

Spurious Emissions



The Newsletter of the South Bay Amateur Radio Society



Volume 2 Number 3

Summer 2013

Editor's Notes

By John Wright, K6CPO

The big news for this issue is the completion of the project to convert the SOBARS repeater to solar power. The complete story appears on [Page 3](#).

Also in this issue are two more columns from Dan Romanchik, KB6NU, about preventive maintenance in the shack and encryption in amateur radio.

Jeff Dinkins, AC6V has included his amateur radio puzzle number 4 for this issue. A puzzle was not included in the Spring issue because Jeff was on vacation at the time we went to press.

For the first time, we'll have an excerpt from the blog of David Kozinn, K2DBK. He'll discuss "Ham Radio Tools." ✂

New Members

Welcome to the following new members:

Terry Hohm, KK6DRC

Nello Jefferson

License Upgrades

The following SOBARS members have upgraded their licenses recently:

Terry Hohm, KK6DRC **General**

Bill Torre, KK6BGQ **Extra**

Dave Goodwin, WB4LCN **Extra**



The solar power installation at the repeater has been completed and the repeater is now running on 100% solar power. Full story on [Page 3](#). *John Wright, K6CPO*

From The President's Shack

By John Wright, K6CPO

It's done! After a number of postponements, the installation of solar power on the SOBARS repeater has been accomplished. There are some issues regarding batteries that need to be ironed out, but the staff hopes to have this done as soon as possible. For the time being, the repeater will be on main power for our Tuesday evening nets, but will be running strictly on solar power at all other times. The full story of the installation appears on [Page 3](#).

We are again seeking a new meeting place. While we have been

welcomed with open arms at the Chula Vista RV Resort, we discovered, much to our chagrin, that RV groups take priority and we will not always be meeting in the large downstairs room. Our October meeting was conducted in a much smaller upstairs meeting room that was filled to capacity. Also, this room is only accessible by an outside staircase making it difficult for some of our members.

If anyone knows of a meeting room in the Chula Vista area that might be available please contact one of



**SOUTHBAY
AMATEUR RADIO
SOCIETY
(SOBARS)**

K6QM

PO Box 121132
Chula Vista, CA 91910

E-Mail: k6qm@sobars.org

Website: www.sobars.org



SOBARS is an ARRL-affiliated ham radio club with members from San Diego, National City, La Mesa, Chula Vista, Bonita, Imperial Beach, and San Ysidro, California.

OFFICERS

President: John Wright, K6CPO
president@sobars.org

Vice-President: Ramon Duenas,
KJ6QQK
vp@sobars.org

Secretary/Treasurer:
Fred Curtis, K16GRO
secretary_treasurer@sobars.org

Call-Sign Trustee:

Jim Beckman, N6RSL

Emergency Coordinator:

Dick Cupp, K6SJA

Property Trustee:

John Markham, KD6VKW

SOBARS meetings are held the
1st Thursday of the month at 7 PM,
at the Chula Vista RV Resort,
460 Sandpiper Way,
Chula Vista, CA 91910

Club Repeater: 146.085 (+)
PL: 100.0

CLUB NETS

Club nets are held every Tuesday
evening on the following bands:

1830: (PT) 449.980 (-) PL 88.5
223.840 (-) PL 107.2

1900: (PT) 146.085 (+) PL 100.0

1930: (PT) 28.480 USB
7.183 LSB

the club officers. We would like either a ground floor or elevator accessible room and would prefer WiFi access, but that's not absolutely necessary.

After a year of no access, we finally were able to gain access to the Chula Vista City emergency communications trailer. It had been parked in a back corner of the lot at Fire Station No. 4 and had not been operated in some time. We were able to get it moved and plugged into power. All the radios were up and operating.

A couple of weeks ago, we received word that a firefighter training at Station 4 had noticed outgassing from the batteries and he disconnected the power, which seemed to alleviate the problem. The trailer has now been moved to the city yard to address the problem and it is unknown when it will be moved back to Fire Station 4 or when we will again have access.

Up coming on Saturday, October 19th is the first San Diego ARES Field Day. This is an exercise designed to test emergency communications preparedness in the Section and will be conducted in much the same manner

as the annual ARRL Field Day. The rules for this event will be published on the SOBARS website when they are finalized.

The San Diego Six Shooters ARC has invited SOBARS to participate in an Operating Day to take place November 24, 2013 in the parking lot of the Fry's Electronics store in San Diego. At the same time, the Palomar ARC and other North County clubs will be set up at the San Marco Fry's store.

