

## Newsletter from the Merrymeeting Amateur Radio Assoc. for February 2007



### Tool Box Solar Power Supply

By Donnie Dauphin, WD1F



I wanted to construct a portable power supply to take camping with me to northern Maine. We camp in very remote locations. In fact it's about 50 miles to the nearest gas station. My needs were simple, to power amateur radio equipment and recharge batteries in other equipment such as digital cameras and lanterns.

I decided on using two 12V 18AH batteries in parallel for the power storage. Combined they can do 36Amps for an hour then there is a total power available of 432 watt hours. (36Amps \* 12Volts = 432Watts).

12VDC Amps	Power (Watts)	Time
36A	432	1 hour
18A	216	2 hours
9A	108	4 hours
4.5A	54	8 hours
1.5A	18	24 hours
Power draw vs. battery life.		

For the solar panel I chose a Kyocera KC40T. It's rated 17.4 Volts at 2.48 Amps. Through experience with my solar electric system on my home, I expect to get about 5 watt hours per day for every watt of PV array. That means from the Kyocera 40Watt panel I expect to realize about 200watt hours per day in full sun. The batteries are capable of just over 400 watt hours so it would take a couple days of full sun to recharge the batteries. Since I don't plan to fully discharge the batteries at any time, I feel this panel is a good fit.



To prevent overcharging the batteries I used a Morning Star Sun Saver SS-6L-12V charge controller. It is rated for 6 Amps charge current which exceeds the need for my application. I opted for the version with the low voltage cutout, but to date I have not utilized this feature. Some of my loads exceed the 6 amp rating so I connect the loads directly to the batteries.



To supply the 120V chargers for my equipment I used an inverter I had laying around. It's a Jensen 160Watt cigarette lighter powered device.



# Ham Maps for DX'ers

By Frank LaFranco, W6NEK  
Huntington Beach, CA

Some of the amateur radio equipment also plugged in via a cigarette lighter socket so I used a simple Radio Shack three plug unit I found. I had to modify the cigarette lighter socket to disconnect the illuminated ring around the center socket. I didn't want to waste the power.

The batteries are installed laying flat in the bottom of the box. Power wires from the batteries were fused at 20Amps each and connected together (+ to + and - to -) at a terminal blocks. That gives a total available current of 40Amps. The charge controller and the cigarette lighter plugs are connected to the batteries via the terminal strip also. The solar panel connects directly to the charge controller.

When I connect my 12V high current radio gear I connect directly to the terminal blocks. For lower current devices such as hand held radios I connect via the cigarette lighter plugs.



The power supply primarily stays in my basement connected to the solar panel and provides power to my amateur radio equipment. Other uses so far include a portable supply for public service events, camping trips, and even lighting for caroling and holiday parades.

I also enjoy the thought that my amateur radio station is 100% off the power grid. Power outages have almost no effect on my ability to use my amateur radio equipment. And to top it all off its nice to the environment. **73, Donnie**

The following listed web site is a pretty cool site for DX'ers. Here is the description from the Oh/Penn DX Bulletin:

## HAM ATLAS ON THE WEB!

Darek, SP6NVK, informs OPDX that he has started a new ham atlas service on the Web after 4 years of work on it. This service contains the complete information on all 337 DXCC Entities, over 3000 pictures and 1100 maps. He hopes everyone will enjoy and be satisfied in using his service. The Ham Atlas Web site is available at:

<http://www.hamatlas.eu/>

Just click on "English" on the above page and then choose your country from the drop-down "Entity" list or choose a page from the left-hand frame. Lots of neat info here to learn about that new country you just worked. **73, Frank**

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## ZE's Soap Box

An editorial  
By Bruce Randall, W1ZE

**If** you are looking at a list of conservative ham radio operators you would not find my name listed there. I sometimes am very conservative but not when it comes to our great hobby. In other words I guess you would say I am a ham radio progressive.

Reports back from the ARRL New England Advisory Committee meeting of January 6<sup>th</sup> had many of those in attendance wound up in opposition to the elimination of element one from the Amateur Radio examination pool. So wound up if fact, that it dominated the subjects discussed at the meeting. Most likely some of those good folks were POed because they had to master Morse to get on the HF bands, so everyone should have to do it. Well folks, the time they be a chang'n. "GET OVER IT" and get on with enjoying the hobby.

