

# The NEWSLETTER

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Mercury Amateur Radio Association - MARA  
North America - North East



# MARCH

Antenna weather yet?  
No... but soon... we hope!

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# Grandma Mara's RAMBLINGS...

I can tell you, Walter and I are really looking forward to the return of spring. The experts used to pooh-pooh winter depression, saying it was all in the head. Well, turns out that's exactly where it is! Now it is recognized as being legitimate here in the Northern part of the country. What with the shortness of the daylight, coupled with the drabness and dreariness of the outside surroundings, and most likely more things that the experts aren't ready to admit might be a factor, all contribute to the lack of certain chemicals our brains need to be happy.

Did you ever notice how much more cheerful people are in the winter, on a day when the sun is shining, than when it is all dark and dreary? People are more chatty in the line-up at the bank or the check-out register at Walmart on those kind of days!

Walter has even gone so far as to change out the lights in his shop to the ones that mimic natural sunlight to see if that will help.

I wonder if the same level of seasonal depression exists in Florida or California?

Walter recently built a little two band two tube cw rig kit for 40 and 20 meters. I asked him if doing it from a kit rather than from scratch didn't violate some electronics designer's code or other. He just laughed and said it was kind of fun to build something where you didn't have

to source parts yourself. He said it kind of reminded him of the old days when Heathkit was at its peak in popularity. Except this one had no cabinet. Which was

**“The experts used to pooh-pooh winter depression, saying it was all in the head.”**



The YouKits TT1A transmitter kit operates on two bands (5-7.5 MHz and 10-14.5 MHz) with a four watt output.

fine with him as he planned on making a chassis out of clear plastic.

I must say, for the hours he spent putting it all together, you would think it was the peak of the summer for all of the cheerfulness he exhibited. Then, later, there were the evenings when he hardly came out of the shack, so excited with all of the contacts he was making with it.

What ham needs medication for depression? A radio kit to build and operate will do the job. No harmful side effects either!

AR

## TECH AND OTHER STUFF

I was really impressed with the NETGEAR AC1200 Dual Band Range Extender I installed in our place in southern Alberta, and which I covered in last month's NEWSLETTER. Upon my return to Nova Scotia in early January, I picked up another one for my office there. The western unit was configured as a wireless repeater with output on both 2.5 and 5 GHz. I used the higher one for the HP laptop, and left the lower for other older devices or for the grand children. The eastern one was too far away from the wireless cable modem in the office building to use the same method. However, I do have a Cat5 cable buried underground from the office to the house. Somewhere I had read that you couldn't configure it as an access point fed with hard wire but I was sure I had also seen where you could. Once I started the configuration software (again with the laptop), I found a menu choice to make it work that way.



NETGEAR AC1200 Dual Band Range Extender

Signal coverage is good over the entire house on both first and second floors (1800 sq. ft. per floor) on both output frequencies. Most times I use the laptop in the same room as the Extender so the connection speed is golden.

### MFJ 840 TWO METER WATTMETER - PART ONE

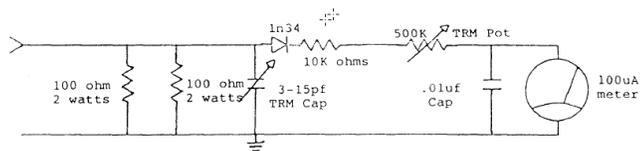
I was watching a series of videos on YouTube by Chuck Adams (K7QO), about building the [1Watter transceiver kit](#). In the 9th episode he is aligning the receiver and transmitter. He uses an [MFJ 840 two meter wattmeter](#) for the latter part. This is essentially a field strength meter with the RF signal fed directly to a fifty ohm resistive load instead of an antenna. There are adjustments to calibrate the device but nothing in the

single page “manual” gives you any idea about how to do it. I can only assume that the variable capacitor tries to make the circuit response flat across the two meter band while the 500K ohm variable resistor after the detector diode sets the actual output on the meter.



