

ANNUAL SLCDA GA BBQ

The annual General Aviation Barbeque at South Valley Regional Airport (U42) was held on Saturday, October 10th in Mark and Terry Losee's Alta Aircraft Maintenance hangar with excellent attendance.

Many fire extinguishers were serviced, over 200 meals were served, and great Bluegrass music was enjoyed.

U42 TAXIWAY OVERLAY PLANS

The B taxiway at South Valley Airport is being surveyed and assessed for an asphalt overlay. The overlay will include repairs to the taxi lanes around the northern rows of GA hangars (rows A-D).

U42 PLANE WASH

The plane wash at South Valley Regional Airport has been closed for the winter. It will be re-opened in the spring when freezing weather subsides.

KEEPING YOUR AIRCRAFT BATTERY ALIVE.

By Steven W. Ells in AOPA Pilot Magazine

In this writer's opinion, a battery is the most important component in your electrical system.

A battery does three things... it delivers a strong shot of electrical power for starting, it is an electrical shock absorber that dampens system surges, and it is the only source of electrical power when the alternator or generator gives up. Up until the mid-1980s, when recombinant-gas (RG) battery technology was introduced, batteries hadn't changed much since the 1940s.

In the past 20 years the light-airplane-battery landscape has changed. The old, familiar flooded-cell lead acid battery is everywhere and still is the least expensive battery on the market. But for just a few dollars more, owners can install a more powerful and safer battery.

The newer RG batteries are sometimes called "valve-regulated lead-acid" or "absorbed glass mat" (AGM) batteries. Flooded-cell batteries have one removable filler cap per cell, and RG Batteries are sealed.

A flooded-cell aircraft battery consists of closely stacked negative and positive plates submerged in diluted sulfuric acid within an acid-proof box. To keep the plates, which are suspended from the respective positive and negative terminals in the acid bath, from touching, they are separated by thin slices of plastic. When a flooded-cell battery is charging, explosive gases and droplets of sulfuric acid are given off and pass out of the battery through vented filler caps into the battery box.

This nastiness, termed "off gassing," is completely absent from RG batteries. This toxic vapor produced by flooded-cell

batteries is the primary reason that vented battery boxes are required in general aviation airplanes and that the battery box and the airplane structure surrounding these boxes usually are coated with layers of black acid-proof paint.

RG battery technology eliminates all the problems of flooded-cell batteries. RG batteries are available in all sizes from both Gill Batteries and Concorde Battery, the two battery vendors in the United States. RG batteries provide more cranking power than a comparable-size flooded-cell unit, do not off-gas, and can be mounted upside down and yet never spill a drop of acid.

RG batteries also retain their charge more than three times better than flooded-cell batteries during periods of inactivity.

Because the electrolyte (dilute sulfuric acid) in RG batteries is absorbed in glass mat separators, and because each cell has a pressure relief valve that's designed to maintain a positive pressure in each cell, the hydrogen and oxygen gases, which are produced during the charge and discharge cycles, are quickly reabsorbed (recombined). In addition, because the glass mats provide support for the individual plates, more plates can be packed into the same-size box, and are more resistant to shock and vibration damage than the plates in flooded-cell batteries. Prices of RG batteries have come down since Concorde first introduced them in 1984. One vendor sells a 12-volt 35-amp-hour RG battery for only \$10 more than the same company's top-of-the-line flooded-cell equivalent.

Since the plates in flooded-cell batteries can't be as tightly packed together as the plates in RG-type batteries, they produce less power, have a greater self-discharge rate, and have a greater internal electrical resistance than RG type batteries.

Another difference is that flooded cell batteries must be tended regularly to ensure that the electrolyte level doesn't drop below the top of the plates because of evaporation and off gassing. The rate of this electrolyte loss is affected by many variables such as the alternator or generator voltage regulator settings, and even seasonal air temperature variations. Anyone who has ever had to hold a flashlight between the teeth, with a mirror in one hand and a cup of distilled water in the other, while trying to peer into each cell of a battery that's nestled in a battery box, which is in turn buried in the tail cone of an airplane, will breathe a sigh of relief when one hears that RG batteries don't vent electrolytes and are considered to be maintenance free. The question must have now surfaced-is there any reason not to buy an RG battery?

Since the flooded-cell batteries have a higher internal resistance to electron flow than the RG types, they're more suited for

airplanes with low-output generator-based charging systems. The low internal resistance of RG batteries is the second reason (more plate area is the first) they deliver more power and why they accept a charge faster. Accepting more charge can cause small generators to overheat. Skip Koss of Concorde Battery said any airplane with a generator with an output of less than 50 amps

(generator output is stamped on the data plane) should use flooded-cell batteries for this reason.

The low internal electrical resistance that's part of RG batteries means that these batteries recharge faster than comparable flooded-cell batteries.

Overcharging can be a problem with any charging system, but is most often seen in systems with vibrating-point-type voltage regulators.