Now, with what you just read you must believe that I am an anti-coder. Not true my friends. I have been a ham for a short 47 years and **I like Morse code**. In fact I love operating in the A1 mode and do it frequently.

It is difficult to be a serious DXer, QRPer, Weak Signal VHF/UHFer or even an EME fanatic without being able to send and receive Morse code. Did you note in the FCC's Omnibus ruling that accept for novice bands, there is just as much frequency spectrum set aside for A1 emissions as there has been for the better part of the last 50 years. In fact we have a HF ham band (30M) that is CW and digital only. So many parts of the hobby are enhanced by a ham's ability to use Morse making sure it will not go the way of the buggy-whips.

If the "CW for everyone" crowd has checked lately on the number of folks coming into the hobby and those leaving the hobby, they will find out our number are dropping. As the hobby decreases in numbers our voice with the FCC will get smaller. Equipment makers will decide there is not a big enough market to manufacture and market new products. If you look at the number of companies manufacturing radios and other items for the ham radio market, they have dropped to less than half of who were doing it a quarter century ago. Just a few of those companies are still in business, but not making ham equipment.

What is needed is that experienced hams, like you and me, have to welcome the new generation of hams and encourage them to continue the traditions and advancements of this great hobby, leave their CB lingo and behavior on 11 meters and attempt to participate in as many facets of the hobby as suits their fancy. And yes, the ability to send and receive Morse code is one facet. Let us all keep the Amateur Radio communications art alive!

**Just my opinion, W1ZE**



## The G5RV Revisited

By W1ZE

Some time ago I had a column in this newsletter about the doublet antenna. I have had great success with one for years plus our Association has used one for these past many years during Field Day. As you know, we have been very successful during those events. Most of us here in rural Maine have room for a 132-foot doublet and with a transmatch (antenna tuner) the antenna is very versatile.

For some of you, 130 plus feet of air space may not be available and you may want to use something a bit shorter, like a G5RV. That is a good choice if you can fit it in a 104 foot of air space.

If you listen to some folks on the ham bands you would think the G5RV is the best antenna ever built. Well folks that is wishful thinking. The G5RV is not a Rhombic or even a beam it is a dipole. On 80-meters a 132-foot doublet will outperform a G5RV, but not by a great amount.

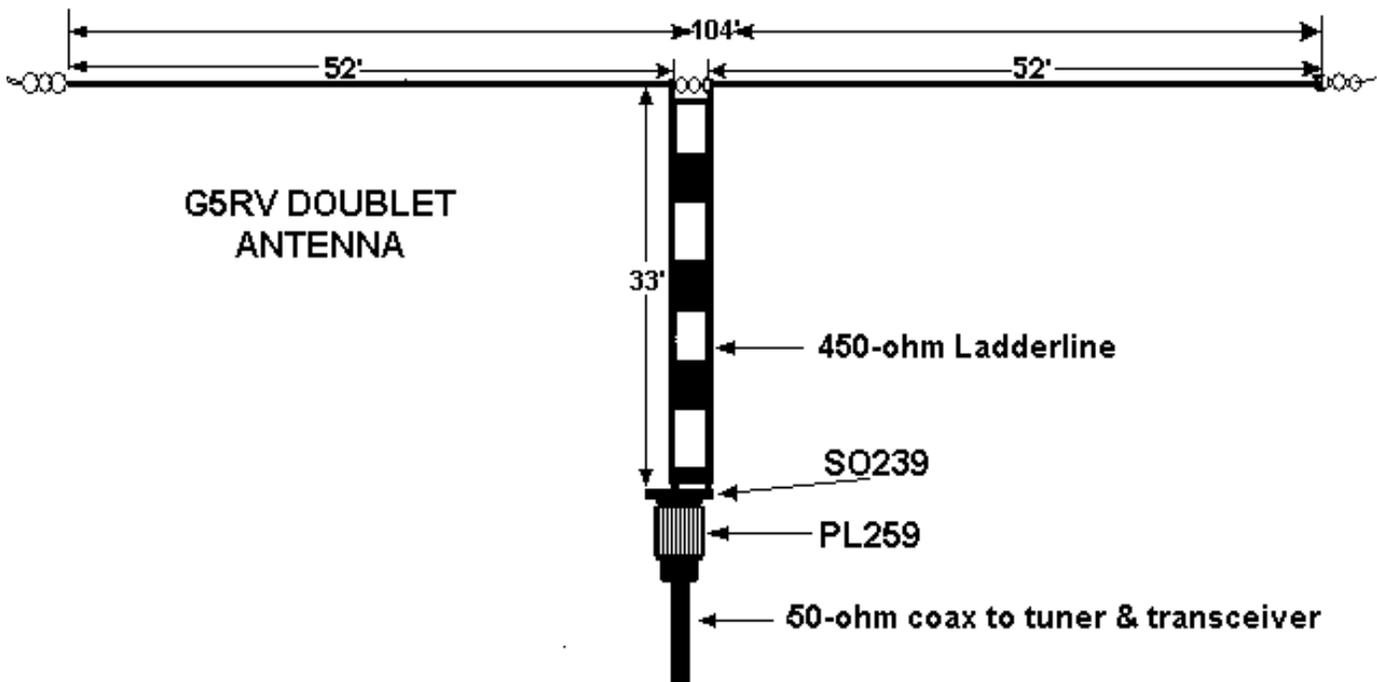
The G5RV got its name from its inventor, Louis Varney (SK) of West Sussex, England whose call sign cleverly enough was G5RV. Louis, an electrical engineer designed a dipole to be a 20-meter wire antenna with gain (DBd) and a close match to 75-ohm coax. Like most dipoles it would radiate a good signal on other bands with proper transmitter-antenna matching.