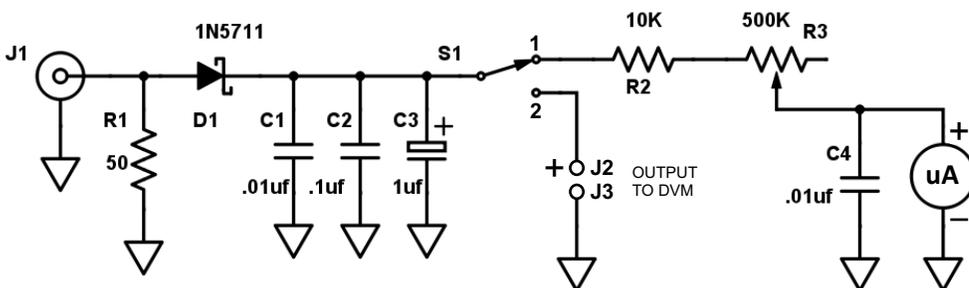
I had one of those “what if” moments and wondered why I couldn’t “upgrade” the device with the power meter circuit from [AD5X’s website article](#) on peak detecting power measurement. It would

involve replacing the two 100 ohm, 2 watt resistors with a single, higher power resistor, swapping the 1N34A



The schematic for the MFJ 840 Two Meter Wattmeter. From <http://www.mfjenterprises.com/support.php?productid=MFJ-840>

diode for a lower voltage drop Schottkey diode, and adding capacitors C1, C2 and C3, switch S1, and output connectors J2 and J3 for the digital volt meter connections. Connector J1 (BNC), resistors R2 and R3,



## MODIFIED MFJ 840

capacitor C3, and the meter, would be kept and reused.

The unit could then be used in switch position 1 for making transmitter adjustments (tuning for a peak on the meter) and in switch position 2 for an actual (accurate) power measurements using a digital volt meter.

## SCHEMATIC DRAWING SOFTWARE

There was a time when I used pencil and pen and ink on a drafting table to create project schematics. When computers came along, I tried various painting and drawing programs. I sort of settled on [EXPRESS PCB](#)

[software](#) a couple of years ago but was never completely happy. The schematics were okay, but they lost something in the move over to another program. Then, I tried doing them with the [XARA software](#) I use for this newsletter. This looked the best but was time intensive because I had to create each symbol, and for a large and complicated circuit, that is cumbersome. Looking around for FREE stuff the other night I stumbled across [DIGIKEY’s very own on-line software](#). The MODIFIED MFJ 840 schematic in the left column on this page was mostly drawn with it (with a little help from XARA Designer Pro). I’m still somewhere on the early side of the learning curve but it shows promise. I haven’t figured out how to stop text from snapping to the grid. Nor have I discovered the secret to creating your own items. Perhaps these things are available, perhaps they aren’t, but for fast and handy schematic creation the site is pretty good. The EXPORT feature lets you save a copy on your computer, and the quality is fine for inclusion into a document. You can also create a BOM (Bill of Material) with DIGIKEY part numbers and then place an order for them.

The DIGIKEY web page referenced above also provides free software for designing printed circuit boards called [pcWEB](#). Links to similar commercial (and probably more powerful) software are provided on the page as well.

## MORE SCHEMATIC DRAWING SOFTWARE

Another free program for producing electronics’ schematics is [CIRCUITMAKER](#). While it may be free, it certainly isn’t simple. Slanted primarily towards the [Maker experimentation community](#), it will let you hold two circuits/projects in your “Sandbox” or private area. Any more than this requires that you release or share your circuit with the broader community.

To this point, I have not found the perfect, the simple and easy to use (don’t forget free) program to produce schematics and text that look good when transferred over to here. Typically, they change from a nice sharp black to some fuzzy shade of dark gray, or if they play nice (like the one on the other column, you can’t place the text where it fits best (correct spacing). Or, if I use a screen capture, I get all of the artifacts that are part of the drawing process but are not present when using the export method.

Perhaps I'm too demanding. Nevertheless, the search continues.

### LABELLING PROJECT CASES

Most of my project cases never seem to get properly labelled. By "properly", I mean with something that looks relatively professional and permanent.

Do you remember *those old Dymo labels* with the embossed white text? Not what I mean by professional and permanent. Over time, they would curl and fall off whatever they were stuck to.

In the past, I've used *Letraset dry transfer labels* on metal panels and a protective clear spray overcoat with pretty good results. Quick it's not, but if you have a steady hand and a good eye for spacing, you can end up with nice looking results.

