BARC
BRIDGERLAND AMATEUR RADIO CLUB

THE OHM TOWN NEWS

Voice of the Bridgerland Amateur Radio Club

>>>>>>>> http://www.barconline.org <<<<<<<<

January 2010

Happy New Year

Some Contents...

PRESIDENT'S MESSAGE

Hope everyone had a safe and happy holiday season. This past year has been a great year. For this year, we have a tentative line up of interesting presentations for the club meetings. Let's not forget the exciting events that we also do. January's topic is on homebrew antennas. There will be presentations on making a G5RV and a dipole antenna for the HF bands, vertical VHF dipole, copper J-Pole VHF antenna, and a helical VHF antenna. We'll also talk about a home built hand held yagi UHF antenna and a commercial hand held VHF/UHF yagi antenna. This will give you information so you can make your own antenna. And stay tuned for information on our upcoming club meetings.

For those of you who got a new handheld for Christmas and need some help how on operating and programming it, bring it along with its instruction manual to the club meeting. We will have a session after the club meeting to help you with your new handheld radio.

In January, we will open up on our club web page the activity sign-up page for this year's 2010 public service activities. The activities are part of our club's ham radio public service participation for community events, races, etc. Public Service provides opportunities for Amateur Radio Operators to contribute their skills and equipment in support of different organizations in our area. I would like to ask of you to get involved in at least one club public service event this year. Just pick one that you think you would like to get involved in and sign up. Then you will be contacted to help with that event.

January is also that time of year for a reminder for club dues. The mail-in application is in the newsletter or you can go to our club web site and pay online (http://www.barconline.org/?q=node/242).

73,
Cordell KE7IK

HAM PROFILE

by Jared B. Luther,

Kevin Rees (KB7RAI) has always had a lot of interest in electronics and communication. While growing up his father always expressed an interest in ham radio, but never had the time to pursue his interest. As a teenager living in the Washington DC area, many had CB radios. Kevin enjoyed hours of meeting and visiting people using a CB with a large base station antenna on the roof. Communication and electronics continued to interest Kevin and he later completed a BS degree in Electrical Engineering.

Then about 1991 a good friend of Kevin's, David Allen (KB7RAY), encouraged Kevin to get his ham Technician license. It was not long before Kevin had his license and the fabulous Yaesu FT-530 dual band handheld radio. His primary interest was in emergency communication. Many years later Kevin's uncle, BARC's own Kevin Kesler (KE7AAF), re-energized Kevin's interest in ham radio. Kevin enjoys providing communication services for the various BARC events throughout the year and listens to several nets each month to stay current with basic emergency communication skills. His equipment has increased and now owns several handheld and mobile radios. In the future, Kevin plans to upgrade his license and equipment and try DX communications.

Kevin and his wife Darcy live in Providence. They enjoy living in Cache Valley, camping, traveling, and participating in public service. Kevin works as an engineering manager at ATK at the Promontory plant.

UPCOMING ACTIVITIES

BARC Club Meeting - 9 January 2010, 10:00 AM
Building and working with all kinds of homebrew antennas
Programming and help with new radios

RACES HF Net - 16 January 2010, 8:00 AM

ARES Meeting - 20 January 2010, 7:00 PM

BARC Club Meeting - 13 February 2010, 10:00 AM

RACES VHF Net - 18 February, 8:00 PM

BARC Club Meeting - 13 March 2010, 10:00 AM

BARC Club Meetings are normally on the 2nd Saturday of the month at 10:00 A.M. on the 3rd floor of the Cache County Sheriffs Complex on 200 North and 1225 West, Logan, Utah.

ARES Meetings are usually held on the Third Wednesday of each month at 7 P.M. at the Cache County Sheriffs Complex. Contact Tyler Griffiths for more information.

This is a picture of an antenna and some of the control equipment that was installed this past October for the DStar system, and a view from the area where it is located.