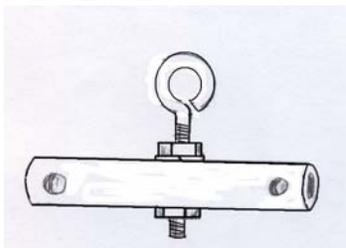
**Photo of Louis Varney, G5RV in West Sussex taken in 2000**

There are numerous enterprising individuals out there fabricating G5RV style antennas and selling them for good money to hams that are soldering iron challenged and want a plug-n-play antenna. However, if you are a tight-wad like me that likes to tinker in the workshop or garage, this antenna is well within your skill level and budget.

The heart of the antenna is the balanced transmission line feeder. I recommend using 450-ohm ladder-line (twin-lead) but a good quality 300-ohm flat-line or ladder-line type will work OK. You can obtain both types of transmission line from your favorite ham radio dealer, or pick some up at a Hamfest or ham flea market. The rest of the stuff needed is available at your local hardware store and/or Radio Shack store.



As you can see in the above diagram this antenna is not complicated and can be fabricated in an hour or two. For my doublet type antennas I fabricated the two end insulators and the center insulator from 3/4-inch schedule 40 PVC pipe. Cut three lengths of the PVC pipe 3 to 4 inches in length. Drill a 1/4-inch hole through each end about 3/4-inch from the ends. On the third length, drill a 1/4-inch hole through the pipe at the exact middle of the insulator. This will be used to install an eyebolt to allow for a halyard line if the antenna is supported and suspended from the middle of the antenna.



**Center insulator**

Cut a 33.5-foot length of 450-ohm ladder line. Strip off 3-inches of insulation off the conductors at each end. These exposed wires will be used to solder the conductors to the antenna elements and coax transmission line. If 300-ohm flat-lead/ladderline is used, cut a length 27.5 -feet long. Carefully strip off three inches of insulation from both conductors at each end. The difference in length between the 450 and 300-ohm line is due to the velocity factor in each type of line.

Many of the commercially available G5RVs employ a 1:1 balun at the transition between the balanced line and the coax cable. This is an attempt to keep RF off the outside of the coax feeding into

the shack. My recommendation is, do not waste your money. If the antenna is used with an external transmatch bonded to a good station ground system, the standing waves should not be a problem. If you are still worried about RF current getting into the shack, make a loop current balun by winding an 8 to 10 turn coil and 10-inches in diameter out of the 50-ohm coax feeding the shack at the ladderline/coax transition point.