The purpose of this event is expose the general public to amateur radio, answer questions and perform demonstrations. The Six Shooters will have a VHF/UHF radio set up and at least one SOBARS member has volunteered to set up an HF radio. If anyone would like to participate, let one of the club officers know.

Lastly, the ARRL Southwestern Division Convention is going to be held in San Diego next year. The event is being sponsored by SANDARC and will take place September 12-14, 2014 at the Sheraton Four Points Hotel on Aero Drive. More information can be found on our website, www.sobars.org. ✈

Taking a Dose of My Own Medicine

By Dan Romanchik, KB6NU

Last week, I wrote a blog post on preventive maintenance for one of my writing clients.

Afterwards, I decided to take a dose of my own medicine and do a little preventive maintenance around the shack. I started with the Astron RS-35M, which provides the DC power that runs my HF transceiver and my VHF/UHF transceiver in my shack. I had started noticing a few little things, such as the voltage adjustment being a little fussy, that I wanted to correct before the supply failed on me.

After removing the cover, I vacuumed all the dust out of the supply. The

RS-35M wasn't very dirty, but even so, getting the dirt out of a piece of equipment is probably the first thing you'll want to do when performing preventive maintenance. Dirt impedes air flow. That can lead to higher operating temperatures, and as the lab manager that I interviewed for my blog post said, "Heat kills."

Not only should you vacuum any dust out of a cabinet, you should also clean the fan filters, if your gear has them. Dusty filters prevent air from flowing smoothly through equipment, and that means the fans don't cool as well as they should.

Once that was done, I did a visual inspection. One thing that you want to look for are components that look like they're getting too hot. Another thing to look for is evidence of arcing. Whatever is causing the overheating or arcing will eventually cause a unit to fail. Fortunately, I found neither.

Next, I checked to see that the components mounted to the enclosure were securely screwed down. In the RS-35M, the transformer, the bridge rectifier, and an electrolytic are mounted to the enclosure. Oddly enough, the bridge rectifier was quite loose, so I tightened it down. Also loose were the output terminals. I tightened these down as well.

Finally, I squirted a little cleaner and lube into the voltage adjustment pot and worked it back and forth. That seemed to do the job. That pot now works smoothly and cleanly.

I put the cover back on, reconnected the power cable, and got back to making QSOS. It should be good for another couple of years. ✎



SOBARS Repeater Goes Solar!

By Fred Curtis, KI6GRO

"Here comes the sun, here comes the sun and I say it's alright." It was those words from the famous Beatles' song that came to mind on Sunday, October 6, 2013. On that day, after months of planning, preparation, permits and hard work, the club's repeater solar panels were finally installed. The repeater was now operating on 100% solar power and battery.

Why go solar you ask? The idea of going to solar power for the club's repeater stemmed from the events that occurred on September 8, 2011 at 3:38 p.m. On that date and time, the largest power failure in California history

occurred (referred to as the *2011 Southwest Blackout* or *The Great Blackout of 2011*) which affected parts of Arizona, Southern California, Baja California and Sonora. On that day after club members checked in via the club's repeater, the repeater ceased operating approximately four hours into the outage. The club's single battery backup for the repeater was not enough to sustain the repeater through the blackout. We (the club) are supposed to provide emergency communications, right? So following the blackout, at subsequent club meetings, discussions took place on how to make our repeater reliable for an extended period of time during emergencies and disasters. Things such as generators, extra batteries and human intervention were discussed. Many ideas and discussions, but no permanent solution was forthcoming.

Fast forward to 2012. During the November 2012 club meeting, Bill Metzger, W6RGS gave a short presentation on operating the repeater on 100% solar power, after receiving a bid the month prior from Robert Todd, KJ6RET, owner of Sleep In Darkness or SLEEP. SLEEP is short for SoLar Energy and Emergency Preparedness. Bob gave the club a bid to install two solar panels and the associated equipment that would enable us to operate on 100% solar power. After more discussions, the membership voted during the March 2013 meeting, to go forward with the project and use repeater funds to pay for the cost of the installation.

