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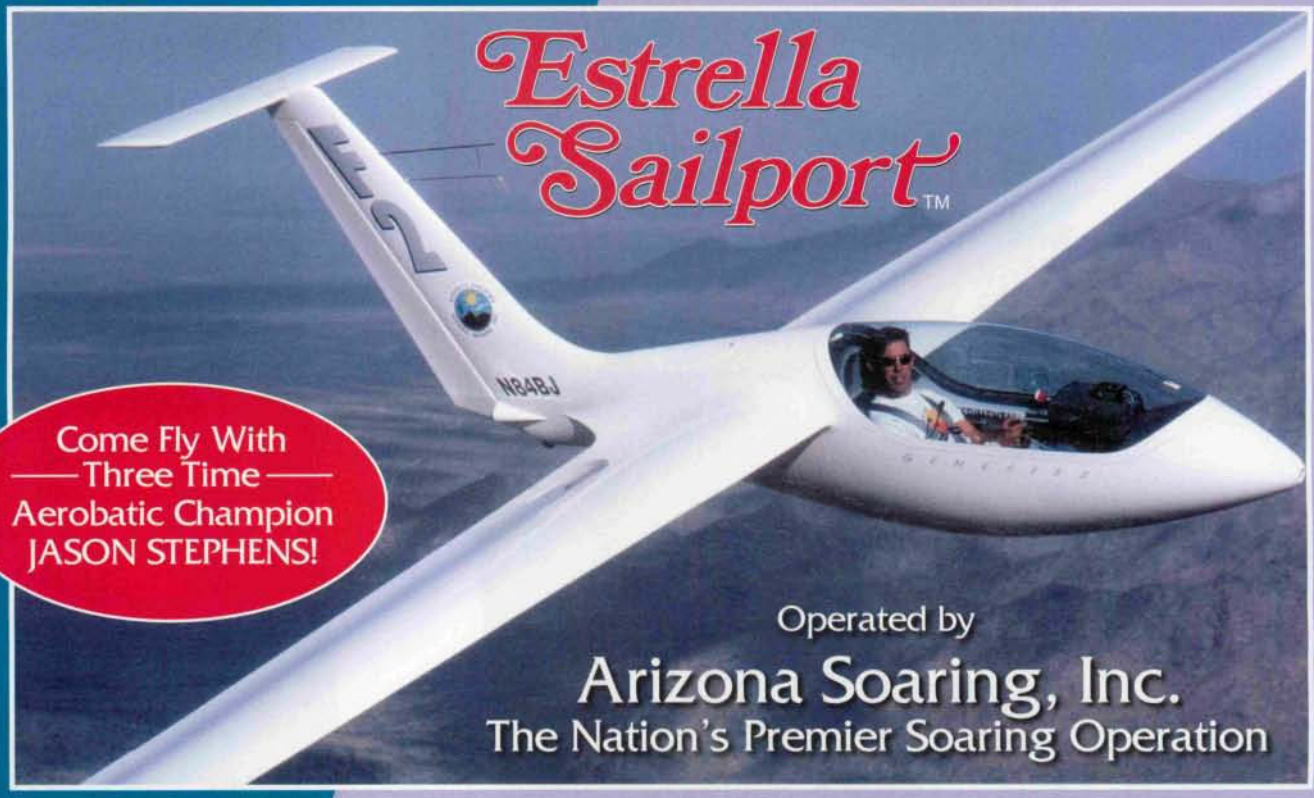

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BUSINESS SSA MEMBER

MAY 2010
VOLUME 74 • NUMBER 5

Soaring

and MOTORGLIDING MAGAZINE

The Journal of The Soaring Society of America, Inc.
Published Continuously Since 1937

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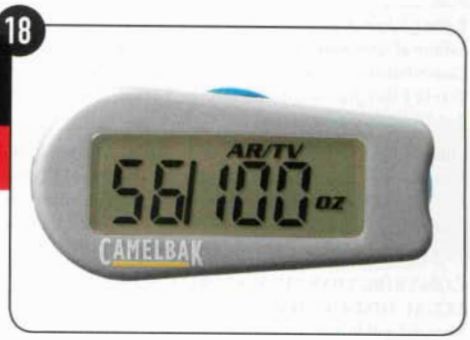
FEATURE ARTICLES and DEPARTMENTS

Front Cover: Steve Rander captured some flight line action showing a Junior and a Lark prepping for their pulls behind the Willamette Valley Soaring Club's two-seat Pawnee.



Soaring
and MOTORGLIDING MAGAZINE

Soaring Magazine is the official journal of the Soaring Society of America. The Soaring Society of America (SSA) is a nonprofit organization. The purpose of the Society is to foster and promote all phases of soaring. The SSA is a division of the National Aeronautic Association (NAA), the U.S. National Aero Club, which represents the U.S. in the Federation Aeronautique Internationale (FAI), the world sport aviation body comprised of all national aero clubs. NAA has delegated to the SSA the supervision of FAI related soaring activities, as follows: Record attempts, competitions, FAI Badges, and selection of the United States Team for the World Gliding Championships.

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THOUGHTS FROM THE CHAIRMAN

BY SSA CHAIRMAN PHIL UMPHRES

PUBLICITY FOR THE SPORT OF SOARING

Let's face it. Our sport of soaring is a well-kept secret. As SSA Chairman, I look for opportunities to talk about our sport to pilots and non-pilots alike. While I find that most power pilots have at least some idea of what a sailplane is and what we do, many non-pilots have no earthly idea what the aircraft we fly even look like.

Often, the uninitiated have "sailplanes" and "gliders" confused with "hang gliders." While hang gliding and paragliding are also enjoyable sports, they are not the same as soaring. To recruit new participants to our particular brand of flying we face the task of educating the public about who we are and what we really do.

The task of publicizing our sport needs to be shared between the SSA and the local clubs. At the national level, our staff, key leaders, and our publicity and growth volunteers look for ways to get stories and articles about soaring into national media outlets. The best example of the impact such national publicity can have on soaring came back in 1967, a year in which soaring was blessed by three priceless publicity bonanzas: *National Geographic* magazine ran a feature article on soaring in the January 1967 issue called "Sailors of the Sky;" the Walt Disney TV program aired "The Boy Who Flew With the Condors" on February 19, 1967; and *Readers' Digest* magazine ran an article called "The Sky is Their Limit." Not unexpectedly, the immediate effect of this favorable coverage of our sport was huge.

More recently, we have been successful in getting several articles about soaring in national publications. One such example is Val Paget's cover article on our sport that appeared in the summer 2009 issue of *Drive* magazine, published by Subaru and sent to over 800,000 Subaru owners worldwide. Thanks in no small part to SSA Director Chris O'Callaghan, we also have seen several features about soaring appear in AOPA publications and on their website. Bill Daniels, currently Chairman of SSA's Growth and Development Committee, writes a blog on soaring for the AOPA's "Let's Go Flying" website.

We have also had some recent television coverage. In January of this year "Good Morning America – Weekend Edition," did a very nice piece on an introductory soaring lesson taken by one of their reporters with instructor Doris Grove at Ridge Soaring Gliderport in Pennsylvania. According to Tom Knauff, the reporter had read an article about soaring in the *Washington Post*, which led her to believe it would make a good feature for the television program. So, a nice print article led to an even better television spot.

A major initiative I hope will bear fruit soon is the effort by several SSA members to produce a high-definition television program about soaring that could appear on PBS stations nationwide. Spearheaded by SSA member Mike Abernathy, "Cloudstreet," is being sponsored by the Albuquerque, NM public television station. Currently, the producers are attempting to raise funds for this project in a difficult fundraising environment. Anyone interested in helping Mike out with this very worthwhile project should contact him. (His contact information can be found using the Member Locator feature on the SSA website, available to all SSA members.)

While publicity efforts pursued by the SSA leadership at the national level are important, equally important – if not more important – are the efforts by local groups of soaring pilots to publicize the sport in their local area. The SSA provides

many resources that are available to all SSA members to help with local publicity. We are particularly proud of two new items – both of which are largely the work of SSA Publicity Chair Val Paget – that I want to bring to your attention.

Val has created two new "mini-CDs" that contain publicity resources in a multimedia format. One disc contains an updated and expanded Publicity Handbook for soaring.

While we have had a publicity handbook on the SSA website for some time (from the SSA homepage, click on "The SSA > Publicity" menu button), the new mini-CD contains multimedia resources that we can't make available on the website. These include not only the 35-page handbook but also templates for creating press releases to publicize events such as a local contest or soaring camp, a solo by a youth member, receipt of an award from SSA, earning a soaring badge or setting a soaring record while flying from your location.

The other CD created by Val is our 62-page "Media Kit" that is designed to be given to the local press in your area. This Media Kit is a 62-page multimedia document (you can view video clips by clicking on the links that are embedded in the main document) that provides a wealth of information about our sport that will help reporters "get the story right." Remember, the easier you make it for a reporter to write his or her story, the more likely they are to write it.

Both these CDs are available through SSA headquarters in Hobbs and are free for the asking to SSA members. Just contact the office and tell them you would like copies for your club leaders to use as tools to promote the sport in your area.

Along with the CDs, we also have printed materials available from SSA that can be handed out to the public. These include a three-fold brochure called "Discover Soaring" and a similar flyer providing information about youth soaring. A new product – created by Growth and Development Committee Chair Bill Daniels – is a "soaring business card" with the SSA logo on it that you can order with your name, the name of your local soaring club, and whatever contact information you want on it. Any SSA member can order 24 of these cards – for free – through the SSA on-line store or by contacting the office in Hobbs. You can have SSA print the information for you or we will send you the blank sheets with only the color SSA logo preprinted and you can add your information and print them on your own computer.

Remember that publicity only serves to get the prospective customer into your store. Once the customer walks in, you still have to make the sale. The same is true with efforts to recruit new pilots to our sport. The payoff from publicity only comes if we know how to get someone to take that first soaring flight once they have shown interest.

That's why we all need to know what to do when prospective new soaring pilots are moved by our collective publicity efforts to contact our soaring clubs. Please check to see that your club's contact information is current on your website. If you have a clubhouse with a dedicated phone number, make sure that club members know what to say when a prospective member calls. Help your club members out by having a "cheat sheet" with what to say to curious callers next to the phone. Don't let your club members get away with answering a call from a prospective member by saying, "There's no one here who can help you, call back later."

Perhaps most importantly, be welcoming when someone new shows up at your soaring site. There is nothing more discouraging to a curious newcomer who has worked up the courage to come out to your airfield than to be either completely ignored or – even worse – told that everyone is getting ready to fly and they will have to come back later. Ouch.

So, be kind to your visitors this soaring season. They are the future of both our sport and your soaring club.

THE SOARING SOCIETY OF AMERICA, INC.
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U.S. Southwest Soaring Museum
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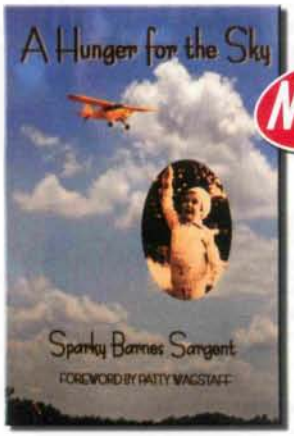

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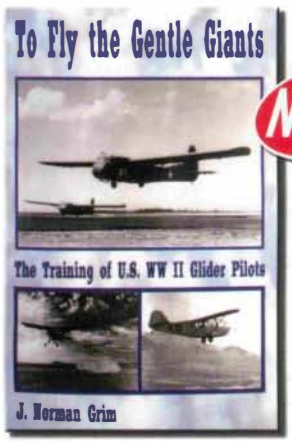

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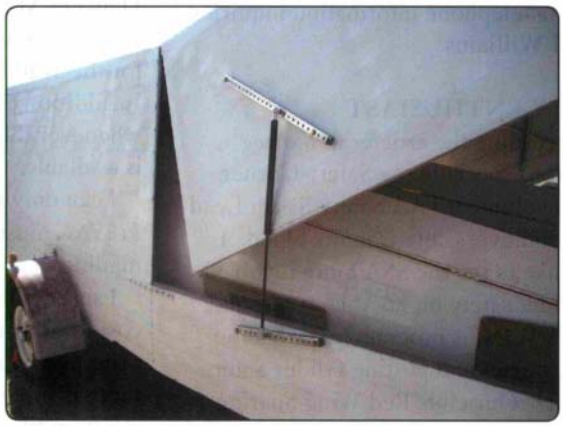
FLIGHT LINES

BY CHUCK COYNE

Eyeball Engineering



A recent exercise in 'eyeball engineering' on my BG 12-16's trailer finally provided a real-life answer to the unambitious high schooler's perennial complaint, "Why do I need to learn (algebra, geometry, calculus, etc.), I'll never use this stuff in real life."

Researchers say that the brain cells located in the left hemisphere of the human brain do most of our higher math processing. If my own life experience is any indicator, I can attest to this theory. When presented with difficult mathematic, algebraic, or geometric challenges, the cells on the left side of my noggin quake and cower in fear, crowding over to the right side, screaming in headache-inducing anguish as they stampede. Those brain cells on the left don't know much trigonometry, but they do know where the living is easier.

The BG's trailer has a clamshell-type lid, hinged a bit aft of the halfway mark. Getting to the glider required lifting the 87-pound lid, then holding it open with one hand while trying to insert two long rods in place to prop it open. Modernizing with a couple gas pressurized lift gate struts seemed like a good idea. The idea part was easy — implementation was another matter.

Three key 'P's quickly came in to play. Pushrod length, pressure, and placement. Someone with the correct skill set could probably have quickly worked it all out with their slide rule. I ended up making a full-size construction paper template of the lid and plopped it onto the garage floor, which was marked up to correspond to the trailer's dimensions. Figuring that if some is good, more is better, and too much is not enough. I planned to use struts with the highest pressure and longest stroke available — 200 psi/13-inches. Using the template, I made my best placement guess, and then transferred the data to the real item.

The trailer's frame offered few anchoring locations for the struts, so additional 1" x 1" tubing was used to provide the triangulation needed to spread the strut pressure. Having minimal faith in my minimal engineering skills, the struts would be secured to the trailer using square tubing with holes pre-drilled at one-inch intervals. Fine tuning of the strut locations could then be easily accomplished as needed.

With the framework complete, the trailer top was propped open and each of the struts installed. Happily, the lid stayed open when the temporary support was removed. Unhappily, it would not close all the way — but at least my faith was vindicated. The struts were bottoming out before the lid was closed; relocating the bottom strut anchors a few inches was a simple fix.

The trailer lid now opens very easily. Perhaps just a tad too easily, but I'm figuring age and wear on the struts will take care of that. Overall, the lid operates beautifully, and having seen the lids of some of the high-dollar trailers in action at the SSA convention in Little Rock, I'm now available for consultation.

SOARING MAIL

LETTERS FROM THE SOARING COMMUNITY

HOT LIPS

I read Matt Heron's article with interest. (*Safety Corner, March Soaring)* There is an O2 peril very few would think about. It is women flying with oxygen and having oil-based lotion and lipstick on their body. That too can cause a sudden ignition. Water based lotions like NIVEA are okay. This is one thing medical supply stores that handle oxygen supply for medical purposes warn about.

Another fire hazard – not O2 related – are open canopies without covers. At the latitude most of us are flying in the U.S., the sun can be very intensive on a clear day and the canopy acts like a lens. In my club, one pilot's parachute caught fire this way.

