

Hamgram

Newsletter of the Winona Amateur Radio Club, Inc. – February 2001
http://www.jarviscomputer.com/warc/hamgram/active_issues.php3

Meeting Notice

The February meeting of the Winona Amateur radio Club, Inc. will be held at the Winona County Courthouse Annex at 1900 on Thursday, February 15, 2001. This will be the first meeting conducted by the newly elected administration and it promises to be very interesting.

Club President says “Yes” to contest

By Matt, KFØK

Every January the league sponsors January VHF SS. I have written about this event before - for those of you that may have missed prior articles the event is a contest on the VHF and up bands (everything including and above 50MHz). The objective is to exchange as many grid squares with as many stations as possible on as many bands as possible. There is no difference between contacts on SSB, FM or CW or digital modes, as the propagation determines what mode is the most effective for the short exchange. The contest starts on the third Saturday in January at 1900Z and runs until 0400Z Monday; a real marathon. Another unique aspect of VHF and up contesting is the “rover” class. The rover class is typically some form of a mobile station that can move through and activate at least 2 different grid squares. The best thing about the rover class is that you may contact the same stations all over again if you change your grid square (location). By combining the long contest duration with the number of bands and moving through grid squares this contest can provide a great deal of action and some excitement as well.



Unfortunately a few of us this year interested in the vhf contest had conflicts and other priorities that meant we could not participate until day two of the event. Even still we pressed ahead with a multi-op effort at Clare's (KØNY) place Sunday only with 5 bands: 50,144,222,432 and 1296 MHz. In order to add some excitement I thought that it may be interesting to have our very own rover station out there looking for us to hand out some contacts just in case the VHF propagation from the river valley was poor. Our club President Jim (KBØTHN) was elected (coerced?) the rover station operator. It seemed to me that Jim was up to the task of being out in the trenches working through the bands and becoming some “raw meat” out there as he would change grids. (Always better to be on the other side of a pile-up!). For the plan to work well we decided that Jim needed the same 5 bands that we had at Clare's place. I put together the rover station on Saturday that included transceivers, transverters, brick amplifiers and yagi antennas for the 5 bands. If the equipment worked OK, Jim could be busy! I posted the group's intentions on a local VHF reflector just a day before the contest. There was some lukewarm response to our proposed one-day effort and Jim's one-day rove of 4 grids. (One “serious” rover station was hoping to activate 18 grids!).

On Sunday morning January 21, I drove the rover station over to Clare's place and parked it there with all five antennas on the rack ready to go. Jim was supposed to arrive around noon. Meanwhile Clare and I fired up the other station (Clare's `847 and much of NØWE's VHF gear) and got busy working stations on

all five bands. Propagation from the valley was surprisingly good! Most enjoyable to me was working EN34 (Bloomington, MN) with only 10W on 1296 CW!

Jim arrived right on schedule and we headed out for the ridge west of Winona on HWY 14. The plan was to activate the 4 grids: EN33, 34,43 and 44 whose corners meet just outside Utica; north of HWY 14. (We are really lucky having the corners not only in Winona County, but at a reasonably high elevation as well).

My job was to steer the vehicle and take Jim to some VHF hot spots on the ridge as Jim operated. Operation started near the High School in Lewiston. Immediately contacts started flying into the log! To make things even more exciting, the husband and wife rover team from Illinois, Tim, KØPG/R and Pat, KB9WVL/R were only 6 miles to the west with 5 bands 50MHz through 1296 as well! As Jim raced through the bands with Tim, it was discovered that the power cord for Tim's 1296 transverter was damaged. We arranged a rendezvous with them to provide repairs. (Jim didn't want to miss the extra points for the 1296MHz contacts either!). Within minutes we met up with Tim and Pat on HWY 14.

After a brief introduction I started repairs on the power cord while Jim kept operating. At one point Jim



jumped out of the passenger side of vehicle and into the driver's side to make a beam heading adjustment. It was clear to me that KBØTHN/rover was a force on the bands!

After a brief photo shoot, (Imagine; 2 Rover stations by Lewiston Auto - in January!) we bid Tim and Pat farewell, and they headed west.

Jim continued to work many stations for 75 contacts in EN43 alone! As contest rules permitted "family stations" to use the same gear every contact with KØPG/R was actually 2 as he handed the mic over to Pat. The team from Illinois changed grids five times near the corners for multiple contacts with Jim. Jim's next grid was EN44, which was a simple drive

of 1/4mile to the north. He picked up the pace again and put over 40 contacts into the log. The strange thing about the operation was that we never went outside to raise the antenna array up! The six-meter beam was set at 90 degrees from the other stack, but a quick re-orientation of the vehicle heading was all that was needed for successful 6-meter contacts. I was really impressed with the way Jim handled the microwave (1296) contacts with ease. As we traveled into the other successive grids of EN33 and EN34 Clare, KØNY followed around as well. We kind of lost track of Tim and Pat as they headed east. By the end of the "rove" Jim had bagged some 172 contacts in 5 hours! (That was far better than my first couple of roves!). Most impressive to me was the 19 contacts on 1296MHz. I took me a couple of years to get the '1296 stuff down, and Jim seemed to figure it out on the first day.