After the club's approval, the real fun began! In order for the project to proceed, the club had to obtain permission from not one but two government agencies to install the panels; the Sweetwater Authority (the land owner where the repeater is located) and the City of Chula Vista (owner of the building where the repeater is housed and the antenna structure.) Need I say any more regarding the speed at which government agencies approve things? After forwarding 2 sets of drawings and plans, pictures, obtaining 2 hold harmless agreements, adding the two entities as "additional insured" to our club's policy and a construction meeting; the installation was finally approved and scheduled for October 6th (7 months later!).

On October 6th at 9 a.m., John Wright, K6CPO and I (now designated as the "helpers") met Bob at the repeater site to begin the installation. Bob first assembled the solar panel array with aircraft aluminum framing, stainless steel bolts and locking nuts, and stainless steel U-bolts. After the array was assembled, Bob and the "helpers" hoisted it up on the antenna structure with

a clever pulley system that Bob had devised. Bob re-checked height and angle measurements and bolted the array in place. This frame is built to last and will not come down!



The solar panels mounted in their final position.

John Wright, K6CPO

The next step was to connect the panels to the wiring, cable tie them in place and then run the wiring into the repeater shack. Inside the shack, the charge controller and monitor were installed on the wall and new battery wires were fabricated and connected. After checking all of the connections and observing the battery readings, the repeater was unplugged from A/C power and only the DC light was illuminated. The repeater was



Installer Robert Todd connecting the wiring between the solar panels and the charge controller. *John Wright, K6CPO*

now operating on 100% solar and battery power! The installation took about 6 hours to complete and Bob did a fantastic job. His attention to detail and design work made for a smooth installation and functioning system. As of this writing, the club is taking readings on the system and evaluating replacing the existing battery and possibly adding a second one.



The repeater operating completely on DC power from the solar panels and battery. *John Wright, K6CPO*

Thanks to all of you for your input and ideas for this project. I would like take this time personally thank the following people who made this project a reality: Robert Todd, KJ6RET, Bill Metzger, W6RGS, Louie Vignapiano, KI6SRR, Ramon Duenas, KJ6QQK and John Wright, K6CPO. ✈

Editors Note: More pictures can be found on [Page 10](#) and also on the SOBARS website at www.sobars.org

Should the FCC Allow Encryption?

By Dan Romanchik, KB6NU

One of the most fundamental rules in amateur radio has been the prohibition against the use of codes or ciphers meant to obscure the meaning of a message [Part 97.113 (4)]. Recently, that long-standing prohibition was challenged (<http://www.arrrl.org/news/rules-change-sought-to-permit-encryption-of-sensitive-emergency-communications>) to allow encryption when passing emergency health and welfare traffic. The idea was that encrypting these messages would protect the privacy of individuals. In his Petition for Rulemaking (<http://apps.fcc.gov/ecfs/document/view?id=7022424684>), Don Rolph, AB1PH, pointed out that Australian amateur radio rules permit encryption for emergency services operation or related training exercises.

Oddly enough, the pushback against this petition has been loud and swift. The ARRL quickly came out against the petition (<http://www.arrrl.org/news/arrrl-urges-denial-of-petition-to-permit-encryption-of-some-emergency-communications>), and when I blogged about this issue (<http://www.kb6nu.com/im-jumping-on-the-anti-encryption-bandwagon/>),

several hams replied that they didn't think allowing encryption was a good idea.

The main arguments against encryption seem to be that:

- It will make people suspicious of amateur radio operators and bring unwanted scrutiny upon amateur radio.
- Make self-policing more difficult.

Among the arguments for allowing encryption are that cryptography is a fundamental element of modern RF communications, and that not allowing it, negates one of the purpose of amateur radio. Namely, that one of the purposes of amateur radio is to "advance the state of the radio art."

In late September, the FCC dismissed this particular Petition for Rulemaking (<http://www.arrl.org/news/fcc-dismisses-encryption-petition>). It stated specifically that *"the record does not support Mr Rolph's assertion that the prohibition on encrypted amateur communications is impairing the ability of the Amateur Radio community to provide effective support to public safety agencies during emergencies."*

Of course, this discussion isn't over yet. Encryption is now employed routinely for even the most common types of digital communication, and as a newer generation of amateur radio operators take over, they'll want to experiment with these digital communications techniques. One comment suggested that a portion of the 900 MHz band or maybe the 5 GHz band be set aside for experimentation with encryption. I think that is an idea worth exploring.

What do you think? Does encryption have a place in amateur radio? ✍



47 CFR Part 97

Editor's Note: From time to time, when space permits, I will be including excerpts from Title 47—Part 97 of the Code of Federal Regulations (CFR). Part 97 sets forth regulations for the Amateur Radio Service.

