APS *NEWS*

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PAROWAN 2006
Photo by Rick Howell

In this Issue:

Newsletter by E-Mail?

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President's Corner

We have completed a very successful soaring camp in Parowan.

I have received notes thanking me for organizing and running the event, but the real thanks should go to the folks in Parowan.

Please send your notes to Jet Smith at the Parowan Visitors center mailto: Parowancityvc@infowest.com and Dave Norwood (Parowan Aero Services) mailto: Paroair@infowest.com

We saved the best until the last day. There where many long flights made on the 15th of July. The noteworthy flight was made by Dick Van Grunsven 1082km. The paperwork will be filed for a free 3 turnpoint state record of 599 miles for singleplace motorgliders.

I have requested that the participants send pictures and/or short stories about their experiences at Parowan.

Great Soaring !!
Rick "FD" Howell , Pres.

SAFETY CORNER

Oliver Dyer-Bennet, CFI/CFIG
Safety Director ASA

Devoted to the enjoyment and safety of the sport of high performance powered sailplanes and otorgliders.

Gliders are one of the few kinds of fixed wing aircraft that spend a good portion of there flight time near the edge of a stall/spin configuration. This happens primarliy when we thermal, but it also happens when we take off, or land the glider.

Because we seek out turbulant air and then insist on turning in it, to thermal at slow speeds, a review of the stall spin concepts is a helpful tool for the glider guider.

The August 2006 issue of Soaring Magazine has an intresting article by Bob Wander on spins. In the article Bob asks and answers three questions about spins.

#1. When the spin begins, why does the glider pitch nose down?

The nose pitches down because the spin is a variety of stall. In a properly loaded glider the nose-down tendency at the stall occurs because the Center of Gravity (CG) is forward of the center of lift on the wing.

#2. When the spin begins, why does the glider bank to the left or to the right?

The glider banks left or right because one wing is more stalled than the other wing. The glider banks toward the more deeply stalled wing because it produces less lift than the other wing.

#3. When the spin begins, why does the glider yaw develop into continuing rotation?

A spinning glider auto-rotates (spins) because the more stalled wing produces more induced drag (rearward acting force on the wing) than the less stalled wing. Auto-rotation usually continues until this drag inequaliy is eliminated.

It is a good safety idea to do a ground review of stall/spins, and then do some gentle approach to stalls, not developed stalls, with your glider.

This will be helpful as to how your bird feels in this pre-stall/pre-spin configuration.

PAROWAN 2006!!!

Parowan Camp 2006
8th-15th July

I had a great time in Parowan even though I spent more time on the ground helping others have fun in the air. I did have 2 good flights during the camp and have sent my pictures of Cedar Breaks. I forgot my camera the day that I flew to Zion and Bryce Canyon.

We had many great flights: (1) 3 Gold Altitudes (2) A Gold Distance / Diamond Goal (3) 4 made flights to the Grand Canyon, Jim Walsh had the best canyon flight…17,900 over the North Rim …17,000 over the South Rim…NO PROBLEM….

There were fires in California during the middle of the week that forced 6 gliders to land at Junction. I thank all for making good decisions to land when conditions were bad.

The non-flying highlights of the week were:
(1) the dinners that were served in the hangar every night.
(2) The discussions that continued until sunset with the hangar doors open for the view.
(3) The girls from Cedar Breaks Academy who helped Steve Turner on the line. We invited the girls to dinner on Tuesday night. Thanks for the help.
Last, but not least ….Many new friendships were started during the week.

See ya'll next year !!

Rick "FD" Howell

Help from the girls at Cedar Breaks Academy

Below: New Member Tom Muller

FROM THE DESERT BETA TEST FACILITY

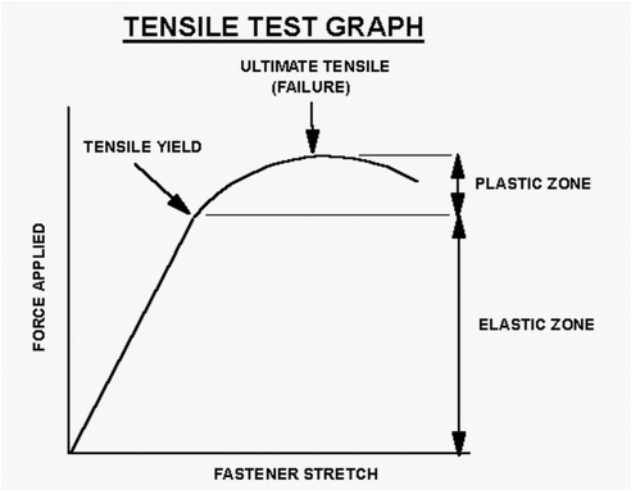
TECH TALK

by Gary Evans

FASTENERS 101 – MATERIAL STRENGTH

This is the first installment of a multi-part series on the basics of fastener selection and use. Everything that isn't glued or riveted together on your glider is assembled with fasteners and MG's have even more. This seemingly simple device is more complicated than you may think and some basic understanding can prevent serious structural mistakes during maintenance.

Fastener properties are complex and the relative importance of each is dependant on the intended application. A threaded fastener works by clamping parts together and the amount of clamping force is determined by tightening torque applied. The maximum allowable torque is limited by fasteners tensile strength, which can be measured by tensile testing. The following graph represents the result of a typical tensile test on a metal fastener.



The horizontal scale is the force applied to the fastener and the vertical scale is the stretch that occurs. As force is applied to the fastener it will initially stretch in what is called an elastic zone, which means that the fastener will return to its original length when the force is removed.

Elastic force is critical and is what provides the continuous clamping of the parts. As the tensile testing force is increased it will transition into what is called the plastic zone, which means that permanent deformation is occurring.

