London Bridge Amateur Radio Association

STATIC

K7LHC
Lake Havasu City, AZ
Home of the London Bridge

February, 2006

BATTERIES

(PART I)

Presented by Bob Brunskill, KC5GMZ

Garland Radio Amateur Civil Emergency Service

You have most likely heard the term K.I.S.S. (Keep It Simple, Stupid). First, I am going to attempt to explain how lead acid batteries work and what they need without burying you with a bunch of needless technical data. Keep in mind that a lead acid battery can be open or not sealed like your car battery or it can be a sealed lead battery and used in a portable environment such as an event. The upcoming Garland Fourth of July event is a good example where a sealed lead battery might be used.

The commercial use of the lead acid battery is over 100 years old. The same chemical principal is being used to create energy that our Great, Great, Grandparents may have used.

If you can grasp the basics you will have fewer battery problems and will gain greater battery performance, reliability, and longevity. I will give you a URL at the end of the training session for additional information and easy reference.

A battery is like a piggy bank. If you keep taking out and putting nothing back you soon will have nothing.

Present day chassis battery power requirements are huge. Look at a new automobile and all the electrical devices that must be supplied. Electronics require a source of reliable power. Poor battery condition can cause expensive electronic component failure. Did you know that the average auto has 11 pounds of wire in the electrical system? Look at RVs and boats with all the electrical gadgets that require power. I can remember when a trailer or motor home had a single 12-volt house battery. Today it is standard to have 2 or 4 house batteries powering inverters up to 4000 watts.

Average battery life has become shorter as energy requirements have increased. Life span depends on usage; 6 months to 48 months, yet only one-third of all batteries actually reach the 48-month mark.

A Few Basics

The Lead acid battery is made up of plates, lead, and lead oxide (various other elements are used to change density, hardness, porosity, etc.) with a 35% sulfuric acid and 65% water solution. This solution is called an electrolyte which causes a chemical reaction that produce electrons. When you test a battery with a hydrometer you are measuring the amount of sulfuric acid in the electrolyte. If your reading is low, that means the chemistry that makes electrons is lacking. So where did the sulfur go? It is stuck to the battery plates and when you recharge the battery the sulfur returns to the electrolyte.

1. We must think **safety** when we are working around and with batteries. Remove all jewelry. I have a permanent tattoo around my wrist where my watch band melted after completing a circuit with a car battery for only a second or two. Remember, it only takes a few seconds for a ring or a chain or a watch band to turn a glowing red when connected to a battery. The hydrogen gas that batteries make when charging is very explosive. I have had a motorcycle battery blow up and cover me in sulfuric acid. I couldn't get to the garden hose fast enough. That is no fun. This is a good time to use those safety goggles that are hanging on the wall. Sulfuric Acid eats up clothing or at the very least leaves white splotches on your clothes. Did you know that Polyester clothing is naturally acid resistant. Guys, there is hope for your old leisure suit after all. I just wear junk clothes, after all Polyester is so out of style. When doing electrical work on vehicles it is best to disconnect the ground cable. Just remember you (page 3)

LBARA MEETING SCHEDULE		
MONTH	**BOARD**	**REGULAR**
FEBRUARY	**2/14**	**2/16**
MARCH	**3/14**	**3/16**
APRIL	**4/18**	**4/20**
MAY	**5/16**	**5/18**
SEPT	**9/19**	**9/21**

IMPORTANT MEETING NOTICE

THE LOCATION OF OUR CLUB'S MEETING LOCATION HAS BEEN CHANGED TO:

LAKE HAVASUYACHT CLUB

631 LONDON BRIDGE ROAD

LAKE HAVASU CITY

(NOTE: BOARD OF DIRECTORS WILL CONTINUE MEETING AT THE LIBRARY)

A GREAT DEAL ON FERRITE BEADS

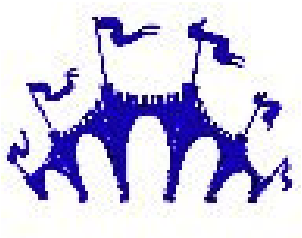
Dick Zalewski (W7ZR) will be making another order for ferrite beads. The order volume allows us to purchase these beads at some great prices.