§ 97.5 Station license required.

(a) The station apparatus must be under the physical control of a person named in an amateur station license grant on the ULS consolidated license database or a person authorized for alien reciprocal operation by §97.107 of this part, before the station may transmit on any amateur service frequency from any place that is:

- (1) Within 50 km of the Earth's surface and at a place where the amateur service is regulated by the FCC;
- (2) Within 50 km of the Earth's surface and aboard any vessel or craft that is documented or registered in the United States; or
- (3) More than 50 km above the Earth's surface aboard any craft that is documented or registered in the United States.

(b) The types of station license grants are:

- (1) *An operator/primary station license grant.* One, but only one, operator/primary station license grant may be held by any one person. The primary station license is granted together with the amateur operator license. Except for a representative of a foreign government, any person who qualifies by examination is eligible to apply for an operator/primary station license grant.
- (2) *A club station license grant.* A club station license grant may be held only by the person who is the license trustee designated by an officer of the club. The trustee must be a person who holds an operator/primary station license grant. The club must be composed of at least four persons and must have a name, a document of organization, management, and a primary purpose devoted to amateur service activities consistent with this part.
- (3) *A military recreation station license grant.* A military recreation station license grant may be held only by the person who is the license custodian designated by the official in charge of the United States military recreational premises where the station is situated. The person must not be a representative of a foreign government. The person need not hold an amateur operator license grant.

(c) The person named in the station license grant or who is authorized for alien reciprocal operation by §97.107 of this part may use, in accordance with the applicable rules of this part, the transmitting apparatus under the physical control of the person at places where the amateur service is regulated by the FCC.

(d) A CEPT radio-amateur license is issued to the person by the country of which the person is a citizen. The person must not:

(1) Be a resident alien or citizen of the United States, regardless of any other citizenship also held;

(2) Hold an FCC-issued amateur operator license nor reciprocal permit for alien amateur licensee;

(3) Be a prior amateur service licensee whose FCC-issued license was revoked, suspended for less than the balance of the license term and the suspension is still in effect, suspended for the balance of the license term and relicensing has not taken place, or surrendered for cancellation following notice of revocation, suspension or monetary forfeiture proceedings; or

(4) Be the subject of a cease and desist order that relates to amateur service operation and which is still in effect.

(e) An IARP is issued to the person by the country of which the person is a citizen. The person must not:

(1) Be a resident alien or citizen of the United States, regardless of any other citizenship also held;

(2) Hold an FCC-issued amateur operator license nor reciprocal permit for alien amateur licensee;

(3) Be a prior amateur service licensee whose FCC-issued license was revoked, suspended for less than the balance of the license

term and the suspension is still in effect, suspended for the balance of the license term and relicensing has not taken place, or

surrendered for cancellation following notice of revocation, suspension or monetary forfeiture proceedings; or

(4) Be the subject of a cease and desist order that relates to amateur service operation and which is still in effect.

§ 97.7 Control operation required.

When transmitting, each amateur station must have a control operator. The control operator must be a person:

(a) For whom an amateur operator/primary station

license grant appears on the ULS consolidated licensee database, or

(b) Who is authorized for alien reciprocal operation by §97.107 of this part.

§ 97.9 Operator license grant.

(a) The classes of amateur operator license grants are: Novice, Technician, General, Advanced, and Amateur Extra. The person named in the operator license grant is authorized to be the control operator of an amateur station with the privileges authorized to the operator class specified on the license grant.

(b) The person named in an operator license grant of Novice, Technician, General or Advanced Class, who has properly submitted to the administering VES a FCC Form 605 document requesting examination for an operator license grant of a higher class, and who holds a CSCE indicating that the person has completed the necessary examinations within the previous 365 days, is authorized to exercise the rights and privileges of the higher operator class until final disposition of the application or until 365 days following the passing of the examination, whichever comes first.

§ 97.11 Stations aboard ships or aircraft.

(a) The installation and operation of an amateur station on a ship or aircraft must be approved by the master of the ship or pilot in command of the aircraft.

(b) The station must be separate from and independent of all other radio apparatus installed on the ship or aircraft, except a common antenna may be shared with a voluntary ship radio installation. The station's transmissions must not cause interference to any other apparatus installed on the ship or aircraft.