Membership in **The Bridgerland Amateur Radio Club, Inc.** is open to anyone interested in Amateur Radio. You do not need an amateur license to join. Learn more online at http://www.barconline.org/ or by emailing membership@barconline.org .
The Bridgerland Amateur Radio Club provides the following to its members:

- A repeater system that covers northern Utah from Bear Lake to Salt Lake Valley.
- An opportunity to meet and learn from other amateur operators. (Club meetings are held the second Saturday each month from October to May.)
- Events where you can practice your radio skills in a fun learning environment.
- Social activities where members can make friends and interact with other members.

Your tax deductible membership fees maintain the repeaters and support club activities.

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The Bridgerland Amateur Radio Club, Inc.

Application for the Year 2010 Membership

Dues are in effect January 1, 2010 through December 31, 2010

Name _____ **Call Sign** _____ **Date Paid** _____

□ **ARRL member**

P.O. Box _____ **Street Address** _____

City _____ **State** _____ **Zip Code** _____

Home Phone ( ) _____ **Work Phone ( )** _____

E-mail _____

(The BARC OHM Town News is sent to the E-mail Address)

□ **Individual Membership - $25** **$** _____

□ **Addition Family members in same household - $3 ea** **$** _____

□ **Donation for Equipment purchases** **$** _____

Total $ _____

Names and Call Signs of additional family members

Name _____ **Call Sign** _____

□ **ARRL member**

Name _____ **Call Sign** _____

□ **ARRL member**

Name _____ **Call Sign** _____

□ **ARRL member**

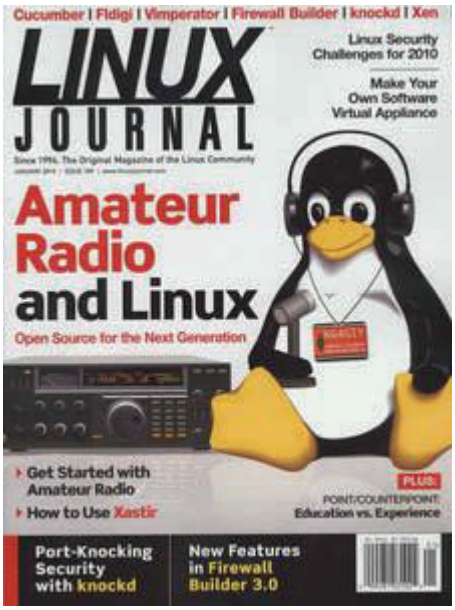
BARC
BRIDGERLAND AMATEUR RADIO CLUB

Mail your completed form and a check to: B.A.R.C., P.O. Box 111, Providence, UT 84322-0111
or pay online at http://www.barconline.org/?q=node/242

B.A.R.C. is a non-profit organization

The ARRL Letter December 10, 2009

+ *Spotlight on Amateur Radio*: Major Computer Publication Devotes January 2010 Issue to Amateur Radio



Emergencies may get all the attention in the press, but lately, the technological side of Amateur Radio has been showing up a lot in places that are read by the people who make *next* year's trends. Hams indeed are technical and creative people, consummate MacGyvers. To kick off the new year, the computer magazine *Linux Journal* has come out with an entire issue dedicated to Amateur Radio and the creative uses of open source computer programs. This 80 page issue features Tux, the Linux mascot on its cover wearing a pair of headphones, holding a microphone -- and even sporting an Emergency Coordinator badge around his neck -- hooked up to an HF transceiver. The issue has headlines on the cover such as "Amateur Radio and Linux -- Open Source for the New Generation," and "Get Started with Amateur Radio," and includes articles like "When All Else Fails -- Amateur Radio, the Original Open-Source Project" by David Lane, KG4GIY. Read more here.

ARRL ARES E-Letter December 16, 2009

EmPower: Q&A on Power for ARES Ops

Emergency power is often the critical link in any ARES operation. The following Q&As on this subject were harvested from an article written by ARRL Lab staff.

Start by considering your power source. If a larger, sustained operation is indicated, consider a generator.