Like any dipole, the higher the better. I recommend that you try and get the center of the antenna up to 30-feet or more. At this level the antenna will be a bit of a cloud burner on 80/75-meters. That is OK if you are into NE area nets.

Now do not expect a low SWR (2:1 or less) on the bands except for 20 meters. You may have read that a G5RV matches easily on some of the other bands. That was true with older tube type transceivers with tuned pi-network output stages. The new crop of solid state rice boxes do not like to see a SWR greater than 2:1. If your transceiver has in internal tuner, do not expect it to tune up on all the HF bands. The SWR on some bands will be higher than it can master. An external antenna tuner is recommended.

If you want more information on the G5RV check out the following web sites and publications.

- [www.g3ycc.karoo.net/g54v.htm](http://www.g3ycc.karoo.net/g54v.htm)
- [www.dxzone.com/cgi-in/dir/jump2.cgi?ID=4238](http://www.dxzone.com/cgi-in/dir/jump2.cgi?ID=4238)
- ARRL Antenna Compendium, Volume-1**

Happy soldering....

**73, W1ZE**





# CERT

training underway



**Brunswick:** On January 3rd, Members from MARA and the Mid Coast ARES gathered at the new Cooks Corner Brunswick fire station to start their extensive Community Emergency Response Team (CERT) training. This training facilitated and funded by the Brunswick Fire Department and citizens of Brunswick will train a dozen ham radio volunteers that will make up the first citizen response team in the mid coast area. The training will cover:

1. Disaster Preparedness
2. Fire Safety
3. Disaster medical
4. Operations
5. Light Search & Rescue operations
6. CERT Organization
7. Disaster Psychology
8. Terrorism & CERT

This training will take the better part of two months.

After training and certification, the ham volunteers will receive official authorization to assist the town of Brunswick first responders when needed in the event of a community emergency. The Sagadahoc County EMA office indicated that this same

Response Team will be recognized and authorized to assist that counties first responder needs also.

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## MARA sponsored VE Testing for 2007 at the American Red Cross, 16 Community Way, Topsham

By K1GAX

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February 17, 10:00 AM

April 14, 10:00 AM

June 9, 10:00 AM

August 11, 10:00 AM

October 13, 10:00 AM

December 8, 10:00 AM

(Walk-ins allowed)

POC: Bryce Rumery, K1GAX

(207)799-1116

E-Mail: [k1gax@juno.com](mailto:k1gax@juno.com)

In conjunction with these test session, ARRL Emergency Communications Certification Exams will be given with advanced registration (at least one week in advance) with K1GAX.

**Note:** The MARA also sponsors The Test Session at the **ARRL Maine State Convention in Lewiston on March 31,** 10:00 AM sign-up, 12 noon exam.

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## Are you ready

to take that General or  
Extra Exam yet?

If not, crack open your study  
manual and get with it.

New privileges await.

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# PSK31 in Space

Space Bulletin 001 ARLS001

From ARRL Headquarters

## ANDE and RAFT-1 get OSCAR numbers

AMSAT OSCAR coordinator Bill Tynan, W3XO, has announced that the RAFT-1 and ANDE Amateur Radio CubeSats have been issued OSCAR numbers. Both spacecraft were placed into Earth orbit from the space shuttle Discovery on December 21 and are projects of US Naval Academy midshipmen. RAFT-1 has been designated as NAV-OSCAR-60 or NO-60. ANDE has been designated as NAV-OSCAR-61, or NO-61.

"AMSAT-NA and I wish to congratulate you and your entire US Naval Academy Satellite Lab team for the successful construction, testing and orbiting of this very interesting spacecraft," Tynan said, responding to the request to assign OSCAR numbers.

The RAFT-1 and ANDE ham radio payloads **digipeat 1200 bps packet on 145.825 MHz**. Bob Bruninga, WB4APR, of the US Naval Academy Satellite Lab says that when RAFT-1 and ANDE are within view of each other, dual-hop packet relays are possible via the two satellites. When it's enabled, **RAFT-1 has a PSK31 uplink from 28.117 to 28.120 MHz with the downlink also on 145.825 MHz**.