(c) The station must not constitute a hazard to the safety of life or property. For a station aboard an aircraft, the apparatus shall not be operated while the aircraft is operating under Instrument Flight Rules, as defined by the FAA, unless the station has been found to comply with all applicable FAA Rules.

§ 97.13 Restrictions on station location.

(a) Before placing an amateur station on land of environmental importance or that is significant in American history, architecture or culture, the licensee may be required to take certain actions prescribed by §§1.1305–1.1319 of this chapter.

(b) A station within 1600 m (1 mile) of an FCC monitoring facility must protect that facility from harmful

interference. Failure to do so could result in imposition of operating restrictions upon the amateur station by a District Director pursuant to §97.121 of this part. Geographical coordinates of the facilities that require protection are listed in §0.121(c) of this chapter.

(c) Before causing or allowing an amateur station to transmit from any place where the operation of the station could cause human exposure to RF electromagnetic field levels in excess of those allowed under §1.1310 of this chapter, the licensee is required to take certain actions.

(1) The licensee must perform the routine RF environmental evaluation prescribed by §1.1307(b) of this chapter, if the power of the licensee's station exceeds the limits given in the following table:

Wavelength band	Evaluation required if power ¹ (watts) exceeds
MF	
160 m	500
HF	
80 m	500
75 m	500
40 m	500
30 m	425
20 m	225
17 m	125
15 m	100
12 m	75
10 m	50
VHF (all bands)	50
UHF	
70 cm	70
33 cm	150
23 cm	200
13 cm	250
SHF (all bands)	250
EHF (all bands)	250
Repeater stations (all bands)	<i>non-building-mounted antennas: height above ground level to lowest point of antenna <10 m and power >500 W ERP building-mounted antennas: power >500 W ERP</i>

¹Power = PEP input to antenna except, for repeater stations only, power exclusion is based on ERP (effective radiated power).

(2) If the routine environmental evaluation indicates that the RF electromagnetic fields could exceed the limits contained in §1.1310 of this chapter in accessible areas, the licensee must take action to prevent human exposure to such RF electromagnetic fields. Further information on evaluating compliance with these limits can be found in the FCC's OET Bulletin Number 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

§ 97.15 Station antenna structures.

(a) Owners of certain antenna structures more than 60.96 meters (200 feet) above ground level at the site or located near or at a public use airport must notify the Federal Aviation Administration and register with the Commission as required by part 17 of this chapter.

(b) Except as otherwise provided herein, a station antenna structure may be erected at heights and dimensions sufficient to accommodate amateur service communications. (State and local regulation of a station antenna structure must not preclude amateur service communications. Rather, it must reasonably accommodate such communications and must constitute the minimum practicable regulation to accomplish the state or local authority's legitimate purpose. See PRB-1, 101 FCC 2d 952 (1985) for details.)

§ 97.17 Application for new license grant.

(a) Any qualified person is eligible to apply for a new operator/primary station, club station or military recreation station license grant. No new license grant will be issued for a Novice or Advanced Class operator/primary station.

(b) Each application for a new amateur service license grant must be filed with the FCC as follows:

(1) Each candidate for an amateur radio operator license which requires the applicant to pass one or more examination elements must present the administering VEs with all information required by the rules prior to the examination. The VEs may collect all necessary information in any manner of their choosing, including creating their own forms.

(2) For a new club or military recreation station license grant, each applicant must present all information required by the rules to an amateur radio organization

having tax-exempt status under section 501(c)(3) of the Internal Revenue Code of 1986 that provides voluntary, uncompensated and unreimbursed services in providing club and military recreation station call signs (“ Club Station Call Sign Administrator ”) who must submit the information to the FCC in an electronic batch file. The Club Station Call Sign Administrator may collect the information required by these rules in any manner of their choosing, including creating their own forms. The Club Station Call Sign Administrator must retain the applicants information for at least 15 months and make it available to the FCC upon request. The FCC will issue public announcements listing the qualified organizations that have completed a pilot autogrant batch filing project and are authorized to serve as a Club Station Call Sign Administrator.

(c) No person shall obtain or attempt to obtain, or assist another person to obtain or attempt to obtain, an amateur service license grant by fraudulent means.

(d) One unique call sign will be shown on the license grant of each new primary, club and military recreation station. The call sign will be selected by the sequential call sign system. Effective February 14, 2011, no club station license grants will be issued to a licensee who is shown as the license trustee on an existing club station license grant.