Q. Our ARES group has a small 600-watt generator available. Will that be enough for four transceivers?

A. Not if they're typical "100-watt" transceivers. That's only 400 watts, you say? Not exactly. You'll have to calculate the total power requirements for all equipment you intend to use, including the station lights and accessories. To determine how much generator power you need, start by making a list of the power consumption of your station equipment (which will be much more than its RF power output). If you're lucky, some of the equipment may have its power consumption listed in the owner's manual or on the enclosure. If only current consumption is provided, multiply the current in amps by 120 volts to determine the power consumption in watts.

If there is no information available on the unit's power consumption, two rules of thumb may

help: (1) A transmitter will usually operate at about 50% efficiency, so double the RF output to obtain the amount of power required. (2) The equipment fuse is usually rated at 150- to 200% of the actual current draw, so multiply the fuse value by 0.5 to 0.67 to calculate the approximate current consumption. Use one of these steps for all station equipment, including accessories and lighting.

Now, determine how much of this equipment will be operated simultaneously -- perhaps four transceivers, two 100-watt lights, and several accessory items such as CW keyers, voice keyers, etc. If you are going to use the generator to power a piece of non-station equipment, such as a coffee pot, you'll need to include it as well. Some equipment may require more power than you have calculated, so adding a few hundred watts to your estimate is a good idea. Let's look at a typical calculation based on using only one HF transceiver: Transceiver 400 watts, Laptop computer 40 watts, Lamp 60 watts, and Soldering iron 100 watts, for a total of 600 watts.

Some generators have a continuous power rating and an intermittent power rating. If you find that the total station requirement exceeds the available generator power, remember that transceivers draw full power only in transmit, and that they're not going to be in transmit 100% of the time. They could, however, all be in transmit simultaneously, so you need to make sure that the total possible power consumption doesn't exceed the intermittent power rating of the generator.

Check the output voltage and frequency, if possible. If the generator doesn't have a built-in over-voltage protector, make sure the voltage is correct before you use the generator to power your equipment.

Also, check the generator for radio noise. Some generators are not fully suppressed for ignition noise. You would rather find this out now than at the disaster site. If there is a problem, it may be possible to use resistor-type spark plugs or spark-plug wires. Check the owner's manual. You can also connect the generator to a good earth ground with a ground rod.

Q. ***We won't have generator capability at our disaster site. How about battery use?***

A. Keep in mind that an automotive lead-acid battery was designed for one task -- to deliver a lot of current for a brief period of time. Its output voltage does not remain constant during its discharge cycle, and it is not a good idea to discharge it completely. An automobile battery won't tolerate too many deep-discharge cycles before it's ruined!

A deep-discharge lead-acid battery is much better suited to your needs. It can be discharged repeatedly without damage, and will maintain full output voltage over much of its discharge cycle. You'll find this type of battery at automotive and marine parts supply outlets. They are not much more expensive than regular automobile batteries and are designed to deliver moderate current for long periods of time.

Q. Is it possible to operate using batteries with a 100-watt transceiver?

A. Yes, but you may find that a 100-watt station is a heavy drain on your battery. A car battery would probably last only a few hours--less if it's cold. (Cold batteries lose up to 70% of their capacity.) A deep-cycle battery has a typical capacity of 1000 watt-hours, but you may not be able to use all of this capacity with a transmitter or receiver: As the battery discharges, its output voltage drops. When it drops below 12 volts or so, most amateur equipment will not function properly.

Q. Well, I can recharge the battery, right?

A. Yes, from commercial mains or a gasoline-powered generator. Alternative sources of charging power, such as solar panels or wind-driven generators, can be used.

Q. Solar power sounds interesting. Is a solar panel difficult to use?

A. No. Solar panels have only two wires to connect to your battery or circuit - one positive, one negative. Some solar panels have a diode in series for polarity protection and to reduce current flow from the battery back through the solar panel. This is no longer the case with many modern panels, particularly the larger ones where efficiency is important. Tests have shown the diode causes more energy loss during the day than the very small wattage dissipated in the solar panel at night.

Solar panels typically deliver 15 to 18 volts at 600 to 1500 mA in full sunlight. This will not damage a high-capacity battery, such as a deep-cycle unit. All you need do is hook up the battery, put the solar panel in full sunlight, and charge away. The battery will regulate the maximum voltage from the panel.