For more information, visit the ANDE, RAFT, NMARS & FCAL Operations Web page, [www.ew.usna.edu/~bruninga/ande-raft-ops.html](http://www.ew.usna.edu/~bruninga/ande-raft-ops.html).

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## HAM FLEAMARKETS FOR 2007

Crystal Falls Hamfest: Sat., Feb. 24. Crystal Fall Dance Hall Rt-17 1 mile east of Togas VA. 8 AM to Noon

Maine State Convention: Fri. & Sat., March 30 & 31, Ramada Conference Center, 490 Pleasant St., Lewiston Hosted by the Androscoggin ARC. Talk-In: 146.61- MHz (Club Repeater) Contact: Ivan Lazure, N1OXA, 440 Webber Ave., Lewiston, ME 04240-4917 207-784-0350 n1oxa@arrl.net

South Portland Hamfest: Sat., April 21, 8 AM to Noon, Stewart Morrill American Legion Post #35, 413 Broadway, South Portland Hosted by the Portland Amateur Wireless Association. Talk-In: 146.73 (-) (100.0 Hz) Contact Peter Sturdivant, N1PS n1ps@arrl.net

Union Hamfest: Sat., July 14, Thompson Community Center, 51 S. Union Rd. Hosted by the Pen-Bay ARC. Talk-In: 145.49- (PL 91.5) Contact: Scott Ewen, KB1DSW, 408 River Rd., Cushing, ME 04563 207-354-6809

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## Digital Modes on Six and Two

Lee, W1LWT reported in the Yankee Amateur Radio Club newsletter that the following six and two meter frequencies are being used here in Maine for SSTV and PSK modes.

	6M	2M
<u>SSTV</u> :	50.680 USB	145.500 FM
<u>PSK31</u> :	51.120 FM(FPSK31)	145.55 FM (FPSK31)
	50.290 USB	144.144 USB

A PC to radio interface device like the one described in the past issue of this newsletter would work with you FM transceiver if you want to give digital modes a try in the VHF spectrum.

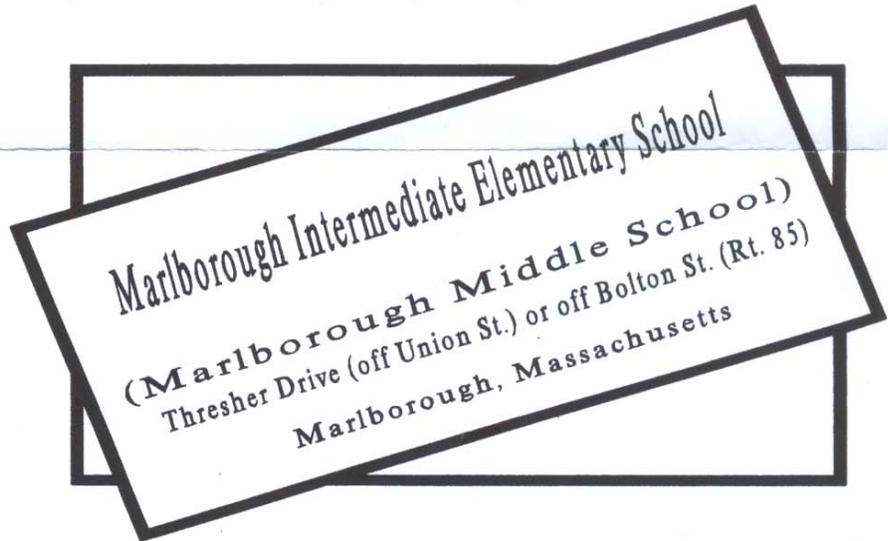


Algonquin Amateur Radio Club  
Marlborough, MA



# FLEA MARKET

Saturday, February 17, 2007



**6 ft. Tables**

\$15.00 each due by Feb 9, 2007  
(\$20 each accepted at the door if space is available)

Tables include One Admission

SETUP TIME: 7:00 A.M.