—Frauke Elber

REMAINING LEGAL

Apparently, the owner/members need a reminder about remaining legal. While searching the FAA database of owners for a particular glider I have discovered that many of them have changed addresses and phone numbers such that the FAA could no longer reach them. Continuing to operate in this way can result in a fine and/or a loss of flying privileges. Technically, they are supposed to report the change of address even if they are not active. Sadly, in some cases, the SSA addresses and phone numbers are also out of date. I have tracked a few of them down via telephone information inquiries.

—Nyal Williams

SAFETY ENTHUSIAST

I enjoy reading the articles in *Soaring* Magazine especially the Safety Corner. Being a volunteer FAA Safety Team Lead Representative, safety is in my blood. I would like to see the SSA more involved with glider safety on FAASafety.gov and the FAA WINGs program by providing online courses and posting Glider Safety Seminars. Our club, Red Wing Soaring Association, is embarking on a program to strongly encourage our pilots to attend safety seminars, take online safety courses, and continue flight training throughout the year not just during the Spring Checkout and Flight Review times. Our goal is to be safer and more proficient pilots.

—Woody Minar
Master CFI, FAA Gold Seal CFI, CFII, MEII, CFIG, AGI, IGI
Osceola, (KOEO) WI

DIGITAL ISSUES

I have been a pilot for nearly 40 years and have always subscribed to aviation magazines, including *FLYING*, *AOPA PILOT*, and now *Soaring*.

A while back, *FLYING* magazine offered it readers the option of receiving the publication electronically using a software system called Zinio. The system includes the Zinio Reader that allows me to navigate a magazine in ways similar to a paper publication (turn pages, go to the cover, go to the back cover, zoom in, etc.) The software also has Zinio Delivery Manager, which occasionally checks, via one's network connection, for the availability of new publications. In addition, Zinio sends me an email whenever the next edition of the magazine is available.

I can only imagine how much money *FLYING* must be saving on printing and mailing.

I suspect there is some fixed minimum cost to printing a magazine, whether you print one copy or X copies. I am sure there is some cost associated with using a system like Zinio. I am also sure our aged constituency will never give up their paper magazine. Perhaps in the case of *Soaring's* relatively small circulation, a combination of these distribution methods is not economically feasible.

For what it is worth, I would love to receive *Soaring* electronically.

Thanks for your consideration and the fine work you do.

—Scott Manley

An electronic version of Soaring magazine has been a topic of discussion for quite some time. Currently, back issues of Soaring are available online to SSA members. Issues from 1977 up to 2008 can be searched and viewed on the association's website. Older issues are in the process of being scanned and added to the archive. When the project is completed, magazines going all the way back to the January 1937 issue of Soaring will be available.

SOARING NEWS

INFORMATION, ANNOUNCEMENTS and EVENTS

CALL FOR SSA DIRECTOR NOMINATIONS

This is the official call for nominations for the upcoming election of SSA Directors representing regions 1 and 3, 2 and 4, 6, 9, 10 and 11. Nominations must be postmarked no later than July 1, 2010. Terms for the Regional Directors will be January 1, 2011 through December 31, 2013, except for the Director elected for region 1 and 3 and the Director for 2 and 4. These two Directors shall serve a two-year term ending on December 31, 2012, which will then put these regions in the same cycle as other regions in the election process.

SSA members may nominate a member from their region to serve on the SSA Board of Directors. Candidates must be nominated by at least three current SSA members from their region. Nominations must be submitted in writing to the SSA, P. O. Box 2100, Hobbs, NM 88241 or you may fax a nomination to 575-392-8154. Nominations must include the name of the nominee and the nominator.

After the nomination deadline, nominees will be notified and asked to send a photo and short biography. Each candidate is responsible for supplying the SSA with this information in ready-to-be-printed form no later than August 1, 2010. Ballots and accompanying biographical information will be mailed to the voting members of each region in August (for those regions with contested races).

For further information, please contact the SSA office at 575-392-1177.

INPUT REQUESTED ON ADS-B APPLICATIONS FOR SOARING PILOTS

As part of the FAA's plans for modernization of the ATC system, Automatic Dependant Surveillance - Broadcast (ADS-B) will be the basis of the future surveillance system in the U.S., supplemented by the current radar system. ADS-B is a service where aircraft broadcast their position (ADS-B out), derived from a GPS 'engine' which is part of the ADS-B 'black box', and can also receive position information from other aircraft (ADS-B in). While gliders are not expected to be required to have ADS-B equipment, the SSA is collaborating with the FAA to determine if there are ADS-B applications of value to the soaring community, such as enhanced visual acquisition of traffic and search and rescue. As mentioned in the April issue of *Soaring*, the FAA and SSA are evaluating battery-operated, low-cost ADS-B avionics designed for sailplanes. In an effort to involve the soaring community and get input on the potential benefits of ADS-B, an Internet based survey of U.S. sailplane pilots is being conducted. The SSA encourages all soaring pilots to complete the survey at the following website: http://agena.mit.edu/ADSBsurvey. ADS-B and associated broadcast services will be described in the survey so no prior knowledge is required. The survey should take approximately 10 minutes to complete. If you have any questions, please contact John Hansman (rjhans@mit.edu) or Fabrice Kunzi (kunzi@mit.edu).

—**Stephen Northcraft**
FAA/SSA MOA Ad Hoc Committee Chairman

2010 OSTIV MEETING PLANNED

The XXX OSTIV Congress will be conducted in Szeged, Hungary, with the following schedule: Opening Ceremony - Wednesday, July 28, Technical Sessions, Thursday, July 29, Friday, July 30, and Saturday, July 31. Excursion Sunday, August 1, Technical/Scientific Sessions: Monday, August 2 and Tuesday, August 3. Wednesday, August 4, will be the General Conference.

The nonprofit international organization for gliding, OSTIV, with members from all continents, plays an important role as advisory body for the FAI International Gliding Commission in all aspects of gliding. OSTIV has three Panels of specialists working on a voluntarily basis. OSTIV's Training and Safety panel deals with all safety aspects of the pilot, the Sailplane Development Panel works on safety aspects of the glider, and the Meteorology Panel deals with the glider's environment. Recent examples of activities are the safety management system for gliding organizations, the certification requirements with special focus on cockpit crash-worthiness and the guide "Weather Forecasting for Soaring Flight" published by the World Meteorological Organization. All OSTIV publications can be ordered via the website www.ostiv.fai.org.

THE WINCH IS BACK

The recession, along with cost increases for fuel have affected not only general aviation but also sailplane flying. However, one segment of soaring is thriving again, and for a good reason. Cost comparisons favor ground launching over air tows. Auto tows require somewhat more runway length than winch tows, thus winch tows yield

higher release altitudes for a given runway length.

When our club leaders realized that the newly introduced light weight Spectra cable would probably work on our winch with some modifications, we decided to convert our old World War II barrage balloon winch to accept the Spectra cable.

The Associated Glider Clubs of Southern California was fortunate to have an engineer member who had much experience producing manufacturing machines for industry. Roman Wrosz volunteered his time and skill to oversee our rebuilding process. It took several months of volunteer work by our members to complete the project. However, after the winch was finished, Roman realized that it would be easier to build a very good winch of his own design rather than rebuild an old winch. This led to the very successful launch of his own company, Roman's Designs.

Since rebuilding our club winch, Roman has built one dual drum winch and four single drum winches for the Canadian market. He and his company are in the process of acquiring a larger facility to build additional improved winches already on order.

Our club (AGCSC) has already completed several hundred launches at both Warner Springs gliderport and at the Jacumba County Airport. We have also used airports at Ocotillo and Twentynine Palms since our club winch was initiated in 2007. With the help of several publications in *Soaring* and other sources, we have conducted winch launches at a fraction of the cost for aero tows. Many of our members still favor aero tows for certain flights while recognizing that winch tows are ideal for flight training, ground launch experience, removal of the air tow only restriction from their license and perhaps most important for many of us, to prepare for our much anticipated and traditional Torrey Pines flying season in the late winter to spring.

It is worth mentioning here that many of our fellow Southern California sailplane pilots, plus pilots from other parts of the U.S. and various countries love flying at least once at the storied Torrey Pines gliderport where our winch has served for over sixty years.

Finally, it should be added that a winch provides a proven and green method of ground launching combining low cost, low noise, and relative simplicity.

—Rolf Schulze

SAFETY CORNER

BY JIM FURLONG

RIGHT HAND TRAFFIC ONLY

We all enjoy sharing our flying obsession with friends, and usually those flights in which we introduce aviation to friends go smoothly because we make extra efforts to ensure our guests have a comfortable, pleasurable flying experience. Even the best-laid plans can go awry.

I once took a friend for a ride in my Schleicher Ka-4, a two-seat training glider. I've made similar flights countless times over the decades as a glider pilot. The Schleicher Ka-4 is an excellent tool for the job. It's a 1950s design with a steel-tube fuselage and translucent fabric covering. People love it on first sight. Sunlight streams through its thin, revealing skin and shows the underlying structure. It has fire engine red, sledge hammer-shaped aileron mass balance weights that pop out of their nests on the wing which prompt one to speculate that the ship was designed by a blacksmith. But the glider is light and strong, and it climbs well. It's a slow flyer, even by glider standards, so the panorama beneath the glider doesn't change much during a flight. It's the fourth in a line of vintage two-place sailplanes that I have flown during the past thirty-three years to introduce friends and acquaintances to the joys of motorless flight. I don't have anything against engines, having spent four years in the Air Force flying as a crew chief / engineer on C-47s, C-119 flying boxcars, and even a B-25 Mitchell bomber. But I continue to hope that the magic I feel bobbing on the wind in an ancient sticks and fabric glider will somehow be experienced by my passengers and they will return to earth ready to join my club, the Mid-Atlantic Soaring Association in Frederick, Maryland; a group that attracts enthusiastic and capable people from the Washington and Baltimore metropolitan area.

My friend John is a lawyer, a sailor and a world traveler, and he looked forward to his first glider ride with great enthusiasm. He has a disability in that he uses crutches to get around. I knew he didn't have full use of his legs, but I didn't think his disability would be a factor on our flight. I helped him buckle into the front seat of the glider, and in doing so, I noticed that his right leg turned inward to the center of the cockpit and brushed against the joystick. It occurred to me that this might present a problem in flight, so I took off my belt and used it to brace his right leg against the right side of the cockpit. His left leg seemed to be straight and out of the way, so I didn't give it much thought. John didn't mind the belt arrangement, and I figured any potential problem had already been solved. Being careful to hold up my pants, I climbed into the back of the glider.

The tow rope was attached to the glider and after the slack was taken out, we began our takeoff. In just a few feet the Ka-4 lightly lifted off and we were cruising a few feet off the ground behind the tow plane. I could see John smiling as we climbed away. I felt glad I was able to give

him this experience. At 3000 feet agl we released from the tow plane. The flight was going just fine until I tried to turn left. Something was pushing against the stick, and I couldn't move it in that direction. I realized that John had shifted in his position during the flight, and his left leg, the one that I hadn't bound with a belt, was pushing against the joystick. As calmly as I could, I asked John whether he could move his left leg out of the way. He replied, equally calmly, that he could not. He tried his best, but John's leg kept pressing against the stick and preventing me from turning left. I had to use two hands on the stick just to hold the glider straight and level. The situation definitely got my attention, and it raised my heartbeat a bit. But, John was obviously enjoying the ride and seemed oblivious to the problems his left leg was creating. As long as his leg didn't push any harder against the joystick, I knew I could keep the plane under control and get us back on the ground safely.

Frederick is a very busy airport that has many general aviation aircraft based there as well as business jets, helicopters, and gyrocopters as well as our glider club, which has approximately thirty sailplanes and two tow planes. The glider club sticks to using runways three zero and one two and when necessary, the parallel grass runway. This keeps us clear of the power traffic except when the wind dictates that they have to use three zero and share the runway with us.

I continued the flight making only right turns and didn't rush to get back on the ground. As we approached the airport for landing, I saw to my great relief that the wind was favoring Runway 12 – the sole runway with a right-hand traffic pattern. We could fit neatly into the pattern, and no one else had to be aware of our situation.

We caught a couple of thermals as we approached the airport, and we gained a few hundred feet – enough to extend the introductory flight for a few more minutes. Finally, we got up to pattern airspeed, entered the traffic pattern and landed without incident.

John enjoyed the flight and didn't seem to be aware of the life-threatening nature of the problem his left leg caused me. He is a quiet person but I got a good idea of his feeling about the flight when I printed the picture I took of him sitting in the cockpit after we landed. He was all smiles! I haven't yet told him of the precarious nature of our flight, and I may not. For my part, I got a solid cardiac stress test and a valuable lesson.

Whenever I give a ride in the future, I'll be more cognizant of any passenger's physical limitations – and I'll make sure to take precautions before leaving the ground. I'll brief them about the things they can and can't do in the aircraft, and I'll make sure they know the things they'll be required to do for a safe flight: primarily, that means remaining clear of the controls. If these requirements seem too much, or I don't have the proper equipment to make sure there are no hazards, I'll cancel the flight.

I often see John at church and am delighted that we shared an adventure together that we will both always remember, but each of us for different reasons.

About the author: Jim Furlong passed away in the fall of 2009. He was a 1,000-hour glider pilot and long-time member of the Mid-Atlantic Soaring Association. He flew his own Schempp-Hirth Ventus B sailplane from Frederick, Maryland.

2010 SAFETY PROGRAM

BY GENE HAMMOND

BRAIN SURGERY SELF-TAUGHT

Reprinted from Sailplane Safety Vol 3, Number 3, July 1989 Soaring *by Gene Hammond*

The Soaring Safety Foundation recently heard about a sailplane coming apart in the air. When inquiries were made as to how that came about, it appeared that the sailplane was over-stressed while the pilot was attempting to perform some aerobatic maneuvers.

Since these things happen occasionally, we cluck-clucked and shook our collective heads, finding it hard to believe that a pilot would intentionally try to perform loops at 4 Gs, or try outside maneuvers or even snap rolls with long-winged gliders. Not that all of these were involved with this one report, but reports of other incidents have noted these problems.

Then a service letter from one manufacturer, requiring replacement of structural parts because of cracks, alerted us to other problems. Could there be some connection? Could the pilots flying 'fully aerobatic' gliders be intentionally going beyond the manufacturer's recommendations - no, admonitions - as to which maneuvers could be safely performed? Could there be something lacking in the training of aerobatic pilots?

A discussion with one manufacturer's representative indicated that their glider had been designed for aerobatics, with allowable load factors of +6 and -4 Gs. With this kind of design, how could damage be showing up? He commented that many of this type of aircraft are getting pretty hard use and living a pretty hard life. He also noted that the operator's manual strictly forbids such things as tail slides, any maneuver resulting in reverse loads on the controls, and outside maneuvers.

In the October 1980 issue of *Blanik News* (Vol. 5, #1), Hans Werner-Grosse is quoted as saying, in part, " ....It struck me as quite silly the attitude of some people ... . and they decided to do aerobatics instead. It definitely is a fallacy to assume that a metal glider is fundamentally safer to do this sort of thing that (sic) a wooden glider. (Or fiberglass. *Editor.*) Some people evidently thought that a metal sailplane licensed to an aerobatic category must be strong enough to take anything and tried to fly silly maneuvers. Even if they get away with this without a structural breakup in midair, they jeopardize the lives of other people who later fly this over-stressed sailplane. If the truth were known about the damage done to gliders just carelessly flown in (sic) inexperienced daredevils, there would be more caution taken by most pilots who practice safe flight operations."