A fastener that has been over torqued and entered the plastic zone (permanent deformation) it is toast and should be discarded. The area of usable tensile strength is therefore only the elastic zone for each specific fastener.

Once the yield strength of the fastener is known the manufacture will typically subtract 20-30% to provide a safety margin and then determine the maximum torque required to achieve that clamping force.

Standards for fasteners material strength differ between the U.S. and Europe where metric dimensions are employed. Most fasteners used on imported gliders will be metric but the material ultimate tensile strength of both is shown below for comparison purposes.

U.S. standards

SAE 2	74000psi
SAE 5	120000
SAE 7	133000
SAE 8	150000
Socket Head	160000

U.S Aircraft Grade

AN	125000

Metric standards

4.6	58000

4.8	60900
5.8	75400
8.8	120400
9.8	131000
10.9	150800
12.9	174000

You will note that the U.S. grade of AN which, is the standard for U.S. general aircraft frame use, only employs 125000psi steel, which is not very high on the list of available grades. This points out an important fact regarding fasteners material selection, which is that the strongest material may not be the best choice for all applications.

The material for AN use was selected to provide an adequately strong fastener and one, which will withstand significant distortion before breaking. The stronger materials will generally fail with much less distortion, which in an airframe would not be a good thing.

Replacement of aircraft fasteners should always be of the exact same design/material grade as originally used by the factory. Metric material strength can be read directly from the fastener designation.

For example with a 12.9 fastener the 12 stands for material with ultimate tensile strength of 1200Mpa (mega Pascal) which equals approximately 174000psi. The 9 stands for 80% of the tensile yield strength (actually 960Mpa which estimates its tensile yield strength), which equals approximately 139200psi. The recommended torque for this fastener would therefore be based upon staying safety below the yield strength of 139200psi.

Fastener standards can usually be found on the head of a bolt. The manufacturer's mark is a symbol identifying the manufacturer (or importer). This is the organization that accepts the responsibility that the fastener meets specified requirements. The grade mark is a standardized two or three digit identifier discussed earlier. Fasteners with no marking are usually low strength and have no place on an aircraft.

Scott Westfall from Boulder, CO
photo by Bob Caldwell

Down elevator anyone?
photo by Bob Caldwell

My Excellent Parowan Adventure

by Andre de Baghy

It started like a good day with an initial climb to 13000 just east of the airport; I decided to follow a group of other guy's that where heading out North with the intention of rounding Salina and then if conditions permitted back towards Bryce, then maybe! Further south and back?? The only difficulty in this task was the sky, beautiful and blue.

All was perfect all the way to Marysville with thermals in the right places and where they would be expected, with the culminating point at 16000, from there I pushed on to my turn point Salina. 25 minutes later I was trying to convince my self that there must be some lift somewhere. From east of the valley to west of the valley, even the buzzards where flapping their wings not a good sign! The Salina airport is a nice 5000" strip with not a soul in sight. I noticed the wind had shifted to the North. Maybe I should have paid attention before but "hindsight"..!

I opted for an aerotow, the Maul turned up about 90 minutes later and announced that it was IFR conditions over Parowan? but sky was blue and not a cloud, Oh smoke! Well let's try anyway, OK but I have to tow at 80kts so my engine does not overheat. It was interesting, I got shaken around, holding the stick with both hands for about 50 minutes until we got over the plateau of Beaver Mountain, there I started to see the belly of the Maul one minute and losing sight of him the next plus from our vantage point the smoke still looked pretty thick over the Parowan side of the valley. This was a little much for this glider pilot so I released with a sigh and joined the crowd at Junction, just down the other side of mount Beaver.

Hence the Photo's.

Regards.

Andre de Baghy
304C N305 EB

PS. For documentation I attached my IGC file

Waiting for a tow at Junction

Junction at Sunset

Looks like O’Hare at rush hour

Photos by Terry Edmonds

Bryce Canyon

Flight to Provo

Mt Belknap

Zion

Photos by Gary Evans

Germans bring BIG iron

Even the crews could fly this year :)

Our leader and the real boss

Cedar Breaks

ASA Mission

The Auxiliary-powered Sailplane Association, Inc. was founded in 1988 as a non-profit organization to encourage the design, development and safe us of motorgliders, self-launching and sustainer engine sailplanes.

ASA Membership

Membership in ASA is open to anyone interested in powered sailplanes. Write or call: Brian Utley, ASA Membership Chairman, 9541 Virginia Ave. South Bloomington, MN 55438
Ph: 952-941-5683 email:<Utleyb@aol.com> USA Dues $20/yr, $38/2 yrs, $55/3 yrs. International Dues $25/yr, $48/2 yrs, $70/3 yrs.

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APS NEWS Publication

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Ventus 2cm

With optional 15-meter wingtips, completely competition-ready. Includes excellent instrumentation, O2, tow-out gear, wingtip wheels for taxi, Cobra trailer, etc. Top-notch condition. Dave.Nadler@nadler.com Please see http://www.nadler.com/public/Ventus_2cm_offer.html

Scheibe SF-28A

1982 Tandeme-Falke motorglider, ~1200TT, 460 Engine (65hp Limbach 1700EA), custom covers, custom open trailer, Hoffman prop (recent overhaul), new canopy, new muffler and heater shroud. $47,500 Matthew Poleski, 815-544-3870, <matthewpoleski@aol.com>

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DG 400 WANTED

Contact Karl Clauser Email Glider5F@aol.com

EDITOR NEEDS HELP

Thanks to Bob Caldwell, Gary Evans, Rick Howell, Andre de Baghy and Terry Edmonds for contributing to this issue. For the rest of the readers I could really use your help with articles and photos. There's lots of flying being done and a lot of us have digital cameras so it is easy to submit photos. I am always looking for content so please contribute to the newsletter.