Tools for Ham Radio—Part 1

By David Kozinn, K2DBK

As hams, most of us have at least a small toolbox that we use to maintain our stations. Others have a much bigger collection of tools that they use to build and troubleshoot things.

But for the next few postings, I'd like to talk about a different kind of toolbox: a software toolbox.

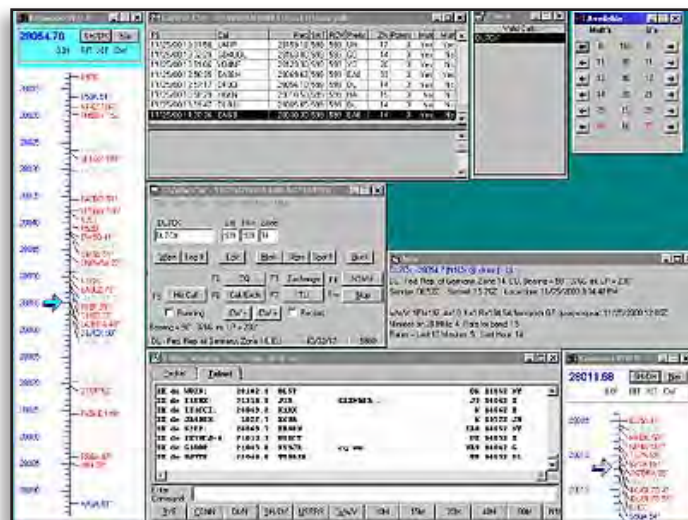
Just like the one in the picture, my ham radio software toolbox has several compartments and different types of tools, depending on the job that I want to do. I'll describe a few of the compartments that I have and the tools that I use. Before I start, I will say that these are tools that I've found work for me. There may be tools that work better for you (and there are are probably some that would work better for me too, but you have to start somewhere.) Since I'm a Windows XP user, everything I'll discuss runs on that platform. (Sorry to the Mac and Linux guys.) I have no financial interest in any of the software that I'll talk about, other than in the case of the commercial products, I'd sure like to see

those companies stay around for a while. So let's go see what's in the toolbox.

The Logging Tools

For the most part, I use two different types of tools, depending on why I'm logging contacts. I guess I consider myself a DXer first, so I use a DX logging program that I've found works well for me, which is DX4WIN. (Hmm, seems that their home page is a bit out of date. Fortunately, the software isn't.) DX4WIN allows me to track progress towards awards like DXCC, IOTA, and WAS (and many more), and does a nice job handling QSLing chores. It has reasonable integration with Logbook of The World, and is able to import and export information in a wide variety of formats. That's important, because I import data into DX4WIN from my contest logging program (more about that in a bit), and occasionally I'll even need to export from DX4WIN to my contest logger. I consider this my primary logging program, and everything that I log eventually winds up in DX4WIN.

The other logging tool type I use is when I'm participating in a contest. For that, I use the amazing N1MM Logger. N1MM (the logger, not Tom, N1MM) is rapidly



becoming the choice of a lot of very serious contest stations because of it's flexibility, power, and support, but I find it great to use for my casual contesting as well. It can integrate with multiple radios, has built-in CW and voice keyers, can work with network connected multi-op stations, and, well, just about does everything about contesting really well. As if that wasn't enough, it's free-ware and open source. (I actually did a couple of very small pieces to support Icom radios back when it wasn't as well known.) As I mentioned before, the main repository for all my QSL data is DX4WIN, so when I finish a contest, I export the data in a number of formats that I need, including Cabrillo for the contest submission,

and ADIF for uploading to Logbook of The World and importing into DX4WIN. Just a couple of mouse clicks is all it takes.

One of the things that's really nice about being able to move data between the programs is that occasionally I'll decide to just make a couple of contacts in a contest to "give out points", and I'll start off using DX4WIN. (This is especially true during some of the DX contests when I know I won't really have a lot of time to participate, but find that there's some really good DX to chase. This also only works when there's a relatively simple contest exchange, since isn't well-suited to keeping track of complex contest exchanges). At the end of the contest, since I'm going to submit my log anyway, I'll export the data from DX4WIN into N1MM, and allow N1MM to do all the scoring duties and produce the required Cabrillo format file. It literally takes me less time to do the export/import process than it's taken me to type this paragraph (and I'm a fairly decent typist).