Werner-Grosse hit the nail on the head in 1980, and the problem is not only still with us, but may be expanding. Some pilots are attempting unreasonable maneuvers, and may be exposing unsuspecting pilots to the danger of hidden damage!

The aerobatic pilot must act responsibly in several areas: Attempt these maneuvers only in a glider approved for aerobatics; Attempt only approved maneuvers; Keep loads to a minimum for both pilot and glider; Get GOOD instruction.

Where do you get good instruction? How do you recognize good instruction?

Ask where the instructor got his training. Self-taught instructors may not recognize the hazards of certain maneuvers, nor be able to explain how to keep from going beyond the limits of the sailplane. One text on sailplane aerobatics spends a considerable amount of space admonishing the pilot to "Be careful out there," and to recognize that 'slick' sailplanes will almost always exceed red line speed on recovery from a botched maneuver.

Safety - both for the glider and the pilot - must be a cornerstone of any instruction. Any disregard for safety may be a sign of carelessness not acceptable in aerobatic instruction. Extensive preflight inspection (glider and other equipment), lots of positional awareness and clearing turns, ending at a reasonable altitude, and a professional attitude towards the entire flight are comforting signs of good instruction. Going beyond those maneuvers approved by the manufacturer is a definite no-no! Enthusiasm is contagious, and tends to mask faulty technique or unsafe acts: "Wow! I really love this upside down stuff. Oops, that didn't work out quite right. Oh well, can't get 'em all! We'll try it again." Or, "Yeah, don't worry about it. You can do that maneuver in any glider. There's no real G load."

Know your limitations. Boy! That's an old saw that keeps coming back time and time again, isn't it? It is really pertinent in aerobatics! Develop your skill by practice, practice, practice.

"If you are in pain, so is your glider." That anonymous quote says it all. Keep the loads within approved limits - both glider and pilot.

Stay competent. This can only be done through practice. One of the easiest things to do is to rationalize incompetence ... to accept a lesser performance, blaming it on lack of currency, and to move on to another maneuver. Be self-critical and practice to regain competence.

SOARING TECH

BY BILL COLLUM

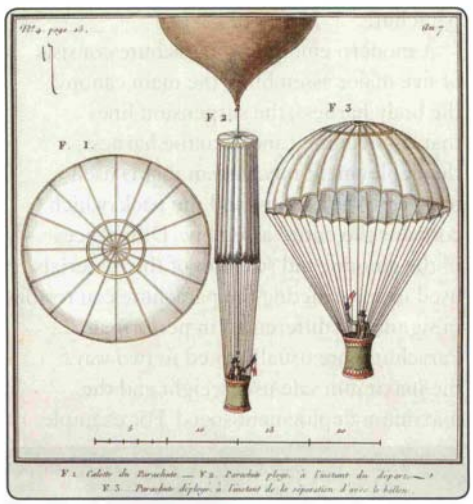
Getting Out Alive

With the 2010 soaring season fast approaching, it's time once again to polish up our flying skills and tend to our equipment. For many sailplane pilots, an emergency parachute is a standard cockpit accessory. Usually trouble free and ready to be deployed instantly in an emergency, a parachute is still a complex piece of equipment that requires occasional attention. Let's spend a few minutes looking into the history and technology behind the modern parachute, and then consider how they can best be cared for and used.

The idea of what we think of as "the parachute" dates back to the fifteenth-century. While the concept predates his designs by several years, Leonardo da Vinci is credited with the first workable parachute capable of lowering a human from a significant height. With a pyramid-shaped "canopy" held open by a square wooden frame, the surface area of da Vinci's parachute was probably sufficient to make a jump from a high tower survivable. In fact, in July of 2000, Adrian Nichols of the UK, built a parachute from da Vinci's original design and used it to make a successful jump from a hot air balloon floating 7,000 feet over South Africa.

About a century later, Venetian inventor Fausto Veranzio improved on da Vinci's design by replacing the pyramid-shaped canopy with a dome-shaped sheet of sailcloth, lowering the weight of the apparatus, and increasing its drag. In 1617, he implemented his design and made a successful jump from a tower in Venice.

In the late 1700s, Frenchman Louis-Sebastian Lenormand created the first "emergency parachute" intended to make possible a controlled descent from a damaged balloon. In 1793, his design was used for the first time when Jean-Pierre Blanchard used a Lenormand-designed parachute to escape from his ruptured hot air balloon. Blanchard then began developing his own parachute designs, made entirely from folded silk without the wooden frames required by previous designs. The first use of such a "frameless" parachute occurred in 1797 by Andre Garnerin, who later went on to test additional improvements to Lenormand's design in an effort to increase stability and reduce descent speeds.



Garnerin-designed emergency parachute, circa 1800. Photo courtesy of U.S. Library of Congress, Public Domain

Gleb Yevgeniyevich Kotenlikov of Russia first conceived the modern "pack" parachute in 1911 after witnessing the death of a pilot friend. Determined to make flying safer, Kotenlikov devoted himself to the creation of a parachute system suitable for use by pilots and capable of being worn within the tight confines of a cockpit. He created a system in which a folded parachute was packed into a rigid metal container, which was worn on a pilot's back. He is also credited with the invention of the "static line" which opens a parachute automatically as the wearer falls away from an aircraft.

When Grant Morton had made the first "jump" from an aircraft in 1911 over Venice Beach, California, he made use of a loose canopy held bunched in his arms and thrown out into the wind as he leaped from the Wright Flyer in which he rode as a passenger. Albert Berry made the first jump from an aircraft in flight using a Kotenlikov-style "pack" parachute on March 1, 1912. This test, conducted by the U.S. Army, proved the basic design, which was to become the basis for the parachutes that would be issued to pilots in later years. In 1913, Slovakian Stefan Banic patented a soft "knapsack" style parachute based on Kotenlikov's ideas, which then became the real progenitor of most modern parachute designs.

In 1919, Leslie Irvin of Los Angeles made the first true "free fall" jump using a pack-style parachute. He later went on to found the Irvin Air Chute Company, which eventually made many thousands of parachutes that were used by Air Forces around the world. The company, which is still in existence today, claims that their

parachutes have saved more than 10,000 lives.

Parachutes were, as a rule, not used regularly by pilots until after World War I. However, artillery spotters, flying in highly inflammable hydrogen-filled tethered balloons, did use parachutes during WWI to escape when under fire by enemy aircraft. Towards the end of the war, Everhard Calthrop of the UK created a parachute designed specifically for aircraft crews. After testing by Major Thomas Orde-Lees, who demonstrated that a parachute could be deployed at low altitudes by jumping from the Tower Bridge into the Thames, the Royal Flying Corps adopted Calthrop's design. While not widely used, a few RFC flight crews were equipped with Calthrop parachutes late in the war.

Parachutes came into general use in the years between WWI and WWII. By the 1930s, not only were military pilots and flight crews usually equipped with pack-style emergency "chutes," parachutes by then were also used to equip units of "airborne" infantry which could be quickly deployed by air (the concept of the "paratrooper" is credited to the Italian Army which created the first such unit in the late 1920s).

Parachutes today are routinely used, not only to save the lives of pilots, but also to deliver soldiers and their equipment (up to the size of light armored vehicles) wherever and whenever they are needed. Some air-droppable weapons make use of parachutes to slow their fall, giving the delivering aircraft time to escape before detonation. Parachutes are also used in more esoteric applications, such as slowing down a reentering spacecraft for a safe landing. Some returning satellites have even been snatched in midair by specially equipped aircraft, which fly by and snag their parachutes.

The author's son wears a National 490 Pilot Emergency Parachute before "mounting up" to fly in a contest. In most cases, contest rules require pilots to wear approved emergency parachutes. Photo by Bill Collum.

The author's son wears a National 490 Pilot Emergency Parachute before "mounting up" to fly in a contest. In most cases, contest rules require pilots to wear approved emergency parachutes.

By far, the type of parachute that will be most familiar to sailplane pilots is the "backpack," "chair," or "seat" style emergency chute. In a backpack style, the parachute is folded into a soft container, which the user wears like a knapsack. Subtle differences in packing style and the shape of the container can be used to taper the size and shape of the pack for improved comfort. For instance, the parachute that I routinely wear is packed so that it is slightly thinner at the top than at the bottom, providing a bit of extra "lumbar support" to make long hours in the cockpit a little more comfortable. A "chair" style parachute is packed into a container, which starts at the wearer's shoulders and continues down toward their "seat." A "seat" style parachute is packed entirely into a thick container on which the wearer sits. These are rare in the soaring community, but are popular with pilots of old "war birds" which often have a pilot seat that is "dished" deeply enough to accommodate a thick seat-style parachute.

A modern emergency parachute consists of five major assemblies: the main canopy, the body harness, the suspension lines that connect the canopy to the harness, the deployment mechanism that is used to release the canopy, and the pack, which contains the entire assembly. Differences in the amount and strength of the materials used in constructing the parachute can result in significant differences in performance. Parachutes are usually rated in two ways: the maximum safe user weight and the maximum deployment speed. For example, the parachute that I use in my sailplane, a Model 490 made by National Parachutes, is rated for a 241-pound pilot and can be deployed at speeds up to 140 knots.

Parachute riggers inspect and repack a pilot's emergency parachute. Photo U.S. Navy, Public Domain.

Any parachute intended for emergency use must, according to FAA regulation, have been inspected and repacked sometime within the previous 180 days (see Docket No. FAA-2005-21829; Amendment Nos. 91-305, 105-13). This must be accomplished by an appropriately licensed "parachute rigger." Such inspections usually only run a few dollars ($50-$60 seems to be about the rule), which is money well spent to ensure that a critical piece of equipment will operate properly when it's needed. To further promote reliability, it's also a good idea to store the parachute whenever possible in a temperature-controlled environment, protecting it from extremes of heat and cold. Storing the parachute flat on its back, rather than standing it up on its bottom edge for long periods can prevent the canopy material from "settling" over time and changing the geometry of its folded shape. To protect it from wear or damage (and possible accidental deployment); store the parachute in its storage bag whenever it's not actually in use.

Modern parachutes make use of several different types of canopies, including the familiar round canopy, rectangular ram-air inflatable wings, and triangular Rogallo-type delta wings. While the majority of sport jumpers make use of ram-air style canopies which, with a little training, can be "flown" like a wing, most emergency parachutes still make use of the round canopy which requires little or no skill to "float" safely to Earth.

Student pilots learn how to handle an emergency parachute. Photo U.S. Library of Congress, Public Domain.

Even though it can't be as effectively "flown," as the shaped canopy, a round canopy can be controlled to some extent. The canopy can be "steered," by pulling on the rear risers or steering handles if equipped. This makes it possible to turn the parachute into the wind to reduce the landing impact. As simple as a round-canopy parachute is to use, it's still worth spending some time at your local sport-jumping center to better understand how it can be controlled. Even better, treat yourself to a jump or two to gain some experience with the procedures — and emotions — involved in leaping from an aircraft. Yes, I've done it

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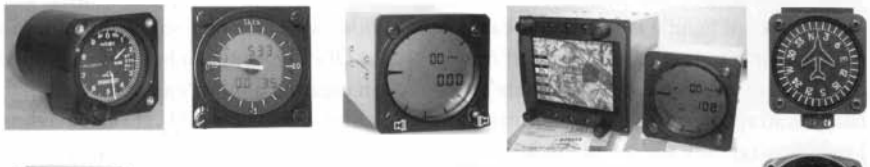

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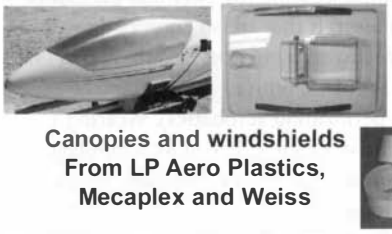

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a couple of times and, no, I wouldn't want to do it on a regular basis, but I'm glad I tried it. I found that I didn't so much mind the "jumping" bit, but I felt distinctly helpless and uncomfortable hanging under the canopy for the two or three minutes it took to float back down to the ground. That's a discomfort that I'll willingly accept, however, if circumstances ever force me to use a parachute again.

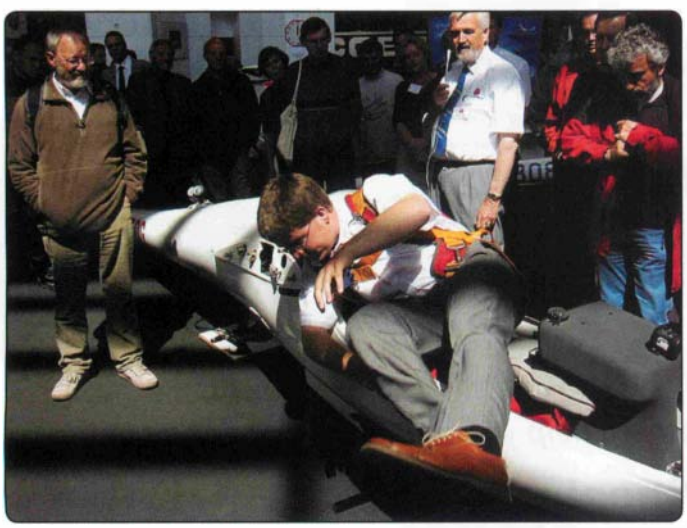
While many modern sport jumpers use a hand-deployed "drogue" chute, throwing it out by hand into the airstream to draw the main canopy out of the pack, most emergency chutes make use of a "ripcord" mechanism, first created by Polish inventor Theodore Moscicki. When activated by pulling on a release handle, the "ripcord" pulls a cable, which releases several pins holding the back of the pack closed, releasing a spring-loaded drogue chute. The drag on the drogue then pulls out the main canopy, which is inflated by the airstream.

The ripcord handle is not always easy to find in an emergency, especially if it is the same silver color as the parachute's buckles, strap adjusters, and other fittings. I suggest wrapping the handle in brightly colored, easily recognizable tape. Since in an emergency there won't be much time to fumble around, I also suggest that you spend a bit of time training yourself to look for, recognize, and grab that color when under stress (I'm used to emergency mechanisms being designated by yellow and black stripes, so I've used yellow and black electrical tape to wrap my ripcord handle). I also suggest, the next time you bring your parachute in for a scheduled inspection and repack, that you pull the ripcord to deploy the parachute while it's strapped to your back. This will give you an idea of the force and range of motion required to deploy the parachute when it's actually needed. It will also give you a chance to examine the entire parachute up close to see how it's constructed and assembled before it is tucked back into its container by the rigger.

Even if you are wearing an emergency chute, it may not be so easy to make use of it. Emergency egress from a damaged sailplane can be difficult. Not only does the low, reclined seating position and narrow confines of most sailplanes make leaving the cockpit difficult under the best of conditions (especially with a 15-pound parachute strapped to your back), aircraft damage leading to high centrifugal or other "G" forces or potential pilot injuries following a midair collision may make quickly exiting a severely damaged sailplane almost impossible. It is clear that some kind of emergency egress system would shave critical seconds when they count most, and perhaps even allow a pilot to be "ejected" from a damaged sailplane in what would otherwise be a non-survivable situation.