For some time I've been printing to paper, cutting it to the project case size, and using rubber cement to fasten it to the front and back of the project. Then using a satin finish spray to provide protection.

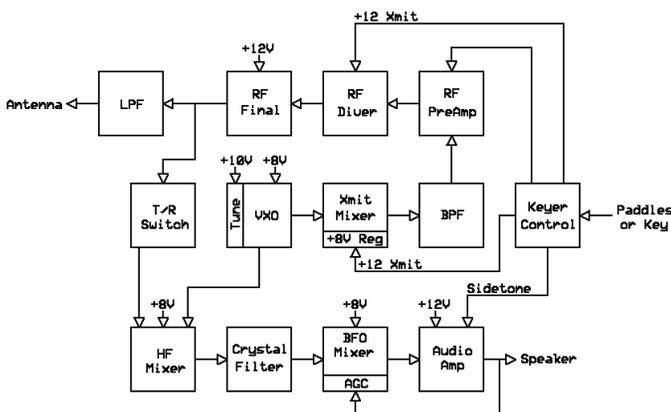
A fairly recent kit project, the Z-match tuner from [QrpKits.com](http://QrpKits.com), came with water slide labels (decals). I've found an eBay source of those and have ordered some to try.

The idea came to me to use the same iron-on method I use for printed circuit boards. That is, making the labels on a laser printer and using the heat of the iron to transfer the toner material to the metal project case. A search on Google showed me my idea wasn't original at all.

So with these two possibilities to play around with, perhaps I'll get to completely finish some of these projects I have in the "almost done" stages.

### QRP 1-WATTER TRANSCIVERS - PART 1

I recently ordered two of the 1-Watter transceiver kits from [KitsAndParts.com](http://KitsAndParts.com); one for 40 meters and the



The block diagram of the 1-Watter transceivers. From <http://www.kitsandparts.com/1watter-V3.php>

other for 20. These are fairly full featured rigs with a built-in keyer and a full one watt RF output. They are available for 160 through 10 and cover a small section of each respective band, centered around the QRP frequency. All of the on-board parts are provided. You have to supply a case to house it in, along with the necessary external parts such as the potentiometers for the tuning, audio, and keyer, and a couple of switches. All this on a pc board only 2.5" (63,5 mm) by 3.8" (96,5 mm). For the price of \$47 USD, how can anyone go wrong.

Sadly, I'll have to figure out how to label the boxes, but then, what can you expect for that price.

## QUOTE OF THE MONTH

**"When you cannot do what you have always done, then you only do what matters most."**

*Elder Robert D. Hales*

of the Quorum of The Twelve  
of the Church of Jesus Christ of Latter-Day Saints

## DI-DAH-DI-DAH

**D**id you ever stop to think how amazing human speech is? How we learn to shape our jaws, our tongues, and our lips, and co-ordinate our breathing to make sounds that are intelligible and have meaning to other people? Even with regional word pronunciation differences we are still able to understand and be understood. And it's all controlled by our main processor unit - our brain.

I was thinking about this recently as I've been watching two of my little grand children learning to speak.

Some individuals have the ability to easily learn new languages, while others, like myself, seem limited to only one. I would dearly love to be able to be able to

think and converse in another language, but such has not been the case.

There are companies who claim you can learn to speak another language in a matter of a few weeks. My own feeling about these declarations is that they are in the business of trying to sell you something! The “few weeks” period may be true for those who are really motivated or very gifted. And perhaps that is my problem - lack of motivation (I certainly don’t have any gift!). If I was to become motivated would that make up for my lack of gift? I don’t know, as my motivation level seems to be rather low right now.

I guess that at this age and stage of my life (just having passed another in a fairly long stretch of birthdays) anyone I contact on the air will have to make do with my English only language skills. I am always amazed and a little envious when someone attempts to communicate on the air with me, using English, even though it is very obvious that English is very far from being their native tongue.

Perhaps humbled would be a better word, rather than envious, because they have a talent that I wished I had, but do not.

Until next month,

VEINQ



**Remember to  
“show the green”  
on March 15th,  
St. Patrick’s Day.**