When I began to write this entry, I figured that I'd be able to cover all of the "compartments" that I wanted to discuss in a single entry, but I've realized that it's going to take more to cover everything, so this will be the first in a short series. Among the other compartments that I'll discuss (not necessarily in this order) will be the propagation compartment, the digital modes compartment, and maybe a few others.

See you next time. ✈

Ham Humor

Culled from the Internet

YOU KNOW YOU'RE A HAM OPERATOR IF:

- You buy electrical black tape in ten packs.
- You've stripped wire with your teeth.
- You've told your son that, "One day, all this will be yours", and he doesn't respond.
- You'd rather help a buddy put up a new tower than mow the lawn.
- You've grabbed the wrong end of a soldering iron.
- You start giving out RST reports when you are on the telephone.
- The propagation forecast means far more to you than the local weather forecast.
- The microphone or visual aids at a meeting don't

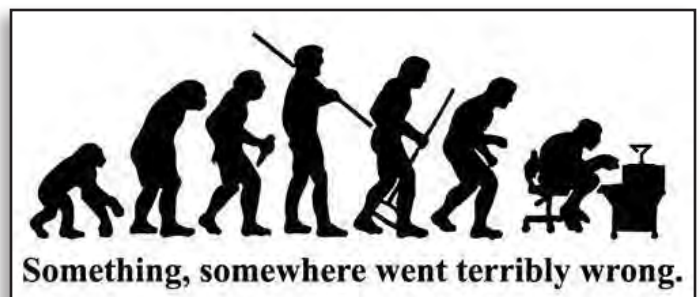
work and you rush up to the front to fix it.

- You tell the XYL, when she notices a new rig in the shack, "Why, that has been there for years."
- Your watch is set only to UTC.
- At night, when you pray, it starts off something like: CQ CQ CQ GOD DE (your callsign).
- You ever had to patch your roof after an antenna project.
- Ham radio magazines comprise more than 50% of your bathroom library.
- You ever put a GPS tracker in the XYL's car, just so you could watch her on APRS.
- You and the XYL took a cruise so you could visit the radio room.
- You ever tapped out HI in Morse on your car horn to another ham.
- You ever had an antenna fall down.
- Your teenager refuses to ride in your car because it looks like a porcupine.
- You know the Latitude and Longitude of your home QTH.
- You go into the local Radio Shack store and the clerk asks you where something is. ✈

EXPERIENCE WANTED:

Shortly after joining the Army, I was in line with some other inductees when the sergeant stepped forward with that day's assignments. He handed several tasks out and then asked, "Does anyone here have experience with radio communications?"

Being a longtime ham radio operator, I shouted, "I do!" "Good," he said. "You can dig the hole for the new telephone pole." ✈



More Pictures of the Solar Install:

Photos by John Wright, K6CPO



Robert Todd, KJ6RET (L) and Fred Curtis, KI6GRO, attaching the aluminum framework to the back of the panels.



Robert Todd feeding the power wiring from the panels into the repeater building.



Robert Todd drilling the holes for the attach points.



Close-up of the charge controller.



Fred Curtis, KI6GRO, checks the position of the panels before the final tightening of the fasteners.



The system monitor showing the battery voltage.



The charge controller (R) and the monitor panel mounted on the wall of the repeater building. The black wires are from the solar panels and the red/black wires go to the battery and repeater.

Happy Halloween!



Trying to break that big DX pile-up...



73's...



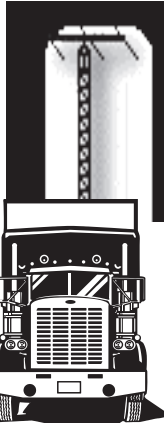
Every leader needs an office. I think I've found the perfect one...

Mert Taylor, AF6HF



Robert Todd working on the wiring from the controller (on the wall behind him) to the battery and repeater.

HAM RADIO PUZZLE NO. 4 - ANTENNAS



Antenna here is three - element Yagi on a Mack Mount

1		2	3	4	5		6	7	8	9	10

11	12	13	14		15	16	17	18		19	20	21		22	23	24	25

1. Quad Antenna mfg

11	10	6

2. Stealth antenna wire

19	18	23	13

3. A type of beam antenna

8	14	21

4. Island award program

5	12	17	3

5. Beams exhibit this

4	1	9	24

6. Des Moines, IA Radio Station

15	20	7

7. Repeater commercial

16	25

8. Not many hams in this US state

22	2