DG Flugzeugbau has been a pioneer in creating a pilot "ejection" system for sailplanes. Their NOAH system (short for "NOtAusstiegs Hilfe," German for "Emergency Evacuation Assistance") is essentially a pneumatic cushion, which is built into the pilot seat. In an emergency, the pilot activates the system, which jettisons the canopy, releases the seat belts, and inflates the "air bag" in the seat bottom. This lifts the pilot to the level of the cockpit side rails, allowing him or her to simply roll out of the cockpit.

The NOAH system is designed to be easily operated by a pilot who may be under a great deal of stress in the most adverse of circumstances. DG claims that the system can be activated in less than one second by the pulling of a single clearly marked lever.



Testing the NOAH emergency pilot egress system installed in a DG-800. Photo courtesy of DG Flugzeugbau.

The NOAH system was certified in Germany in 2002. DG now offers the system as an option on most of their aircraft. NOAH provides a significant amount of additional safety while adding only a few pounds of weight and a few percent to the cost of a new DG sailplane, and is, I believe, an option worth serious consideration. I hope that other manufacturers take DG up on their offer to help them adapt the system for their own products.

In recent years, it has become increasingly popular to equip light aircraft with "whole plane" parachutes. These so-called "ballistic" chutes are stored in a canister attached to the fuselage and are deployed in an emergency to lower the entire aircraft to the ground. A solid-fuel rocket is usually employed to drag the canopy out of its container and away from the aircraft for rapid canopy inflation. Still relatively rare on sailplanes, I know of at least one motorglider, an Urban Air Lambada, which was saved by such a "ballistic" parachute after undergoing an in-flight structural failure.

A limitation of such ballistic parachute systems was illustrated by a recent midair collision, which took place near Boulder, Colorado. A Cirrus SR20 hit a Piper Pawnee towing a sailplane with two people on board. The Cirrus was equipped with a ballistic parachute system, which functioned properly deploying a large canopy to slowly lower the damaged aircraft. However, the collision caused a fire, which quickly engulfed the fiberglass Cirrus. It appears that the two people aboard leaped to their deaths rather than burn in the wreckage as it was lowered by the parachute. While a ballistic parachute system certainly adds a significant extra margin of safety, my personal preference is to continue wearing my personal parachute even in aircraft that are so equipped.

There are no regulatory requirements that force a sailplane pilot to wear a parachute (unless performing aerobatics). Wearing a parachute is a choice. If you fly a sailplane, it's a choice you may want to seriously consider. Even though the odds of ever needing one are small, if the day ever does come when you do need a parachute, I promise you that you'll be very glad to have one.

Some manufacturers of pilot emergency parachutes…

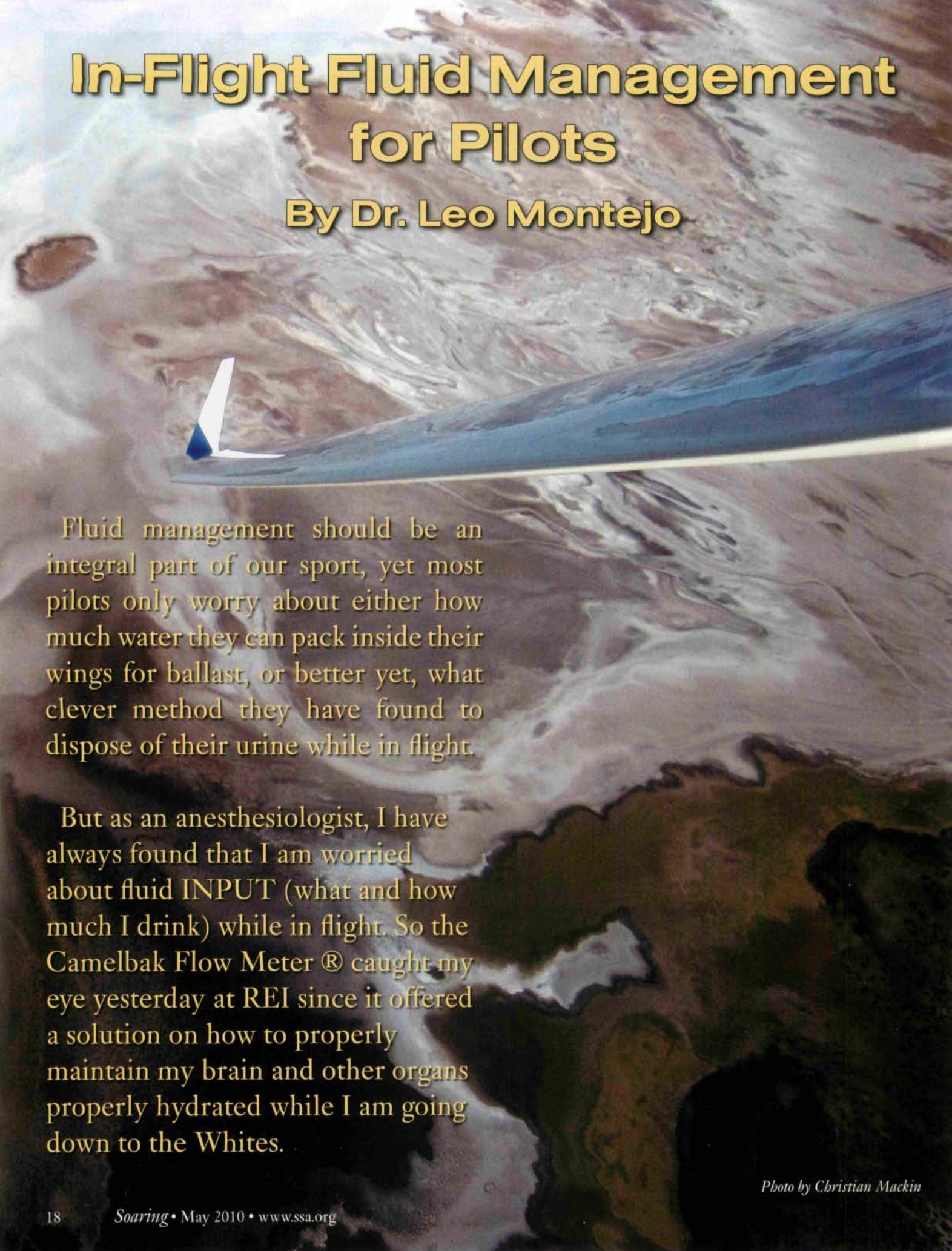
National Parachute Company:
www.nationalparachute.com
Strong Parachutes:
www.strongparachutes.com
Butler Parachute Systems:
www.butlerparachutes
Softie Parachutes:
www.softieparachutes.com

If you have a technology that you'd like to have discussed, would like to suggest a product for review, or have questions or comments on this article or on any other edition of Soaring Tech, I'd be glad to hear from you. Drop me a note at soaringtech@ssa.org. Be sure to include the words "DO NOT PUBLISH" on the subject line if for some reason you don't want to see your words printed in a future edition of Soaring.

See you on the porch,
—Bill

In-Flight Fluid Management for Pilots

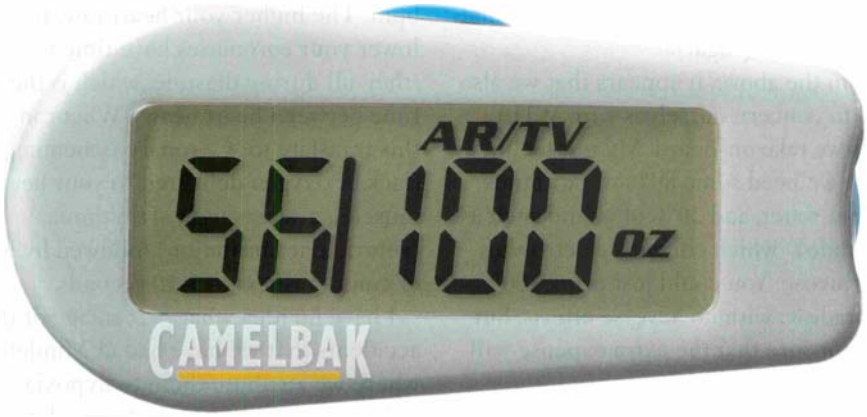
By Dr. Leo Montejo



Fluid management should be an integral part of our sport, yet most pilots only worry about either how much water they can pack inside their wings for ballast, or better yet, what clever method they have found to dispose of their urine while in flight.

But as an anesthesiologist, I have always found that I am worried about fluid INPUT (what and how much I drink) while in flight. So the Camelbak Flow Meter ® caught my eye yesterday at REI since it offered a solution on how to properly maintain my brain and other organs properly hydrated while I am going down to the Whites.

Photo by Christian Mackin



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In fact, for the purists, this device will allow you to measure both fluid INTAKE and OUTPUT, thus allowing you to be in optimal physiologic homeostasis at any time during your flight - which is by the way what an anesthesiologist does for you while you are having any major medical procedure.

Fluid Management Basics

In anesthesia we like to think of fluids as follows: 1) The fluids you OWE before we begin your surgery, 2) your MAINTENANCE fluids, and 3) your LOSSES (sensible and insensible such as blood loss, urine output, humidity in the air you breathe out, sweat, etc.) Your anesthesiologist has many ways of deciding where you are fluid-wise during a procedure, including many monitors, but here we will review the basic calculations used for a simple surgical procedure.

Let's start with your MAINTENANCE fluids first, which will be our BASIC fluid requirements in flight. These requirements are what your body needs to keep running on idle, which is not really where we are at when flying close to 18,000 feet on our way to the Whites! For this we use what we call the 4:2:1 rule, which most residents learn on their first week of training. The rule allows for a simple approximation of fluid requirements to keep our bodies running on idle (sitting in your sailplane at 10am, playing with your new version of Winpilot). The 4:2:1 rule says that for the first 10 kgs of your weight, you multiply times 4. The second 10 kgs you multiply times 2. And for anything above 20 kgs, you multiply times 1 for your HOURLY requirements. So if you weigh 70 kgs (154 lbs) your HOURLY MAINTENANCE fluid requirements will be 40 + 20 + 50 = 110 mls per hour. Do this math for yourself, and place this number somewhere on your panel - we'll see why later!

The first thing that becomes obvious here is that if you are out to break any world record and do a 10-hour flight, you will have to take more than 1 liter of fluids (1.1 to be exact) just for your MAINTENANCE requirements.

Let's start adding to these your insensible LOSSES. I suspect these are pretty major in a sailplane, since we tend to lose so many fluids from sweat while inside the cockpit on a hot summer day. Nobody has measured these, but as an anesthesiologist, my gut feeling is that you are losing some 3-5 mls/kg/hour.

Our fluid requirements have just gone up dramatically for our cross-country flight. Let's use the lower 3mls/kg/hour for our example. (3 x 70) = 210 mls/hour. Place this number in your panel too… We now need to add our MAINTENANCE requirements, so we are up to 210 + 110 = 320 mls per hour, or just over 3 liters of fluids (3.2) for a 10-hour flight! Don't believe me? Weigh yourself BEFORE takeoff, and as soon as you land! I've lost up to 2 kgs (2 liters) on a given flight!

Did we forget anything? If for some reason you did not have a good breakfast, you have generated a FLUID DEFICIT. What does a good breakfast mean from the fluid viewpoint? We usually use midnight as our starting point, so if you take off at 10am, you should have 10 x 110 (10 hours x MAINTENANCE fluids) or 1.1 liters of fluids before takeoff. So if you did not drink a liter before takeoff, you are going to have to add this amount too.

Camelbak Flow Meter®

With these really basic concepts understood, it is now easy to see how this device will become the next purchase for your gliding season. The Camelbak Flow Meter® allows you to 1) calculate the fluids you have ingested during a given flight or over a given time period, 2) let you know how much you have left in your pouch, and 3) set your personal hydration goal.

Make sure you use kgs and liters when you do your setup for the device. Medicine is a metric world.

If you are thinking like an intensive care doctor - another branch of anesthesia, you can buy 2 flow meters, one for fluid INTAKE, and a second one for urine OUTPUT. The latter you can connect to your pee-tubing contraption so as to measure your output. How much should you be urinating in flight if you are properly hydrated? An easy number to look for is 0.5 to 1 mls/kg/hr. So if you weigh 70 kgs, think of having a urine output of 70 mls per hour.

Fluid Management in Flight

If you want to get serious about breaking records, optimal fluid management is important. Why so - you may ask? You have probably been flying fine for years - or so you think. In fact, fluid management is really all about perfusion (how much blood your target organ receives) - and in this case, we are interested in perusing our brain optimally so that we can make our best decisions during a long flight. Adequate perfusion, with our red blood cells carrying enough oxygen (do you fly with

a pulse oxymeter to corroborate this?) will keep our brains functioning at their best during a prolonged flight.

So let's go flying... I check the weather, and Doug Armstrong is predicting a strong day with 1000K flights possible. I hydrate myself well for breakfast, and drink at least one liter of orange juice, as I get ready to go out to the field. I calculate my fluid requirements for the flight with the above formulas, figuring that I may be in the air for some 10-hours (Fellow pilot Mitch Polinski does flights this long!) I add extra water to my requirements in case I have to land out and spend the night in the desert... (How much? You know the formulas for maintenance requirements). Before I get into my sailplane, I weigh myself, (I brought my bathroom scale from home to the airfield) and write this number down too.

As my flight progresses, I monitor my fluid intake and output per hour. (If I weigh 70 kgs - I will be drinking some 320 mls per hour, and peeing some 70 mls/hour. When I land, after my 1000K, I weigh myself again. If I am off by more than 500 grams, I will need to adjust my fluid requirements for my next flight up or down (most likely, up!)

What fluids to take?

What are the goals for fluid administration in flight? Pretty much the same as those you have during a surgical procedure: 1) Maintenance of proper oxygen delivery and perfusion, 2) Maintenance of proper electrolyte balance, and 3) Maintenance of a normal blood glucose (sugar).

From the above, it appears that we also need to concern ourselves with WHAT fluids we take on-board. My gut feeling is that we need some 80% of our fluids as plain water, and 20% of a fluid such as Gatorade® which contains electrolytes and glucose. You could just drink 100% Gatorade®, with no adverse effects, but I am not sure that the extra expense will help.

Of interest, anesthesiologists have measured the electrolyte imbalances in marathon runners after a race, and the most common finding they have is hyponatremia (low sodium), probably from drinking too much water without electrolytes, along with excessive sodium losses during the race.

Epilogue

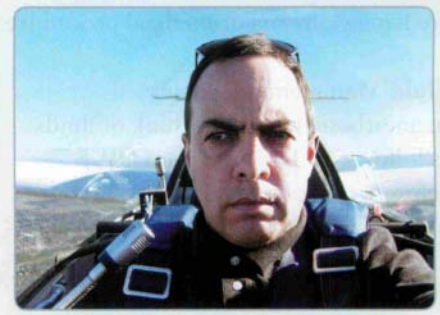
With the understanding that you now have of fluids, and the advent of an inexpensive monitor ($30) to manage your fluid intake in flight, you should be able to avoid complications that will impair your flight capabilities.

Dehydration and hypovolemia (low volume in your vessels) can have dire consequences for a pilot. If you are down a couple of liters in your flight, your heart's venous return will probably be decreased. Your heart will then try to increase its output, by increasing its rate. This means that if you fly around at 90 beats per minute (not an uncommon number at high altitude) your heart may increase its rate to for instance, 120 bpm. The higher your heart rate, the lower your coronaries have time to fill (they fill during diastole, which is the time between heart beats). What can this translate to? Coronary ischemia, (lack of oxygen delivered to your heart muscle), a subsequent arrhythmia, (ventricular fibrillation) followed by loss of consciousness in 5-10 seconds.