1/4 Inch	**$1.40 each**
1/2 Inch	**$2.40 each**

These are snap-on beads and they work great. Please get your order and check to Dick as soon as possible. If any questions, give Dick a call at 505.5489. You'll never beat this deal.

Monday Night Net (7 PM)

System	Location	Freq	Offset	PL
MCARS	Bullhead City	145.27	-	131.8
	Kingman	146.76	-	131.8
	Kingman	448.25	-	131.8
	Lake Havasu	146.62	-	131.8
	Willow Beach	147.12	-	131.8
CRRA	Lake Havasu City	146.96	-	162.2
	Lake Havasu City	224.24	-	156.7
	Lake Havasu City	146.64	-	156.7
	Lake Havasu City	449.95	-	141.3
BARN	Lake Havasu City	447.54	-	136.5
	Las Vegas, NV	449.95		136.5
	Onyx(Palm Springs)	449.34	-	136.5
	Orange County, CA	447.54	-	100



(messing with corrosive acid, explosive gases and 100's amps of electrical current.

2. Basically there are **two types of batteries;** starting (cranking), and deep cycle (marine/golf cart). The **starting battery** is designed to deliver quick bursts of energy (such as starting engines) and have a greater plate count. The plates will also be thinner and have somewhat different material composition. The **deep cycle battery** has less instant energy but greater long-term energy delivery. Deep cycle batteries have thicker plates and can survive a number of discharge cycles. Starting batteries should not be used for deep cycle applications. The so-called **Dual Purpose Battery** is only a compromise between the 2 types of batteries. Every time you completely discharge a standard car battery you shorten its life significantly.

3. Wet Cell (flooded)**, Gel Cell, and Absorbed Glass Mat (AGM)** are various versions of the lead acid battery. The **wet cell** comes in 2 styles; serviceable, and maintenance free. Both are filled with electrolyte. You may prefer one that you can add water to and check the specific gravity of the electrolyte with a hydrometer. The **Gel-Cell** and the **AGM** batteries are specialty batteries that typically cost twice as much as a premium wet cell. However they store very well and do not tend to sulfate or degrade as easily or as easily as wet cell. There is little chance of a hydrogen gas explosion or corrosion using these batteries, these are the safest lead acid batteries you can use. Gel-Cell and some AGM batteries may require a special charging rate. I personally feel that careful consideration should be given to the AGM battery technology for applications such as Amateur Radio, Marine, RV, Solar, Audio, Power Sports and Stand-By Power just to name a few. If you don't use or operate your equipment daily; which can lead premature battery failure; or depend on top-notch battery performance then spend the extra money. Gel-Cell batteries still are being sold but the AGM batteries are replacing them in most applications. There is a little confusion about AGM batteries because different manufactures call them different names; a couple popular ones are regulated valve and dry cell batteries. In most cases AGM batteries will give greater life span and greater cycle life than a wet cell battery.

The AGM batteries we sell are typically good deep cycle batteries and they deliver best life performance if recharged before the battery drops below the 50 percent discharge rate. If these AGM batteries are discharged to a rate of 100 percent the cycle life will be 300 plus cycles and this is true of most AGM batteries rated as deep cycle batteries. The Gel Cell battery is the better very deep cycle battery in life performance when full discharge applications must be considered. Gel Cell batteries do require special charge requirements and a battery charger with proper setting must be used.

4. CCA, CA, AH and RC what are these all about? Well these are the standards that most battery companies use to rate the output and capacity of a battery. Cold cranking amps **(CCA)** is a measurement of the number of amps a battery can deliver at 0 degrees F for 30 seconds and not drop below 7.2 volts if it is a 12 battery. So a high CCA battery rating is good especially in cold weather. **CA** is cranking amps measured at 32 degrees F. This rating is also called marine cranking amps**(MCA)**. Hot cranking **amps (HCA)** is seldom used any longer but is measured at 80 degrees F. Reserve Capacity **(RC)** is a very important rating. This is the number of minutes a fully charged battery at 80 degrees F will discharge 25 amps until the battery drops below 10.5 volts. Amp hours **(AH)** is a rating usually found on **deep cycle**, **Gel Cell, and Absorbed Glass Mat (AGM)** batteries . If a battery is rated at 100 amp hours it should deliver 5 amps for 20 hours, 20 amps for 5 hours, etc.

