

Whatever calling we “are” has no bearing on the friendships we develop by actually meeting and being part of the group.

It will be a shame if these meetings cease and MARA North East fades into oblivion. We have a great thing here, now that we’ve more or less accepted that “the powers that be” are not going to “see the light” and re-call us to our former glory days when we were the official communications arm.

Dan, NE3Z, has done more than anyone else I know, to make us feel a part of the larger LDS emergency comms group, and not a poor relation that the family doesn’t want to acknowledge, and secretly wishes didn’t exist.

Let's hope that feeling continues now that he has been released.

Will we have an annual meeting this year? It depends on you!

Until September,

VEINQ