I have no idea what percentage of the accidents that we have had at Minden where we attribute them to hypoxia or unknown causes were perhaps related to a cardiac arrhythmia that was generated by a combination of hypoxia and dehydration.

The bottom line is that in the operating room we take your fluids just as seriously as your oxygen, so the time has come for us to do the same while in flight - and now, we have the tools for it!

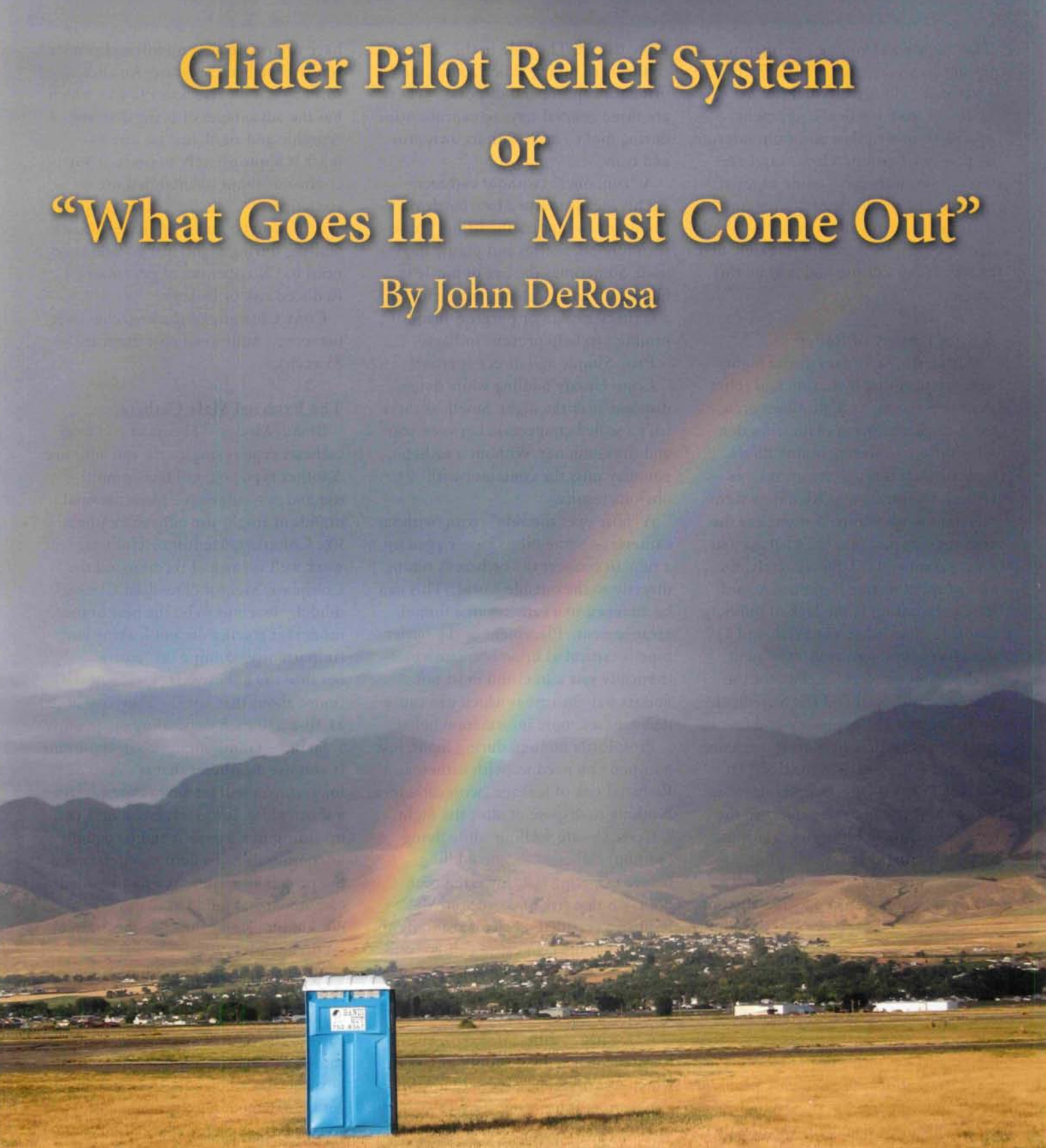
Fly safe! (and hydrated...)



About the author: Dr. Leo Montejo is a Clinical Assistant Professor of Anesthesia at Stanford University. He flies out of Minden in his DG-1000. The author has no ties with any manufacturer mentioned in this article.

Glider Pilot Relief System or "What Goes In — Must Come Out"

By John DeRosa



When I first became interested in cross-country soaring I knew that I had a lot to learn and one thing was that I would have to create an in-flight relief system (aka "pee" system) for my glider. A good friend of mine routinely makes 5+ hour flights without relieving himself, something that I can't imagine for myself. This was clearly a critical component of soaring when the Sailplane Racing Association warned "...neglect this subject at your peril!" (*The SRA Guide to Soaring Competition*).

Photo by Ron Gleason

The trouble was finding information about this seemingly taboo subject. I was able to locate bits and pieces of details from medical equipment providers, other pilots and from internet soaring news groups. However, there was no comprehensive guide to relief for sailplane pilots. After finding out what I could from all the sources I could find, I wanted to share my research, first by way of my website and now by this article.

A Brief History of Relief

During the early days glider flights were so short that hydration and relief were non-issues. As flight times grew, there came a growing realization that rehydration (replacing bodily fluids, typically lost through sweating) was critical. Unfortunately, XC pilots were reluctant to rehydrate as there was the ever-present problem of "what goes in - must come out." Unfortunately, the idea of relief during flight had a hard time overcoming 1) the lack of publicly available knowledge/materials and 2) the adverse opinion/embarrassment of the whole process. Luckily for the soaring world, Karl and Iris Striedieck broke the mold of ignorance and fear in their famous article in *Soaring* magazine (March 1996, pg 41-42) entitled "To Or Not To?, No Question About it," in which they brought this subject to the general soaring public's consciousness by proclaiming that not relieving yourself during flight was potentially deadly. The topic was now officially out of the closet and even became the "thing to do."

Relief technology has not changed dramatically over the years but access to sources has exploded through the internet. Acquiring the necessary ingredients has never been easier or more straightforward. The only problem is learning what products exist, how to use them and then actually putting them to use. I hope that this article helps to bridge these gaps.

Relief in Flight

This article concentrates on the use of the external male catheter, which looks and is worn much like a condom except that there is a hole in the end to allow urine to exit. The hole in the catheter connects to tubing which routes the urine for capture and disposal. There are three general ways to capture urine during flight - each with its own pros and cons.

A "container" (without catheter) – This idea is to use a bag/bottle of some sort to capture the urine. I have seen funnels, bottles and plastic bags used. Sometimes the bag or bottle is filled with an absorbent material (i.e., a sanitary napkin or purpose-made product) to help prevent spillage.

Pros: Simple and direct approach.

Cons: Unsafe fiddling while flying, disposal after the flight. Smell, as there isn't a sealed connection between you and the container. Without a catheter, you may miss the container with obvious results.

A "hose over the side" (with/without catheter) - Some pilots have rigged up a tube to connect the catheter's tubing directly to the outside world. This can be attached to a catheter or a funnel arrangement. Placement of the outlet pipe is critical as urine is corrosive (basically salt water) and must not find its way into areas which can cause damage (see more information below).

Pros: Little fiddling during flight, just go when you need to (with catheter). Reduced risk of leakage (with catheter). Nothing to dispose of after the flight.

Cons: Unsafe fiddling while flying (without catheter). Some fiddling before urination (i.e., lowering gear doors). Some risk of corrosion. May require a certified mechanic to sign off on installation. Can cause yellow "rain" or "stain." Can freeze up and clog. The system must be rinsed out after and/or during the flight.

A "leg bag" (with catheter) - This is a standard medical supply item which was designed precisely for this application. It has a one-way valve at the inlet to prevent back flow and an on/off valve at the outlet (to prevent poorly timed outflow). There are several sizes available (250ml, 500ml, 1000ml) which you can hide by strapping to your leg. I find that 500ml is good for a six-hour flight and will last several months if cleaned properly. Depending on your glider and position of the bag, you may have to urinate a bit up hill and you will sense some back pressure. An alternative to a bag is a bicycle water bottle, which has the advantages of being discrete, reusable and rigid. Just be sure to mark it appropriately to prevent any confusion about its intended use or contents!

Pros: Can be made "invisible." Little fiddling during flight, just go when you need to. No opening of gear doors. Reduced risk of leakage.

Cons: Cleaning of the bag/container for reuse. Additional cost (bags are $4-$5 each).

The External Male Catheter

Brand/Model – The most common catheter type is single-use and adhesive. Another type you will find is multi-use and non-adhesive. Most national brands of single-use adhesive catheters like Coloplast/Mentor or Hollister will work well for you. I recommend the Coloplast/Mentor "Freedom Clear®" model. It seems to be the best brand/model for staying on, not leaking and (importantly) coming off "easily" because the adhesive is "less aggressive" (more about that later). They cost about $1.50-$2.50 each depending on quantity.

Sizing – Gentlemen, size is important. If you use a catheter that is too small for you, you will be uncomfortable after a short while. If too large you may end up sitting in a wet spot and be equally uncomfortable. To help you determine the proper size, there is a handy-dandy catheter sizing guide available - I am not kidding about this. See the Sources section below.

Application - First and foremost, and no mincing words over an embarrassing topic, you must trim the hairs at the base of your penis. The catheter's adhesive is quite sticky on purpose and when adhesives and hairs get intertwined there can be painful consequences. Begin application of the catheter by washing your hands and then reviewing the how-to pictorial guides printed on the catheter packaging. Make sure that your penis is dry or the adhesive will not adhere properly.

The adhesive starts midway down the inside of the tube of the catheter

and stops about 1/4" before the tail end. As you roll on the catheter (like a condom), the adhesive first appears on the OUTSIDE of the catheter (you will understand this better when you first roll one on). You need to roll the catheter until all the adhesive is against the shaft and the non-adhesive end is deployed fully near the base. Leaving some of the adhesive on the outside is ill advised. Press the catheter's adhesive firmly all the way around to prevent leaks. If you find that there is any adhesive left on the outside, cover it with some toilet paper. Experience and practice is the key here.

You may be tempted to save a few dollars by not applying the catheter until in flight. This is a bad idea for several reasons. First – you simply cannot fly safely while trying to apply a catheter when you are reclined and fiddling with belts and clothes. Second - if you have sweated even a little, the catheter will not adhere properly and will leak.

Clothing

It is important to wear clothing that allows access while in flight. At sites with a history of long flights, and a heavy use of catheters, I have seen pilots already unzipped and connected up before liftoff. Again, the less fiddling the better during flight. Loose fitting pants are important so jeans are generally not recommended. I find that quick drying nylon pants found at outdoors stores work very well. There are also purpose-made PeeTot Pants. You simply need to find out what works best for you.

Use During Flight

As I mention above, "deploying" before each flight is the best approach. Once you have all the plumbing in place then you just go, hopefully with as little fiddling as possible. Practice on the ground so that you know what to expect. You may find that some urine remains in the catheter itself. A soaring doctor friend has told me that this is not an issue for the length of time we are talking about. However, washing up afterwards is always a good idea.

Back on Terra Firma

So, you're back on the ground and you have a bag of "bio-waste." Now, what do you do? There is a certain amount of embarrassment factor to deal with. My advice is to just to get over it and act like it is the most natural thing in the world. Newbies will stand in wonder at your expertise and ask for advice. Ignore those that moan "Ooooo, ick!" After each use, wash out the system/container with diluted bleach.

Catheter Removal

This is the part that probably prevents most pilots from even trying to use a catheter in the first place. The catheter is intended to stay put and not leak (which is good) but this also means that it doesn't just fall off at the end of the day. I have had the best luck by reversing the application procedure and rolling off the catheter a bit at a time. Others recommend a warm shower, which is a good idea anyway after a long flight. Another recommendation is a product called Detachol® made for this purpose. Again, you will have to experiment to determine your own best approach.

The Bottom Line

Having a relief system will help your cross-country flying by having one less thing to worry about.

Deploy your equipment before flight. This is not as difficult as you think. Finally, you will be a safer pilot.

Sources of Equipment

The internet has a wealth of websites which specialize in these devices. However, I suggest that you might want to first visit a local medical supply store that knows about such things. Don't worry about being embarrassed, they handle this sort of thing all the time, but you may get a few perplexed looks when you explain why you need it. They can definitely set you up with everything that you will need (bag, catheter, tubing, etc). You can also purchase "starter kits" with all the necessary items.

Sources of Catheters and Accessories

BioRelief - http://www.biorelief.com - click on "Male External Catheters"
Allegro Medical - http://www.allegromedical.com – click on "External Catheters"
At Home Medical - http://www.athomemedical.com – click on "External Catheters"
Southwest Medical - http://www.southwestmedical.com - click on "Urinary Catheters & Kits"
Oxford Aero Equipment - http://www.oxaero.com/Relief.asp - click on "Using Male External Catheters" for a very good description of catheter use.
PeeTot Pants - http://www.reliefwear.com
Catheter Sizing Guides
Hollister - http://aviation.derosaweb.net/relief/size_guide_hollister.pdf
Mentor - http://aviation.derosaweb.net/relief/size_guide_mentor.pdf
Information
Reprint of the Striedieck "To … or Not to …, No Question About It" article (Soaring, Mar 96, pg 40-41); http://aviation.derosaweb.net/relief/Striedieck_no_question.pdf
A good blog with an assortment of useful comments on the topic; http://soaringweb.org/ART/pee.html
External relief tubes in gliders by Darryl Ramm (http://www.darryl-ramm.com/glider-pee-tubes) and Chip Bearden (http://soaringweb.org/ART/pee.html)
Doing it the Aussie Way; http://www.gliding-benalla.org/flying/health/aussie_way.xhtml
Sailplane Racing Association article *The SRA Guide to Soaring Competition;* http://www.ssa.org/files/member/SRAGuide.PDF
For the Ladies - Read these articles; http://www.freeflight.org.uk/gliding/relief.html and http://www.dg-flugzeugbau.de/pinkeln-e.html#female

About the author: John DeRosa is a past president and current secretary/seminar-chairman of the ChicagoLand Glider Council (http://chicagolandglidercouncil.com). He is the current vice-president of Sky Soaring Glider Club (http://skysoaring.com) in Hampshire, IL. John hosts a website of various glider related subjects at http://aviation.derosasweb.net. John can be reached at john@derosaweb.com.