12 Volt Computer Power Supply

by Jim, KBØTHN

As some of you may know, solar power is one of my interests. The most common output voltage for solar panels is a nominal 12 volts. Solar systems are not the only 12-volt systems hams use; we also have our vehicle power systems and our portable gel cell batteries.

12 volts DC is perfect for our mobile radios, packet equipment, and accessories, but it poses a problem for running computers. The easiest way to run a computer off 12 volts is to use a DC to AC inverter. The inverter converts the 12-volt input to 120-volt AC output – but then the computer power supply promptly converts the 120-volt AC input down to 12-volt and 5-volt outputs! The overhead involved with this process is large enough to make a significant increase in total current consumption.

Over the past summer I constructed a 12-volt computer which I use as a wireless router between Adam KBØVYO's and my house. (The computer is solar powered and it uses a 2.4GHz wireless ethernet

connection – both are possible future articles!). As I mentioned before, the overhead of running an inverter 24 hours a day was too much for my modest solar system. I built a 12-volt computer power supply to alleviate those problems.



Completed power supply and delay circuit installed in my 386 computer.

The heart of the power supply is a surplus laptop power module. The module is available from Marlin P. Jones (<http://www.mpja.com/>) for the more-than-reasonable price of \$15. It supplies 5, 12, -5, -12, 20 VDC from a single 12-volt input. A smart battery charger is also built-in! The supply provides just enough current to run a modest Pentium computer, however an additional supply could be used to run the hard disk and other big current consumers. Running at full load the power supply module is at least 80% efficient, whereas the inverter setup that I tried was less than 50% efficient!

Out-of-box the power supply has a proprietary connector for the charger and DC inputs and a 20-pin header for outputs. I removed the header and replaced it with a computer power supply wiring harness. On the input side I replaced the proprietary connector with a black terminal bar. The whole arrangement is mounted on an aluminum plate, in order to dissipate heat.

One of the worst parts of the power supply, in my eyes, is that it does not turn on when power is applied and the power switch is on. The power switch needs to be off when the DC input is applied, and then turned on, in order for the power supply to startup. This wasn't suitable for my arrangement because the computer is on a timer. I built a power-up delay circuit using a NE555 timer IC and a reed relay to turn on the power supply 1.1 seconds after getting DC input. (Once again, this is another possible article.)

My power supply and solar setup has been running a computer on-and-off for the past 5 months. Now that Adam and I have finally repaired our 2.4GHz wireless link I expect that I'll have many months of trouble-free use out of the power supply. It's great running a computer from the sun!



If anyone is interested in building a 12 volt power supply for the computer, or interested in the power up delay circuit, feel free to contact me and I will provide any assistance I can. If there is enough interest I will write an article with detailed instructions, or Adam Frisch KBØVYO might consider having this as a club

program.

SunSat Out of Service

By Jim, KBØTHN

Unfortunately I could not provide my SunSat article for this months Hamgram. Here is the reason why:

The SunSat team released the following statement, dated February 1, 2001:

We regret to announce that the last communication with SunSat from our ground station at the Electronic Systems Laboratory at Stellenbosch University took place recently. We are certain, after having performed several tests since the last contact, that an irreversible, physical failure has occurred on the satellite. It is therefore unlikely that we will have any further contact with SunSat, apart from the occasional visual sighting by telescope!

The SunSat team reported that SO-35 was recently exposed to continuous sunlight for a period of five months due to orbital parameters. The orbit was determined by the requirements of the Danish Orsted

satellite, on which the SunSat platform was based. SunSat was a secondary (and free) payload attached to the Orsted spaceframe.

When the satellite became exposed to the full sun period, the SunSat command team continuously re-oriented the satellite in an attempt to alleviate high operating temperatures and battery overcharging. The ground team realized that battery capacity was a problem and efforts to recondition the battery cells seemed to help at first, however, the satellite then suddenly failed.

Interestingly, the ground team does not believe battery failure was the cause of the shutdown. The team believes the failure resulted from multiple internal problems or a possible collision with an external object resulting in major physical damage. The SunSat web site did not contain any information as to if the Orsted platform also suffered an operational failure.

Hamgram is published monthly by
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Treasurer's Report 02-1-2001

Bank balance as of 12-31-2000		\$1585.63
Petty cash on hand as of 12-01-2001	\$ 30.84	
Receipts deposited	\$ 396.00	
Checks outstanding	\$ 30.00	
Checks		\$ 255.00
Balance as of 2-01-2001		\$1727.47
Allocated for expenses		
General expenses	\$ 091.50	
Emergency reserve	\$ 250.00	
Repeater committee	\$ 750.00	
Un-appropriated		\$ 635.97

Note: The one check was for the holiday party food.

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