5. Battery Maintenance is an important issue. The battery should be cleaned using a baking soda and water mix. Cable connections need to be checked, clean and tightened often. Many battery problems are caused by dirty and loose connections. A serviceable battery needs to have the fluid level checked. Use only mineral free water. Distilled water is best. Don't overfill battery cells especially in warmer weather. The natural fluid expansion in hot weather will push excess electrolytes from the battery. To **prevent corrosion** of cables on top post batteries use a small bead of silicon sealer at the base of the post and place a felt battery washer over it. Coat the washer with high temperature grease or petroleum jelly (Vaseline), then place the cable on the post and tighten. Coat the exposed cable end with the grease. Most folks don't know that just the gases from the battery condensing on metal parts causes most corrosion.

(Part II in the March Issue)

You might be a HAM if……!

- You ever had the same roll of coax up at 3 different locations.
- Your XYL accuses you of moving all those boxes of wire for the last 20 years, but never using any of it.
- The local Radio Shack knows you by name.
- You consider a repeater directory a necessary glove box item.
- You ever took a spring vacation to Ohio, so you could drop in on Dayton.
- You ever put a GPS tracker in the XYL's car, just so you could watch her on APRS.
- Ham radio magazines comprise more than 50% of your bathroom library.
- You've automatically tuned into the RACES or ARES freq. during a storm rather than the Nat. Weather Service.

PRESIDENT'S CORNER

Well how are you coming on your homework assignment?

What homework you ask? Last month I asked you to make a list of schools, nursing homes and hospitals near your home that we could send operators to in the event of a local emergency. Something else you should think about while you are compiling your list are any places by you where people that may be displaced from one location could be housed during an emergency. Perhaps the building isn't air conditioned, but it could provide shelter to get people out of the elements (sun or wind or even rain).

So as you drive about our town, keep your eyes open for places that already house large numbers of people or could be used for that purpose. Perhaps you know of an unused industrial building, or a city building with a large meeting room(s). How about an underground or even an aboveground parking structure? A structure like a large garage or carport could be pressed into service in an emergency to be used as a shelter.

The important part of this exercise is to make a list and get the specific address. There isn't time in a crisis to do the planning; we need to do that now. There is an old saying that is appropriate here that I will paraphrase; "When you are up to your waist in alligators, it is difficult to remember that the original idea was to drain the swamp."

So let's do our homework now.

73 de N6BRH

BEST IN THE DESERT PARKER 425

The Best in the Desert Parker 425, a 400 mile off-road race was held this past weekend with a number of Club members participating in providing some of the needed communications. Dick Jernigan (W7DXJ), Dave Holm N7DRH, Bob Gilbertson (K6BBB) and Al Key (WA6FLL) were part of a team providing health & welfare and "passing times" throughout the race day. The new LBARA repeater site on Black Metal Mountain (146.62) provided excellent coverage over the wide area of the race.

Over all race winner: John Herder

The Pit Captain's (W7DXJ) home-away-from-home. Communications here consisted of radios on three different frequencies.

You might be a HAM if……!

- You plan your vacation to take in as many hamfests as possible.
- You remember people by their call sign better than their names.
- You ever fell off a ladder while putting up an antenna.
- You ever put up an antenna in a snow storm. (huh? What's that? How about a monsoon?...editor)
- You ever had to patch your roof after an antenna project
- You ever took a detour just to look at a new tower that has sprung up.

UPCOMING ACTIVITIES AND HAMFESTS

YUMA AMATEUR RADIO HAMFEST ORGANIZATION - Yuma County Fairgrounds, 2520 East 32nd Street, Yuma, AZ. February 17-19, 2006. See: www.yumahamfest.com.