The Journey of N12GT - George Taylor's Duster

By Norbert Paas

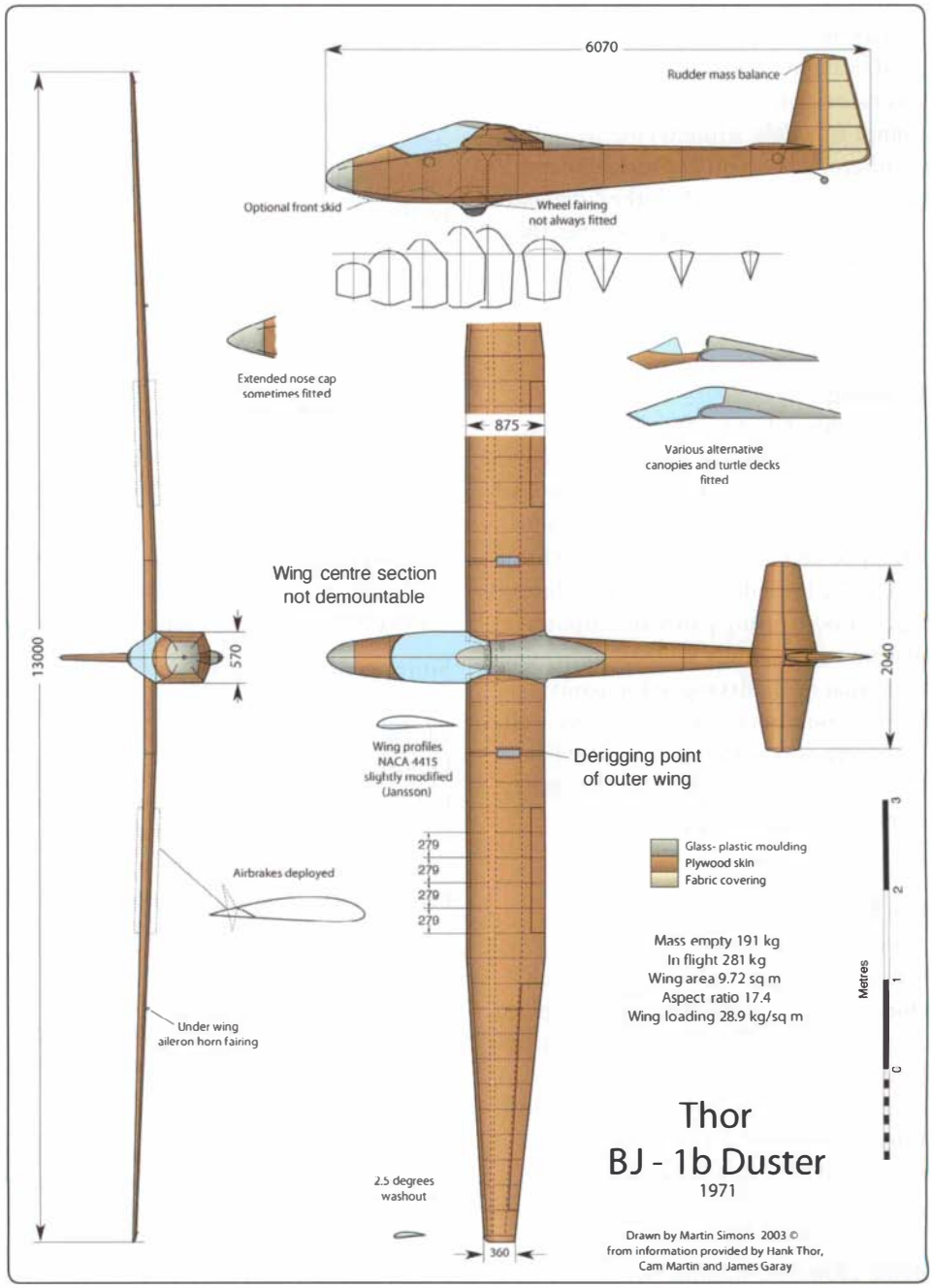
In the summer of 2008, when the Illinois Aviation Museum at Bolingbrook, Illinois (IAM) was looking for additional display planes, I volunteered to search for a suitable sailplane. IAM is a small, volunteer driven local museum, supported by the Township of Bolingbrook and local businesses. The museum promotes community interest to future aviation enthusiasts through local school group tours, Young Eagles flights, and visitor tours. It is located on Clow International Airport (1C5), which was started by the late Boyd Clow, a local farmer, more than 60 years ago. It was a grass strip in the midst of vast cornfields. In 1960, the Chicago Glider Club moved to the field, and since 1971 Windy City Soaring has operated a busy commercial glider school. For more than three decades, there were many gliders active at the field, but in the 1990s urban sprawl surrounded the airstrip with shopping malls and houses. The glider operations moved further south and west from the City. With such rich history in soaring, it seemed appropriate to add a glider to the museum's display of early military jets, WWI fighter replicas and other aviation artifacts.

George Taylor, a glider pilot from Los Alamos, NM responded to our want ad in *Soaring* with the offer to donate his homebuilt 1977 Thor BJ-1b Duster to the museum. This seemed the perfect addition to the museum, but the logistics of moving the glider over 1,300 miles from New Mexico to Illinois was a challenge, especially since there was no trailer.

We worked out a solution. I would drive my car to Moriarty and tow the glider back to Illinois on a custom trailer donated by the Southwest Soaring Museum. On a crisp winter day in late February 2009, my wife Jackie and I arrived in Moriarty to meet with George and Kathy Taylor. Over dinner, we listened to their stories; I soon realized that there was a lot of aviation history surrounding their Duster. For me, this visit was also the beginning of being acquainted to interesting members of the Duster community and becoming familiar with the Duster.

Both the plane and owners had a colorful past. The journey of George's Duster begins on Long Island, NY where he built it, later damaged it during a landing accident, and continues to

Duster on trailer leaving Moriarty.



The Thor BJ-1b Duster, designed by Einar (Hank) Thor. Illustration by Martin Simons.

Los Alamos, NM, where he restored it during a decade to museum condition.

The Thor BJ-1b Duster

The Thor BJ-1b Duster was designed by Einar (Hank) Thor in the late 1960s. Hank is a former airframe designer and aeronautical engineer. His goal was to offer an affordable, all-wooden glider design that could easily be built by the average homebuilder with woodworking experience. The glide ratio would be better than the Schweizer 1-26 with a faster speed and easy to rig.

Hank had previously built another homebuilt glider, but found its design too difficult and cumbersome for the average homebuilder. Encouragement by other glider pilots and homebuilders motivated him to undertake the Duster project with a one-class-design in mind. In Hank's own words, "*Designing a glider is not rocket science – it's just as easy to design a high performance glider. The trick is to know the line between $$$'s spent to optimize performance and being able to "simplify" systems and structures.*" The Duster was designed for a former model builder who knows what pride in ownership means and wanted to build a sailplane that had to share the garage with the lawnmower. Hank chose an all-wood structure design, covered with plywood. The early 1970s were a pivotal time in sailplane development; fiberglass and new airfoils had not yet fully made their entry into the soaring community. The two real options were sheet metal design or wood. The fuselage is similar to the BG-12; the 42' 8" wing has a modified NASA 4415 non-laminar airfoil. It consists of a 7' center section attached to the fuselage and two 17' 10" outer wing sections. Performance was 28:1 @ 53 mph (23:1 for 1-26 @ 53 mph), 2.3 ft/sec (2.9 @40 mph for 1-26) @ 45 mph and 40 mph stall. The empty weight was 390 lbs and the payload 230 lbs. If you have ever wondered what inspired the name Duster: The 1970s Plymouth "Duster" muscle car.

Dust Rag Magazine

In 1972, Hank was selling Duster plans under the name "California Sailplanes" and complete Duster kits were offered only to registered Duster plan holders by Duster Sailplanes Kits (DSK) for $1,925.00 under license from Hank. The complete kit included everything but the glue, or a homebuilder could fabricate all or some parts themselves. A total of 371 plans and 169 kits were sold, before Hank discontinued sales of his plans in 1980.

About 74 Dusters were completed, 47 were in the U.S., others in Canada, South Africa, Brazil, Australia, New Zealand and Germany. A Duster Sailplane Association was formed and Duster builders and pilots became (and still are) a close community. Their quarterly magazine "*Dust Rag*" was edited for some time by the Taylors. It added to the identity of the Duster community.

Duster fuselage in attic.

Building George's Duster N12GT

When George decided to build his glider in the early 1970s, he considered the Cherokee, the Tern, and the Duster. As an experienced model airplane builder with familiarity of wood construction, he chose the Duster for its all-wood construction, performance, and component size. He lacked a large work area—no section of the Duster

Main spar assembly

Duster in attic window ready to be lowered.

was longer than 18 feet—and he could build the glider inside his house. He purchased Duster plans (#57) for $75 and opted to build all wooden components himself from scratch.

George started his Duster project in 1972 in the attic of an old farmhouse on Long Island. He bought the welded parts and the canopy from DSK and procured 4'x 8' sheets of 3/16" and 1/4" aircraft grade mahogany plywood. For the skins, he used 3/32" and 1/16" aviation grade mahogany, which he had shipped in. The bulkheads were made from 3/4" and the wing ribs from 1/4" marine grade plywood. He cut them with a saber saw from the plans, then filed them into their final shape and varnished them. He says the plans by Hank were very accurate, and he wanted each rib to be a masterpiece, it looks like he succeeded.

For glue, George used two-part Resorcinol, which becomes stronger than the wood and is moisture resistant. During summertime, the warm attic provided favorable conditions for the glue to set. He stapled and clamped the parts into position to let the glue set, and then removed the staples.

Cleanup of uncured glue was easy, because it is water-soluble. From each batch of glue, through destructive testing of a scrap material sample, George had to demonstrate its strength to the FAA inspector. The spar was made of Sitka spruce. The six tapered spar blanks were 3/4" at the center to 1/4" at the tip. He sanded them with an electric hand sander and then glued three blanks together with about one gallon glue and homemade clamps. With a hand drill and a precision fixture, he drilled the spar bolt holes.

Frequently, George was asked: "How will you get the fuselage out of the attic?" As a joke, he drew a rectangle about the size of a window on the attic wall and answered "Through this hole." To the usual suggestion taking the parts through the window instead, he would compliment them for their genius idea. In 1976, he took the partially completed glider out of the attic. The window opening was (of course) just large enough for the fuselage and wings to pass through. A tall ladder, some carpet and several friends and the mission was accomplished, uniquely but successfully.

Later, he finished the fuselage and wings in the living room. After 4-1/2 years, in February 1977, he was ready for the FAA inspection. George's advice to future builders is to do something every day, even if it means picking up a part looking at it and thinking about it. It's too easy to let the days between jobs to turn into weeks.

FAA Inspection and First Flight

The final inspection was by FAA inspector Frank Burke at the Brookhaven Airport. Frank says he was happy to come frequently to George's house and give his blessing to continue the project and was very thorough on his inspections. The Certificate of Aircraft Registration (N12GT – GT for George Taylor) and the Experimental (Amateur Built) Airworthiness Certification were issued in January 1977.

The First Flight of N12GT was during a brief winter thaw in February 1977 at the Brookhaven Airport. Heavy snow had recently fallen and was piled up on both sides of the runway. George was towing with a Super Cub and had planned to tow the Duster, piloted by Kathy, for just a few short hops a few feet above the runway to check the controls. Kathy was strapped into the

Wing section ready to be stapled.

Duster, wearing a parachute – when she wondered what good would the chute be a foot above the ground. Because of the piled-up snow on the sides of the runway and power traffic becoming impatient, they decided to tow the maiden flight to an altitude of 4,000 feet for an uneventful 25-minute glide in smooth, stable air. A friend took close-up aerial pictures from a power plane.

Kathy's first impressions of the Duster were that it was easy to handle and honestly responded to the controls. However, the dive brakes would only add 300 ft/min to the descent rate and were not very effective, but as Hank would say: "Did you forget how the instructor taught you how to slip?" George and Kathy would fly their Duster during the next several years for over 200 flights. Although George or Kathy never formally competed, there were several occasions when they could compare the Duster with a 1-26. On a straight glide, the Duster performed much better, and during thermaling both were equal. On strong crosswind days, George found the Duster easy to handle.

Restoring the Duster

During an evening landing into the setting sun with a frosted canopy, George's Duster was damaged substantially in the late 1970s. When initially building the fuselage, he added a heavy laminated oak headrest (roll bar) which was not part of the original kit and which possibly saved his life during the accident when the fuselage came to rest upside down. He must have had a guardian angel when he added the headrest/roll bar.

He spent many years restoring it to its original condition. He had previously

The Einar (Hank) Thor-designed BJ-1b Duster was a popular design for homebuilders who appreciated its ease of construction as well as its easy handling and honest control response. Taylor and his wife Kathy each enjoyed flying the wooden ship, seen here in flight over Long Island (left) and Brookhaven Airport (right).

bought parts from two uncompleted Duster kits. Using his own woodworking skills, and these parts, he restored the more than 30-year-old Duster to be functional and in museum ready condition.

Journey to the Illinois Aviation Museum

By the time we had arrived in Moriarty, George had already arranged with George Applebay for a custom built Duster trailer, and had everything loaded and ready. Well, it didn't quite work out that easy. The trailer tongue would not fit my tow hitch ball and the lights would not connect. What should be simple is not that simple when you are out in Moriarty. It took us nearly a day before we could get on the road. The trailer really looked big behind my little diesel Jetta.

After a short drive east on I-40, we noticed some movement of the rudder, the gust lock was about to break. The Duster fuselage is towed tail first, we decided to remove the rudder and hold it in the back seat for the trip.

The weather could not have been better for early March. A nasty snowstorm had just moved out of the Plains and was beating up the East Coast; the next storm was still well to the West. Pleasant sunshine, unseasonably warm temperatures also brought out lots of bugs in West Texas. We crossed Oklahoma, Kansas and Iowa, every fuel stop drew crowds. A Kansas Turnpike toll collector told me the glider in tow was the highlight of her day - but she still charged me for the third axle. The cold temperatures caught up with us when we got to Illinois, after 1,300 miles and 2-1/2 days we had safely arrived at the museum.

George was already waiting for my call and was relieved that the trip went so well. The following day, a storm moved into Chicagoland with strong wind, heavy rain, flooding and even tornados. Luckily, we had just slipped between both storms.

The beautifully restored Thor BJ-1b Duster Serial #57 is now prominently displayed at the Illinois Aviation Museum, where local school groups and the many other visitors view it. It will remain an attraction for years to come, still displaying N12GT on its fuselage.

My special thanks to those who made this project possible, foremost George and Kathy Taylor for their most generous donation, George Applebay for the trailer, Martin Simons for the use of his Duster drawing, Cam Martin for providing historical information, Hank Thor for his designer inside viewpoint, Ron Ridenour for information on Clow, ***Soaring*** for publishing the want ad, my wife Jackie and my son Norbert for their help during the long road trip and finally Steve Snapp for proofreading.

Norbert Paas (norbert@paas.us) is a retired mechanical engineer and lives with his wife and son in Naperville, IL. He has been active in soaring as a recreational pilot for five decades, starting in a Dobbelraab in Germany. He is the author of previous articles in *Soaring* and a volunteer for the Illinois Aviation Museum.

Duster assembly at Illinois Aviation Museum

My First Ridge Soaring

Matthew prepping the Duster

By Matthew Martelli

I've been flying since I was 2 ½ when my grandfather took me and my mother flying in the back seat of a Maxair Drifter. Since my family owned several airplanes I have been actively flying since that time. Its fun and I have been lucky enough to have built up about 650 hrs of flying.