If you're going to use a solar panel to recharge a smaller battery, such as a Nickel-Cadmium (NiCd) battery or gelled-electrolyte lead-acid battery, you'll need to pay a bit more attention to detail. These types of batteries can suffer damage if charged too quickly, so a regulated charge is necessary. The *ARRL Handbook* has several solar-panel charging and regulator circuits.

Q. A large lead-acid battery sounds a bit heavy. Are there any other types of batteries that we can use?

A. It depends on how long you want to operate. If you're planning only a few hours of low-power operation, you might be able to get away with using dry cells, either standard carbon-zinc or alkaline. (Don't forget that a carbon-zinc or alkaline battery should not be recharged!) An alkaline cell can deliver quite a bit of current and will last a surprisingly long period of time. NiCd batteries are usually not suitable for sustained operation above a few watts, but if you are planning to recharge them from solar power, they may be good for quite a few hours. If you do use NiCd batteries, do not allow them to become fully discharged. This can cause permanent damage.

Medium capacity lead-acid batteries are made with a gelled electrolyte. These are commonly called gel cells. In most cases, they are completely sealed and can be operated in any position. They are available in a variety of sizes, ranging from 1 Ah to about 50 Ah. (A list of suppliers is found at the end of Chapter 35 of the *ARRL Handbook*, or go to http://www.arrl.org/tis/tisfind.html and search the keyword BATTERY). Gel cells are a good compromise between portability, capacity and ease of use. They must be charged properly, though. If you charge them too fast, bubbles can develop in the electrolyte, permanently damaging the battery. They should be charged at no more that about 10% of their output rating in ampere-hours.

Q. Someone told me that there is a device that will convert 12 volts from a battery to 120 volts ac. Why can't I use one of these?

A. You can! The device is known as a dc-ac converter, or inverter. It converts 12 volts to a square-wave ac output at approximately 60 Hz. Inverters are limited to about 100 to 400 watts, however, and some equipment (especially motors!) cannot be powered by a square wave. An inverter will run a few light bulbs or a small soldering iron and can be a useful addition to a battery-powered station. Some newer ones use switching technology and are quite lightweight. (Test them ahead of time, though. They may generate RF noise or run hot at full output.)

Q. Does the ARRL have any information about emergency power?

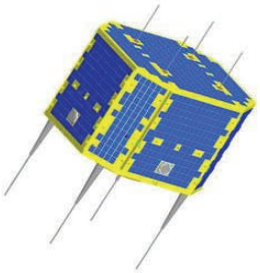
A. The *ARRL Handbook* discusses all types of emergency power, ranging from batteries, to solar power and solar-panel charger circuits, to ac generators. *QRP Classics* contains reprints of several *QST* articles about emergency power. See the ARRL publications catalog on the ARRL Web site for more information. Also see the rest of the Emergency/Alternative Power TIS Web page, also on the ARRL Web site. Consider purchasing *Emergency Power for Radio Communications,* by Michael Bryce, WB8VGE, published by ARRL

+ *Advocacy*: Amateur Radio Bill Passes Senate, Moves to the House

On Monday, December 14, S 1755 -- *The Amateur Radio Emergency Communications Enhancement Act of 2009* -- passed the Senate by unanimous consent; the bill now goes to the House of Representatives for consideration. Sponsored by Senator Joe Lieberman (ID-CT), and Senator Susan Collins (R-ME), S 1755, if passed, would direct the Department of Homeland Security (DHS) to undertake a study on emergency communications. S 1755 points out that "There is a strong Federal interest in the effective performance of Amateur Radio Service stations, and that performance must be given -- (A) support at all levels of government; and (B) protection against unreasonable regulation and impediments to the provision of the valuable communications provided by such stations." Read more here.