SPRING HAMFEST - Scottsdale ARC's hamfest. Scottsdale Community College, 9000 Chaparal Road, Scottsdale, AZ. March 11, 2006.

ARIZONA ARC HAMFEST - DeVry University, 2149 W. Dunlap Ave, Phoenix, AZ. April 8, 2006.

COCHISE ARA HAMFEST - Green Acres, 2756 Moson Road, Sierra Vista, AZ. May 6, 2006.

ARIZONA STATE CONVENTION - ARCA, Williams Rodeo Grounds, 800 E. Rodeo Road, July 7-9, 2006. See: www.arca-az.org/ARCA

HUALAPAI ARC FALLFEST - Mohave Community College, 1971 Jagerson Ave, Kingman, AZ. September 9, 2006.

SOUTHWEST DIVISION CONVENTION - hosted by the San Diego County Amateur Radio Council, Marriot Mission Valley Hotel, Camino Del Rio North, San Diego, CA. September 22 – 24, 2006

CLUB AUCTION NITE

There has been a generous donation made to the Club to help raise funds. This equipment has been restored to excellent condition by W7AX and will be available at a silent auction during the next Club meeting on Thursday, February 16th. Come and browse, make an offer, and take home some nice gear….while helping the Club. Here is a list of this equipment and, in some cases, a reserve. If it is not sold, it's off to E-Bay.

Bencher Keyer - perfect condition - currently lists for $120 - Reserve is $40

Drake Low-Pass Filter - Reserve is $15

Astatic D-104 - Reserve is $50

Yaesu SWR/Power Bridge - has peak reading - works great - One of the best out there - Reserve of $50

Cubic 200-Watt Turner - can tune anything, long wire or coaxial - never been arced - perfect condition - Reserve of $75

Yaesu FT720R 2-Meter Transceiver - works well - no encoding, but has tone encoding input. **Yaesu CPU2500R 2-Meter Transceiver** - missing some display digits, but working well. Both units could be used as a monitor or simplex rig. **These are packaged into one single bid with a Reserve of $20**

Autek Keyer - perfect condition - memories - cost $200 new - Reserve is $75

FOR SALE/TRADE

ALINCO DX77 MOBILE TRANSCEIVER - 100 w, 166-6m, CW filter, Removable Face Plate, Jim Varner, AE6N, 680.7259

YAESU VX-6R - 144/220/440 handheld, new in the box, $235, Jim Gould, KF7X, 680.7705

CQ DX …….CQ CONTEST

By Dick W7ZR

CQ CONTEST

Here is a list of the most popular contests coming up for late February and early March:

Contest	Start Time	Date
ARRL DX CW	0000Z	FEB 18*
NAQP RTTY	1800Z	FEB 25
ARRL DX SSB	0000Z	MAR 4*

* More Details below

ARRL DX CONTESTS

These two contests are great for us as the world can only work U.S. stations and we get to work the world. So point your beams at the sun and just follow it and you should pick up some new countries.

February Contest Tip: Competitive contesting is a combination of lots of contacts and lots of multipliers. Over all though multipliers are what puts you in the top scorers. Get in the habit of listening from one end of the band to the other and then start over again at the same end. For example tune from 14.000 to 14.060 for cw and then tune again from 14.000 to 14.060. This will allow you to pick up stations who have just showed up on the band.

CQ DX

End of January and early February were great for Eastern Africa and the Indian Ocean early in the morning on both 40 and 20 meters. 6O6 in Somalia was loud several mornings. 7Q7 in Malawi has been active also during these times.

3Y0X will be active from Peter I Island. This is a rare one so don't let it slip away.

JD1BLY and JD1BLX will be active from Ogasawara Island. This is a separate country for DXCC and not just another JA.