When I was fourteen my grandfather let me sit left seat in our Mooney 231. I got pretty comfortable flying this and wanted to solo. Of course I couldn't but I learned I could solo in gliders, so off we went to the Greater Houston Soaring Association glider field. I took a demo ride and loved it. I began lessons and in 2 hours I was soloed. How cool. I could fly with no one in the plane. I could do what I wanted (within reason) and I was by myself. I loved it. I flew a lot my first summer and earned a badge a month and started working on my Silver (I still am). I learned a lot from all the instructors at GHSA and really liked the sport.

I guess we are what they call flat land fliers since our field elevation and surrounding area is not much higher than 100 feet ASL. I've learned to fly thermals and am looking forward to doing my first cross-country in my Duster BJ-1B. I kept reading about wave flying, ridge flying and high thermal flying in other places and started wondering what it would be like to fly down a ridge or fly in wave. My grandfather called the people in Marfa and was told the conditions were too rich for me and my glider so we dismissed that as a choice. I still wanted to fly in wave or ridge but didn't know where I could.

Safety briefing. (Randy Teel giving briefing in the "JR" t-shirt.

My grandfather started looking and found an article on the Tulsa Soaring Association website about waves in Oklahoma. He called Randy Teel in Tulsa and he was invited to fly in Talihina, Oklahoma. The first chance he got, he went up and checked out the site and really had a good time and good flying. No wave but he got about four hours of ridge on that trip. He came back and told me he would take me if I could talk my mother into towing my glider up. I did and it was agreed that I would go up the next time the weather produced good ridge lift. Two and a half months later the conditions looked good for a strong south wind all weekend. The Tulsa guys started planning and it was set. I was going to fly in ridge for sure and possibly wave! I was excited and really nervous.

I read up on ridge flying (when I finally did it, it was totally different from the books) and was ready! It was a long drive but cool because I got to drive part way. I don't have a driver's license yet so it was fun. We got into Talihina around

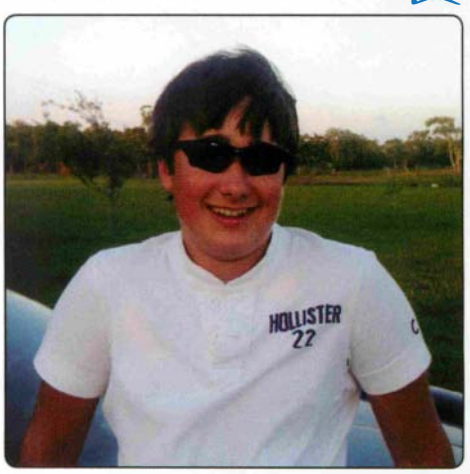
5:00 p.m. on Friday, April 24, set up my grandfather's glider and met a few of the early guys from Dallas. Gerry Keiffer gave me some pointers on how to fly the ridge and where not to go, about proper airspeed and always knowing my ground position, and above all else, don't hit anybody. Tomorrow was the day and I was getting real nervous. Mike told me to relax, that I had good skills and just to fly the same as I do at home. This didn't really help though.

Waiting for the tow. Buffalo Mountain in the background.

Saturday the 25th we got to the airport around 7:30 a.m., set up my glider and I was introduced to all the other pilots who had gotten there late the night before. Some were still arriving. The tow pilot, Dick Goodgame, arrived around 10:00 a.m. By now almost everyone was set up and ready to go. Mike introduced me to Randy Teel who also gave me pointers on flying and told me not to worry, just relax and enjoy the flying. There were 11 gliders. Randy held a safety briefing and went over the proper procedures (radio stuff, turns, traffic, etc.) we were to use. We were ready to go. The motorized Pik went first toward the mountain, followed by a Libelle, then Randy and then my grandfather. It was crazy after that with all the launches. About an hour after the first launch it was my turn. I was really nervous and not real sure about this, but I knew I could do it. I pushed the Duster out, put on my parachute, got situated in the glider and waited for the tow. I was extremely nervous now, but kept thinking that no one had come back and the conditions must be good. I was hooked up, slack removed, wiggled the rudder and off I went. It's real funny because as soon as the glider started moving, I calmed down and it was just like flying at home. I stayed on tow until I was established where I thought the lift was, released and started descending. This was not supposed to happen. Since the sky was overcast and there were no thermals and this bothered me. Then the vario started showing positive and stayed there. This was much better. I continued down the ridge gaining altitude and started to relax. This was actually fun, real fun! I was going up and I didn't have to look for thermals, just fly straight down the mountain, stay out front a little, watch for traffic watch airspeed, watch for traffic, watch ground position and did I say watch for traffic? Buffalo Mountain is short, only about eight miles, and it was time for my first turn. I remembered what Randy had said and cleared the turn, then announced "Duster turning out from west to east 2.4." This was so cool and I had all day left to fly! I needed a five-hour flight for one element of my Silver and knew I could do it here. Each pass I got higher and higher until I started clipping the cloud bottoms so I descended to stay legal. I stayed high just in case. Instead of gaining altitude I just went faster and at one point was flying at 90 kts. Well, as time went on all the Gatorade I had been drinking started telling on itself. We had rigged the glider for this and thought everything was set but I just couldn't do it as the chute strap cut off the catheter tubing. I hung on as long as I could, then I had to head back. When I landed I had 3 hrs. and 30 seconds, went up to 3963' and gained 1938 feet. I know I could have done more but it was overcast and legally I could not go into the clouds. The lift was there though. I had done it, I had flown my first ridge, and it was a real experience. Buffalo is the perfect beginner's mountain to get the feel of ridge flying and it is really a lot of fun.

I must have landed around 2:00 p.m. Shortly after that some of the guys were coming back and by 3:30 there were only 4 gliders still up, then 4:00 there was 3, then around 4:30 my grandfather landed, then Garry Guinn and then the last one (I think) was Gerry Keiffer.

I wanted to go back but kinda didn't at the same time. My mother and grandmother reminded me that we needed to leave in the morning as I had homework to do and school to prepare for, so I packed in my glider that afternoon. My grandfather wanted to get in an hour in the morning but my grandmother convinced him that we needed to leave, we went back Sunday morning and packed up, said good-bye and by 9:00 a.m. we were on the road home. I learned a lot from this trip, mainly that most glider pilots are the same, that is they just want to fly, have fun and help people by sharing their love of the sport, their knowledge and try to make flying safe. All the guys there were great, I had fun and I now have ridge experience.



Matthew back home.

Soaring

ASW-27, Cinder Cone Dry Lake, California
Photo: Christian Mackin

Contest Weather Forecasting

By Ray Galloway

Many have developed their favorite method of forecasting soaring weather but doing it for a contest with the necessary schedule is the specialty addressed here. In the eastern US, where incidentally over 50% of the SSA sanctioned contests occur, the scheduling is more acute and therefore is the reason this discussion is confined to the Eastern Daylight Time (EDT) zone.

Nature determines the time of day a glider can fly and the government determines the time weather data are available. These limits dictate the contest weatherman's schedule to obtain and format the weather information necessary for advising the Competition Director (CD), the task advisers and the pilots each contest day.

Other excellent approaches to this problem are available. Two of these which stand out. Dr. Jack (Glendening) at www.drjack.info (more applicable to western time zones) and XC Skies at www.xcskies.com.

The CD and task advisors, and later the contestants, need weather information to select the task for the day and how to fly it. The basic information needed is:

1. Approximate time trigger temp (the temp at which a glider can maintain flight at 2500') will occur
2. The expected time the soaring day will end
3. Surface winds and winds aloft
4. Cloud cover – low, middle and high
5. Whether it will be a " blue day" or a "cu day"
6. What altitudes they will reach at various hours of the day
7. Temps at various times of the day and maximum temp of day

The SSA has recently put a form for all of this on their web site. Go to www.ssa.org /Sailplane Racing/About contest/Contest forms/Examples and Templates and you will find SC50 09 Daily Task Sheet, a PDF file. This is a blank form that can be used to enter all the necessary weather information and makes up one-half of the page, leaving the other half for the tasks.

EDT zone is somewhat different from the other time zones as it cannot use Dr. Jack or XC Skies the same as the other time zones. The earliest you can use Dr. Jack in the East, with the 12Z (800 EDT) balloon data included, is the 1400 EDT model. This is too late to be of any real value. The most current data are available on Dr. Jack's site between 0940 EDT and 1000 EDT, but are only available in the 1400 EDT and later models. Dr. Jack's is excellent, but the problem is that the 12Z balloon (RAOB) data are not available from the ESRL (Earth System Research Laboratory), formerly FSL (Forecast Systems Laboratory), site until about 0915 and then Dr. Jack has to put this in his model program and the first time it is included is his 1400 EDT model. The 1100 EDT model will have last night's OZ (2000 EDT) balloon data, which are too old to be of value in the EDT zone. Dr. Jack's models give the vertical movement of the air and so do not include the weight of the plane and pilot and as such do not subtract the sink rate of the glider. This needs to be taken into consideration. Basically the same is true of XC Skies, except that their 1100 EDT model does include the 12Z data, so it does have one earlier model of value. The other three time zones do not have this problem because of the local time zone differences. The 12Z sounding is made at 0800 EDT and 0500 MDT. It is unfortunate that the EDT zone does not have the advantage of Dr. Jack's very fine program.

My experience indicates that most folks in the East are not aware of these models being based on last night's (OZ) sounding. Many pilots, and even some weathermen, have come up to me before 0900EDT (while I was serving as CD) and told me what the weather is going to be that day. I ignore this, as I know it is based on last night's sounding and that it is too old to be of any benefit. Just because the models come up does not mean that they include the 12Z data. This can be easily determined from the times on the BLIPMAP Availability – RUC Availability page of Dr. Jack's program.

It is incumbent on all of us to read and understand the tephigram or the Skew-T chart in more depth. The Skew-T is available on the ESRL site, (www.rucsoundings.noaa.gov) along with the raw data. I use a Tephigram chart as the temps are straight vertical, rather than skewed. The one I use is a RAOB program developed by Jim Bobo and Harry Senn and is available for download on the SSA web site. One of the advantages to it is the fact that the graph as shown provides the following:

- Trigger temp
- Max Lift-AGL
- CCL-AGL and MSL
- Temp and Dew Point up to desired altitude (usually 11,000')
- Dry Adiabatic line
- Wet Adiabatic line
- Wind speed and direction every 1000'
- Surface temp in Centigrade and Fahrenheit
- Surface temp necessary to reach each 1000' above the ground

One page with all the information you need from a tephigram.

All the information for the day's briefing I put on one sheet, which includes the following:

1. Duats - Surface Observations at about our airports in the task area.
2. Duats – Terminal Forecast at several airports in the task area.
3. ADDS – www.aviationweather.gov/adds (Click on Prog Charts and you have current surface chart plus four

other charts showing forecast for next two days.)

4. FOUS 22 – www.nws.noaa.gov/mdl/synop/products/bullform.mav.htm.mav.htm/

Click on the state you want and then the cities you want. For the city nearest the site I write down the temp for 1200, 1500 and 1800 and the Max temp for the day and cloud cover.

5. NWS office that serves the contest sites. As an example for Cordele (Region 5 South) I use Peachtree City, being www.srh.noaa.gov/ffc. Click on the map where the contest site is located and a page comes up with much information. Scroll down until you see Forecast Discussion and Tabular Forecast on the right side. The Forecast Discussion gives you an overview of the current and forecast weather. It is very good for understanding the day's weather. The Tabular Forecast gives, among other things, the temp and cloud cover. This goes on the sheet. At the end of the day I check the temps against those on my recording thermometer (NK Kestral 4000) for accuracy. To locate NWS offices click on Organization on the opening page and a list of all offices will be shown.

6. Winds Aloft – www.aviationweather.gov/products/nws/winds

7. GOES – www.gdcc.msfc.nasa.gov/GOES Click on Weather Satellite of interest.

8. RUC Soundings – www.rucsoundings.noaa.gov Soundings are obtained for the contest site for 1600, 1800 and 2000. If there is a balloon sounding within 100 miles it is also obtained. The following is then recorded on the sheet for each of the soundings: Max temp, Trigger temp, Max Lift, CCL and winds at 3000,' 6000' and 9000' above ground.

There is one other piece of information that can be important. If the information you have looks like there might be an upper level low then go to http://weather.noaa.gov/fax/nwsfax/html. This is a chart much like a surface chart, except for upper air levels. Levels of 850 MB(4700') and 700 MB(10,000') are ones of interest to us. Go to the web site and click on 850MB under Standard Barotropic level, then on the page that comes up click on 850MB Height/Temp Analysis and a chart will appear. Click on one of the icons just above the chart to rotate it around so you can see the U.S. with various highs and lows. The same can be done for 700MB.

The gathering of weather data is started around 8:00 AM and finished for all except the RUC models by about 9:15 AM. Data for the models are then available that includes the 12Z (the same as 1200 UTC) balloon data. When you go to the page for RUC soundings go down about 1/3 of the page and be sure the following appears: "Latest Op 40 analysis is valid at 1200UTC." Be sure 1200UTC or later appears as this shows that the 12Z balloon data are included in the sounding. If it shows a time before 1200UTC then it has last night's (0Z) data in it. All the data have now been recorded and it is time to determine what kind of day to expect.

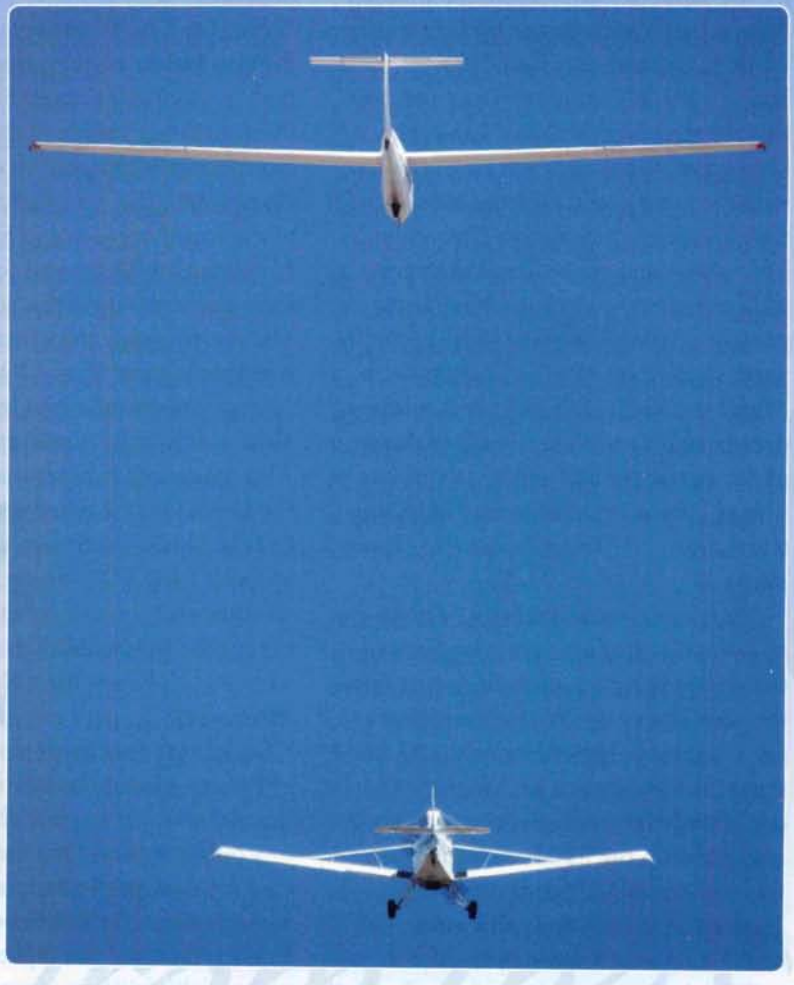
The single most important information is that contained in the RUC soundings and the actual RAOB 1200Z balloon data (if one is nearby). If these model soundings are obtained before about 9:15 EDT then they will not have the latest data but rather that entered from the OZ (2000 EDT) balloon. The RUC models have at least eight different source entries, some being: temps, dew point, winds, moisture of the ground and the balloon data. Commercial airliners give them about 60,000 hits a day. Balloons go up at the same UTC time