+ *Amateur Radio in Space*: First Chinese Amateur Radio Satellite Now in Space

AMSAT China (CAMSAT) reports that at around 0230 UTC on December 15, China launched its first Amateur Radio satellite -- named XW-1 -- into space. The microsatellite -- a secondary payload aboard the CZ-4C rocket launched from the Taiyuan Satellite Launch Center -- was launched into a Sun-synchronous orbit with an apogee of approximately 1200 kilometers. XW-1 successfully reached orbit at 0253 UTC. Members of the XW-1 launch team reported they received a beacon from the satellite shortly after the satellite deployed. In the first few days, the XW-1 team will work on the satellite's FM and store-forward transponder mode and its linear transponder mode. Once those tests are complete, they will upload a new flight program to set up the payload schedule. The satellite's communications payload includes a beacon and three crossband transponders operating in FM, SSB/CW and digital modes. Uplink and downlink frequencies can be found on the CAMSAT Web site. For the latest Keplerian elements for XW-1 and other satellites, check out the W1AW Keplerian Bulletins.



+ *Amateur Radio in Space*: Students and Teachers Invited to "Fly a File" on ARISSat-1

On February 3, 2006, cosmonaut Valery Ivanovich Tokarev hand-launched the Amateur Radio satellite SuitSat-1 from the International Space Station during an extra vehicular activity (EVA), NASA's term for a spacewalk. A discarded Russian ORLAN spacesuit, SuitSat-1 was equipped with an Amateur Radio transmitter that transmitted telemetry and greetings from youngsters to the youth of the world in several languages. In 2010, an Amateur Radio satellite -- ARISSat-1 -- will once again be hand-launched from the ISS. Like its predecessor, ARISSat-1 will transmit messages recorded by students, and teachers and students are invited to "fly a file" aboard this Amateur Radio satellite. Read more here.

SuitSat-1 was launched into space from the ISS in February 2006. [NASA Photo]

Questions for Technician Class License

1. (T1A05) How long is a CSCE valid for license upgrade purposes?
A. 365 days
B. Until the current license expires
C. Indefinitely
D. Until two years following the expiration of the current license

2. (T2A01) When is an amateur station authorized to transmit information to the general public?
A. Never
B. Only when the operator is being paid
C. Only when the transmission lasts more than 10 minutes
D. Only when the transmission lasts longer than 15 minutes

3. (T3A06) What must an amateur do when making a transmission to test equipment or antennas?
A. Properly identify the station
B. Make test transmissions only after 10:00 PM local time
C. Notify the FCC of the test transmission
D. State the purpose of the test during the test procedure

4. (T4A02) Electrical Power is measured in which of the following units?
A. Volts
B. Watts
C. Ohms
D. Amperes

5. (T5A01) What does a microphone connect to in a basic amateur radio station?
A. The receiver
B. The transmitter
C. The SWR Bridge
D. The Balun

6. (T6A01) What are phone transmissions?
A. The use of telephones to set up an amateur radio contact
B. A phone patch between amateur radio and the telephone system
C. Voice transmissions by radio
D. Placing the telephone handset near a radio transceiver's microphone and speaker to relay a telephone call

7. (T7B02) How much power should you use to transmit when using an amateur satellite?
A. The maximum power of your transmitter
B. The minimum amount of power needed to complete the contact
C. No more than half the rating of your linear amplifier
D. Never more than 1 watt

8. (T8C01) Which type of traffic has the highest priority?
A. Emergency traffic
B. Priority traffic
C. Health and welfare traffic
D. Routine traffic

9. (T9A10) What is a good reason not to use a "rubber duck" antenna inside your car?
A. Signals can be 10 to 20 times weaker than when you are outside of the vehicle
B. RF energy trapped inside the vehicle can distort your signal
C. You might cause a fire in the vehicle upholstery
D. The SWR might increase

10. (T0A02) What is the lowest amount of electrical current flowing through the human body that is likely to cause death?
A. 10 microamperes
B. 100 milliamperes
C. 10 amperes
D. 100 amperes

(For answers to test questions see page 11)

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Answers to questions on page 10: 1-A, 2-A, 3-A, 4-B, 5-B, 6-C, 7-B, 8-A, 9-A, 10-B