February DX Tip: Tuner Tip (From the SDXA Newsletter)

This is a short but important tip on how to best use your manual antenna tuner. If you are adjusting your tuner for the lowest SWR at its input, you are probably not using it in the optimum manner. By far the most loss in your tuner is in the inductor. The variable capacitors are nearly lossless. Have you ever looked inside one of the tuners using Air-Dux or similar coils which has had considerable use? It is not unusual to see the coil is distorted. This is due to over heating. Tuners using rotary inductors sometimes show burn marks on the traveling roller contact. I have seen quite a few tuners like this at ham flea markets. This is particularly a problem when matching short antennas on 80 or 160 meters. Many of the commercial tuners, which are OK on the higher bands, cannot handle legal power on the low bands *(cont. page 7)*

You might be a HAM if……!

- You know the Latitude and Longitude of your home QTH.
- You calculate the HAAT for your new QTH before you sign the loan papers.
- Your criterion for a new QTH includes ground elevation, and no antenna restrictions.

(CQ DX cont.)

Here is how to adjust the tuner for lower loss.

1. Tune for lowest SWR with low power.
2. Reduce the inductance and retune for the lowest SWR.
3. Look for the lowest inductor setting that still gives an acceptable SWR.

2:1 SWR is not that bad. Don't think you have to achieve a 1:1.

73 Dick W7ZR

OPERATORS NEEDED FOR WALK AMERICA

We need about a dozen radio operators for the March of Dimes Walk America, which is scheduled for Saturday February 25, 2005. The walk starts at Rotary Park, goes up McCulloch to Acoma and then back to Rotary Park. Registration is at 8:00 AM and the walk starts at 8:30. I'd like to meet at about 7:15 to give everyone their assignments and be at our stations by 8:00 AM. The walk takes about 3 hours and we should be through by around noon. After the event there are usually free hamburgers/hot dogs and soft drinks for all participants and volunteers.

Please contact me, Bruce (N6BRH) to sign up or if you have any questions. My home phone is 928-453-1946 or my e-mail is N6BRH@arrl.net.

Hope to see all of you out there, if not as an operator then as a walker.

You might be a HAM if……!

- You ask for a Bird 43 for a Father's day gift.
- You receive a Bird 43 for a Father's day gift.
- You ever received a TVI complaint.
- Your neighbor threatened to call the FCC for you interfering with an electronic device in their house.
- You ever had an antenna fall down.

LBARA OFFICERS AND DIRECTORS

Bruce Hunt	**President**
Jerry France	**Vice-President**
Bill Carrao	**Treasurer**
Anita Hansen	**Secretary**
Dick Jernigan	**Director (1 YR)**
Mike Burson	**Director (1 YR)**
Jim Gould	**Director (2 YR)**
Reiner Schick	**Director (2 YR)**
John Hunter	**Sgt-at-Arms**
Dave Holm	**Web Master**
Jerry France	**Static Editor**

VISIT OUR WEBSITE

www.lbara.net

FROM THE EDITOR

If you have anything you would like to see included in these issues, please let me know. I'm always looking for articles, news items, construction articles, or anything that might be of interest to our readers. You can contact me at 928.855.7941 or email at grf@uneedspeed.net or francej@ajsinsurance.com.

L.B.A.R.A

P.O. BOX 984

LAKE HAVASU CITY

ARIZONA 86405

STATIC

ATTENTION READERS

Please note that this issue represents a "work-in-progress" and there are a number of changes to be made in subsequent issues. I would greatly appreciate your comments, both good and bad, as well as any suggestions for future issues. This issue also begins our first attempt to deliver the **STATIC** to your doorstep electronically. Please keep me abreast of any email address changes you may have and I promise to have this delivered promptly and accurately. Also, I still have a number of articles awaiting publication and will do so in the future. This is your newsletter, so keep the articles, letters, and pictures coming. I can be reached at home (855.7941), at work (855.3081) or via email at grf@uneedspeed.net .

EQUIPMENT FOR SALE

EDITOR'S NOTE : List your items for sale here. Ham radio related only, please. Include a picture if you like (please use a jpg format). Email all to me at grf@uneedspeed.net) along with your name and phone number.