For best performance, airplane charging-system voltage regulators should be adjusted to deliver 14.1 volts (or 28.2 because aircraft have either 14- or 28-volt systems) to the positive terminal on the battery when the battery is fully charged. This number is a good target number at 50 degrees Fahrenheit with less voltage required at higher temperatures and more required at lower temperatures. At minus 4 degrees F, 15.0 volts is appropriate for a battery within a 14-volt system.

Batteries are rated in amp-hours. GA airplanes typically use 25 or 35-amp-hour batteries that are warranted to supply 25 amps for one hour or 50 amps for one-half hour. The aircraft storage battery becomes the only source of electrical power for avionics, lights, and landing gear extension if the alternator or generator fails in a single-engine airplane.

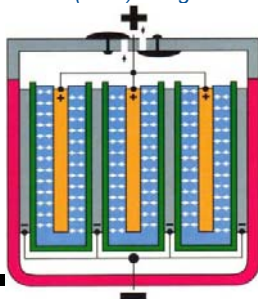
FAR 23.1353(h) requires that aircraft storage batteries "must be capable of providing at least 30 minutes of electrical power to those loads that are essential to continued safe flight and landing." This is termed the "essential power requirement." It's usually a bad idea to use an external power source to jump-start an engine when the aircraft battery is not capable of providing enough power for an engine start. Jump starting will probably get the engine started, but should the alternator or generator fail early in the flight, the battery will not be charged enough to provide backup electrical power for more than a few short minutes.

Just because a battery can crank an engine does not mean it meets the essential power equipment. An engine start uses approximately only 1 percent of the power available in a healthy battery.

A fully charged 35-amp-hour battery supplies 35 amps for one hour. It's deemed to pass the essential power regulation if it can supply the 35 amps for 51 minutes (85 percent of 60 minutes) or more.

Tips for keeping batteries healthy are simple. Fly often, adjust the aircraft alternator-or generator-charging rate to ensure the battery is being fully charged, keep the battery and connections clean, and don't add anything to a flooded-cell battery except distilled water. For more detailed maintenance instructions, go online to either the www.gillbatteries.com or www.concordebattery.com web sites and download the information. Flooded-cell or RG... keep it fully charged, maintained, and regularly tested.

This drawing represents the recombination of the gases on charge with the absorbed glass mat (ATM) design.



HELPFUL POINTS OF CONTACT

For GA operational, facilities maintenance, aviation newsletter, airfield, and SLC Title 16 questions call: Steve Jackson, SLCDCA General Aviation Manager, 801-647-5532 or e-mail at steve.jackson@slcgov.com.

For hangar lease and repair questions call: Mike Rawson, Properties Management Specialist, at 801-575-2894 or e-mail at mike.rawson@slcgov.com.

For aviation security questions call: Connie Proctor at 801-575-2401.

For gate access problems call: Airport Control Center at 801-575-2401.

**For emergencies call: at SLCIA, 801-575-2405
at TVY or U42, 911 then 801-575-2405**

ELECTRONIC GA NEWS

If you would like to receive the Salt Lake City Department of Airports' monthly general aviation newsletter by e-mail, send a request including your e-mail address to: steve.jackson@slcgov.com.

UPCOMING EVENTS

Leading Edge Aviation Logan (LGU) - Leading Edge Aviation has a free breakfast in their hangar on the 2nd Saturday of each month from 8:00 am to 10:00 am. They'd enjoy seeing you there. For more information about Leading Edge events, visit www.leaviation.com.

October Local FAA Seminars The FAA Team is sponsoring the following CFI workshops during November & December. The subjects this quarter are winter weather hazards and National Weather Service seminars. Trends in General Aviation and Risk Management for Flight Instructors will also be taught. Non CFIs are also invited to attend. Utah Highway Patrol pilots Steve Rugg & Terry Mercer will discuss flying helicopters for the UHP at the December 3rd meeting. More information is available at faasafety.gov or contact Dennis Seals FAA Safety Program Manager at 801-257-5056

11/10 6:PM UVU Student Center room 213B Orem
11/12 6:PM Grand Junction Airport Commemorative Air Force Building
11/17 6:PM AvCenter Pocatello Airport Pocatello, ID.
11/18 8:AM USU classroom Logan Utah Airport
11/19 6:PM South Valley Airport Air Center
11/20 8:AM Westminster College upstairs at Kibbie Building SLC
12/3 6:PM Kibbie Building - Helicopter Emphasis
12/15 6:PM Cedar City Airport Cedar City
12/16 6:PM Dixie College Hangar St. George Airport St. George, Utah

In addition there will be a Pilot Safety Meeting at the Vernal Airport on November 4 from 7-9 PM with winter weather flying being the subject. Contact Clark Hall 435-789-1578 for information. Seminar and related information may be found at www.faasafety.gov under "events".

Have a Happy Thanksgiving