Information:

David "Shack" Haralambou

1-508-357-2272 ext 1#

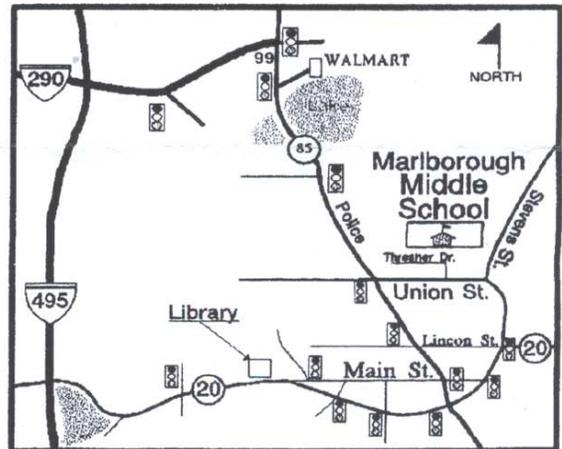
Before 9:00 P.M.

Talk In: 146.64

**General Admission: \$5.00**

**Time: 9:00 A.M. to 1:00 P.M.**

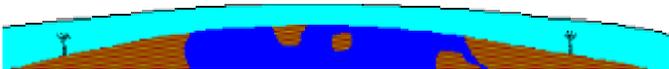
**VEC Exams: 9:00 A.M.**



**Send This Form** For Table Reservations with Check Payable to:

AARC, PO Box 258, Marlborough, MA 01752 (\$15 each table due by Feb 9)

Name: \_\_\_\_\_ Call: \_\_\_\_\_  
 Address: \_\_\_\_\_ No. Tables: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zipcode: \_\_\_\_\_  
 Telephone: \_\_\_\_\_ ( ) \_\_\_\_\_ Amount Enclosed: \$ \_\_\_\_\_ .00



## On Line DX Spotting

For those of you into HF DXing, VHF/UHF weak signal grid square hunting and EME activities, you may be familiar with the local DX packet cluster node K1ED in the Portland area on 144.91 MHz. This service is great to help you be aware of what DX is currently operating and by who is spotting it. The service requires that you have a 2-meter FM radio, a packet Terminal Node Controller (TNC) and a computer (or dumb terminal).

Now if you would like to use a DX spotting service but do not want to invest in the packet equipment, there is an on-line DX Spotting service that does the same thing, but without the Packet-Cluster BBS message capabilities. The service is called "DX MONITOR" and it is FREE! Go on-line and connect to:

<http://www.benlo.com/dxmon.html#download>.

Download the zip.exe file and log-in. If you are just looking for a particular band or other search needs, you can set it up just to list those parameters. Or you can look at the whole list that is automatically updated every minute or so. You can even list your own spots. Say you hear V31YN on 3742 KHz, LSB and he is listening up 5 KHz in a pile-up. You can enter that info into the spotting service and "BINGO" your spot appears on the list for everyone to see.

QRZ.com and other sites have similar spotting services, but I think you will enjoy the DX Monitor site.



## Keeper of the Coffer reports numerous overdue dues.

Marjorie Turner, KB1MRZ, our Association Treasurer reports that there are a lot of good folks out there that are on the MARA membership list and overdue in their membership dues. She does not want to

approach those folks because like all of us, we forget things we need to do. If you are trying to remember when it was that you paid your Association dues and can not remember. Most likely you are overdue. If so, we are not asking you to pay back dues, just pay now and everything is up to date for another year. Yearly dues are \$10 for an individual member and \$2 for each additional family member. Our association needs your financial support too.



## NAVTEX from your HF transceiver

You may not be familiar with the NAVTEX service provided to the maritime community. This system provides a weather conditions and messaging in a AMTOR (SEATOR) format. The broadcast is on 518 KHz, just below the AM broadcast band.

If you have a multimode TNC you can receive their broadcast by putting your TNC into the AMTOR mode and tuning your HF transceiver or receiver in SSB mode to 518 KHz.

No TNC you say, well, how about a audio cable from your receiver speaker output to the LINE IN or MIC IN jack on your PC's sound card and download a freeware program called NAVTEX Decoder v2.1.0 from:

<http://frisnit.com/cgi-bin/navtex/register.cgi>

You can check on the web for the broadcast schedule and you will be able to copy NAVTEX. That in turn will give you an idea of how amateur radio AMTOR works.