Soaring
PHOTO SHOWCASE

"The day is done, and the darkness Falls from the wings of Night..." – *Longfellow*
Photographer: Dirk Elber

Time and a Ticking Hobbs tary on no man
Photographer: Dick Otis

Follow that taildragger
Photographer: Loren Swanson



Looking Up Photographer: Neal Chism

Workin' The Ramp Photographer: Neal Chism

Bogey at 4 o'clock low Photographer: Dick Otis

Email your digital photographs to editor@ssa.org for Soaring Photo Showcase consideration

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Andrew Russell
Albert G. Tierney
Ralph D. Kimberlin
Neal E. Miller
Jerry L. McAden
Robert D. Kellner

Bjorn Matz
A.J. Reichwein
Anthony J. Puglisi
F. S. Bauder
Daniel Olson
Bertha Ryan
William C. Strand
Loris (Lorry) J. Charchian
George P. O'Leary
Frank Whiteley
Chris Woods
Thomas C. Jones
Norman D. Snyder
Neal Ridenour
Robert F. Frasco, Jr.
Luis A. Castillo
Winfield T. Curtis
Hugh Bennett
Rolf Schulze
William Thar
Paul Cullman
Alfred E. Kaehler
JA T. Rathbone
Rolly Clark
Ben W. Greene
Gene Rinke
Robin G. Fleming
Forest Baskett
Benjamin C. Abeyta
Michael Finegan
Robert G. Davenport
Charles E. Dobkins
Robert Fulmer
David E. Edwards
KJ Strack
Leon Cziske
Fred H. Baumgarth
SG Knight
Byrd H. Saville, Jr.
Elaine Carlson
Paul B. Wolf
Harry R. LaBrie
Donald R. Beebe
Christopher Barker
Barry L. Leslie
Alexandra Hardesty
Chris D. Perkins
Lawrence A. Terrigno
Fred Hefty
John C. Hanson
Albert Turtscher
Kai Talarek

THE CONDOR CORNER

BY SCOTT MANLEY, CFIG

What's the Problem?

Those of you who have met me know I am pretty excited (some would say fanatic) about the potential for using glider flight simulation to improve the sport of soaring. While my current hot button is primary flight instruction, my interest in this regard extends to maintaining/improving pilot proficiency, learning new soaring skills, and promoting the sport of soaring. I am an educator by avocation, and what all these areas of interest have in common is their educational nature. In each case, someone is learning (or relearning) something about flying gliders.

So, let's start with my current favorite, primary flight instruction.

Simulation is a widely recognized and powerful tool in the educational community, and from a flight training perspective, the military, the airlines, and the specialty flight training companies had this figured out a long time ago. Flight simulation is a highly efficient and cost-effective way to train pilots.

I truly believe, and have a growing body of experience to support the idea, that flight simulation affords the soaring community the opportunity to dramatically improve glider flight instruction; to produce better, safer glider pilots, in less time (at least in a calendar sense), and at the same or lower cost than we are doing it today.

So if this flight simulation stuff is so great, why are we in the glider community not availing ourselves of its benefits? The answer to that question is probably fodder for yet another Condor Corner article, so allow me instead to relate why I am so excited about this new elephant in the room.

Unlike most flight instructors, I was a trained and practiced educator before I was a pilot. I happen to believe the operative word in "flight instructor" is "instructor." My favorite part of the CFIG written exam was the "Fundamentals of Instruction." My favorite part of the CFIG practical test was putting the lesson plan together and presenting it. I would rather teach someone to fly a glider than fly one myself. As such, I am somewhat of an odd duck.

And so it is from the perspective of a longtime educator, that I recognize and struggle with the current realities of flight instruction generally and glider flight instruction specifically. I refer to these realities as my "Instructional Challenges" and they are a formidable lot. To fully appreciate my enthusiasm for flight simulation as a solution to these challenges, one needs a deeper appreciation of "the problem," and that is the purpose of this article. So hang on; here we go into the abyss.

Instructional Challenge #1: Aircraft make lousy classrooms

You have probably heard the saying: "The worst place to teach someone to fly is in an aircraft."

While this may seem like nonsense, anyone who has ever received or provided flight instruction recognizes the strong element of truth in this statement. From an educational perspective, an aircraft in flight is a very hostile teaching/learning environment. It has the potential to be, and quite often is, noisy, complicated, distracting, uncomfortable, frightening and physically, mentally and emotionally exhausting. We would have been hard pressed had we intentionally set out to design a more hostile learning environment. Mix in a little frantic screaming from the back seat of the glider and you have the perfect storm.

As an instructor, I often find myself wishing the flight was over and my student and I were back on the safe, comfortable, familiar ground where we could quietly discuss what just went right, and what is more important, what just went not so right.

Instructional Challenge #2: Classrooms make lousy aircraft

I never feel more inadequate, as an instructor, than when trying to "describe" to my student what just went wrong with the last aero tow, using one hand to represent the tow plane and the other hand to represent the glider. My deluge of words and my expert gestures seem to be a very poor substitute for the actual flight experience.

I find myself wishing my student and I were back in the air, experiencing the real thing, not just standing around talking about it.

I shouldn't be surprised. One of the fundamentals of instruction, the "principle of intensity," states that we learn more from the real thing than we do from a substitute.

Accordingly, I would like to offer a corollary to Instructional Challenge #1 above:

"The second worst place to teach someone to fly is on the ground."

Instructional Challenge #3: Insufficient Opportunity to Practice

All learning is based on perception, our ability to take in information through our five senses. Perception occurs as we experience things and is reinforced and expanded as our experiences are repeated. Time and opportunity provide those experiences. The "principle of exercise" explains that those things most often repeated are best learned, thus the need for practice, and much it.

From this instructor's perspective, glider flights are quite often too short, and certainly too few, to afford the student sufficient time and opportunity to practice, and are frequently too far between to expect adequate retention of what has been learned.

Too short:

The typical glider training flight at our operation lasts about 18 minutes. Only a fraction of the flight (let's be generous and say 10 minutes) is actually dedicated to the learning objective of the day. That is not much time to demonstrate and teach the objective, let alone provide the student any meaningful practice time.

Too few:

As the guy who endorses logbooks, I would sleep a lot better knowing my pilot candidates had successfully executed a couple hundred takeoffs, traffic patterns, and landings in a wide variety of conditions before being granted the privilege to carry passengers. 40-50 cycles are more typical.

I would feel a lot better knowing my

student had experienced and successfully negotiated 40-50 premature terminations of an aero tow. A dozen is more common.

I would like to believe the new glider pilot's high level of skill and consistently good judgment was the logical conclusion to hundreds of hours spent investigating the glider's entire flight performance envelope. Instead, 20 hours is more likely, and most of that is not at the dangerous edges of the envelope.

Very few "experienced" glider pilots have logged this kind of time, let alone the newly minted private glider pilot.

Too far between:

Most of our students only fly with us one day a week. In the intervening six days, no further learning takes place. In fact, much of what is learned on any given day will need to be relearned the following week. And that assumes you aren't weathered out.

Instructional Challenge #4: The Weather Never Cooperates

OK, that may be a bit of an exaggeration, but from an educational perspective, it is all too often the case. Besides contributing to the "use it or lose it" syndrome, unpredictable and variable weather conditions have an insidious effect on the instructional process.

A well-executed training plan uses the "building block" method of instruction, with each new skill building on previously learned skills. It is important to training efficiency and effectiveness that skills are learned in the proper sequence. For example, until a student has mastered airspeed control, turn coordination and descent control, they cannot be expected to fly a traffic pattern.

Too often, however, it is not the syllabus that determines the day's lesson, but instead the day's weather. For example, when the time has come for crosswind training, I usually find the wind either right down the runway at 3 knots or straight across it at 20 knots. When I need calm conditions, the wind blows like crazy. When I need a thermal, there are none to be had. Before the student has mastered steep turns, we hit boomers on every flight. You get the idea. I often end up teaching what the day's weather allows, not the next lesson in the sequence.

Weather and other environmental conditions wreak havoc with lesson sequencing.

Instructional Challenge #5: Many Valuable Lessons are Never Really Learned

I learned to fly gliders at an airport with two parallel runways; one grass, the other paved. The glider operations used the grass runway. On one of my first solo flights, as I flew base leg, another glider cut in front of me. I followed the intruder onto the grass runway and while we did not collide, our proximity made a number of folks on the ground quite nervous. During the debriefing, I was asked why I had not simply landed on the available and unoccupied hard-surfaced runway. I didn't have an answer at the time. I do now.

I had never landed on the hard-surface runway. Landing on the grass was the only thing I had ever experienced, and so that is what I did.

All real learning is based on experience, and unless our students have experienced a situation, been trained to deal with it and have internalized that training through sufficient repetition, they are unlikely to react to it properly.

Unfortunately, there are a number of very important experiences our students will never have, and therefore will never really learn to deal with, either because the requisite situations are too dangerous to actually fly or are simply not available locally.

For example:

I would love to have each of my students experience the insidious and inevitable result of getting low and slow in the traffic pattern and then stalling the glider 100 feet above the ground while skidding the turn from base to final. Rumor has it you can only do this demonstration once.

My students need to land out a couple dozen times during their training. They won't.

I think every student should experience the unpleasant result of trying to stretch a glide back to the airport. 'Not going to happen.

I wish we had ridges to fly in Wisconsin. The last glacier made sure we wouldn't.

Unfortunately, the best we can do currently is to talk to our students about these things and hope for best. Again, this is not the stuff of restful sleep for a flight instructor.

So there you have it; a seemingly insurmountable set of obstructions to effective and efficient glider flight instruction. Is it a wonder anybody ever learns to fly a glider?

Yet despair not, dear reader. In the upcoming edition of Condor Corner, Frank Paynter (TA), in his own informative and entertaining way, will be introducing you to an interesting aspect of competition flying in Condor. I'll be back after that to tell you why glider flight simulation is the solution (and then some) to all of those nasty Instructional Challenges.

Scott Manley owns, and occasionally flies, a DG-303. The back of his pilot's license reads: Commercial pilot: airplane single-engine land & sea; instrument airplane; glider. He lives in Madison, Wisconsin and flies as a commercial pilot, flight instructor, and tow pilot for Sylvania Soaring Adventures in Beloit, Wisconsin.

SOARING MILESTONES

GLIDING ACHIEVEMENTS and FINAL GLIDE

ON TO THE AIRLINES

Walter Litzenberger Jr., soloed on November 21, 2009, 12 days after his fourteenth birthday, at Harford Airport, Churchville, MD. Walt's goal is to become an airline pilot, no one at the Atlantic Soaring Club doubts that he will achieve that goal, if Walt Senior doesn't run out of money. Here's new solo pilot Walt getting the post-solo dunk, accompanied by instructor Jeff Mathews.

—**Doug Coon**

UNRIVALED SIBLINGS

On Saturday, March 6, 2010, I had the pleasure of giving two special check rides. Whereas check rides take place every day, these were a very special event. It was at the beautiful Flanagan Field which is home of East Carolina Soaring Club that I gave a brother and sister each their private pilot check rides on the same day! Freddy and Sarah Wendland, age 16 and 17 respectively, earned their private pilot-glider certificates. Under the watchful eye of their father and flight instructor Frank Wendland, they were both well prepared for the test and flew a great ride. Best wishes to Freddy and Sarah as they take to the skies as the club's newest certificated pilots. Keep up the good work folks.

—**Ed Holland**, *CFI/G, FAA Designated Pilot Examiner*

EIGHT GRADER SOLOS

Palo Alto resident and Jordan Middle School eighth-grade student Cormac

Siegfried made his first solo flight in a glider at the Pleasant Valley Airport in Peoria, Arizona on March 8, 2010. For several months, he had been studying flight and taking glider instruction from his father, Rand Siegfried, a longtime pilot and flight instructor. His goal was to solo on his fourteenth birthday, the

SEND US YOUR MILESTONE

Let the soaring community know of your special achievement in this sport. Submit your Milestone to editor@ssa.org for review.

earliest allowed by the FAA. Weather in the Bay Area prevented him from doing much of his training here, so the family flew out to the Phoenix Area in their classic Twin Beech for the last few days of practice and the ultimate test of proficiency: the solo flight on March 8, Cormac's fourteenth birthday. "Cormac came through with flying colors," said his father. "He did such a great job. He is an excellent pilot."

The whole family was there to witness this Siegfried family tradition, including his mother Andrea Cunningham; his 18-year-old sister who also made her first solo flight on her fourteenth birthday, McKinley Siegfried; his grandfather and grandmother, Bob and Thelma Siegfried; and his cousin, Rick Siegfried. Grandfather Bob Siegfried, a retired United Airlines pilot and avid aviator, began the tradition of soloing on the fourteenth birthday with his own five children. Cormac is the youngest of Bob's grandchildren and the last to complete this rite of passage.

Rand and Cormac were grateful to find a warm and welcoming soaring school for the training. Roy Coulliette who runs Turf Soaring School at the Pleasant Valley Airport in Peoria, AZ, was happy to open his field to Rand as flight instructor and Cormac, who made 20 flights over two days at the school. "What a great accomplishment! I don't see too many 14-year-olds get this done," said Coulliette. "He's going to be a fine pilot. We are all proud of him."

A cold and cloudy day, even for Peoria, AZ, made for a chilly flight, but when Cormac landed after the first of five solo flights he could not stop smiling and said, "I want to go up again! Higher!" He took a tow to 1,800 feet, was fortunate to find some lift on his last solo flight of the day, and gained 100 feet before having to head for the field to land. It was the best birthday ever according to all who were there.
—Julie Murphy

ANOTHER SOLO AT FOURTEEN
Quinn Kettlewell earned his "A" badge by soloing on his fourteenth birthday at Meadowlark Airport, Concord, GA. His instructor was Phillip LaBerge. There were twenty family members and friends on hand to witness this first solo, four of whom flew in from Colorado Springs, Colorado, to witness the event. We have

a photo of all 20 of them in front of the Blanik. I think this must be some kind of record for a gathering to witness a first solo. We told these people that they were taking a big chance with the March weather, wind conditions, etc., but they came anyway.

—Phillip LaBerge

FRANK FLOWERS - ROSE CITY'S NEWEST SOLO

Rose City Soaring Association's newest solo student is Frank Flowers. Frank is seen here being congratulated by his son Brice as his instructor Luke Closson gives him the obligatory shortening of the shirt. Frank owns half interest in a Standard Cirrus and soloed in the club 2-33A. Congratulations, Frank!

—Lane Bush

CHRISTMAS JOY

This last year Lee Pagni of Tucson got an early Christmas present. On December 23, 2009, Lee successfully received his private glider certificate. As a member of the Tucson Soaring Club, Lee enjoyed the help and support of many club members, including instructors Jeff Bonneville (shown in photo) and Chuck Schroll. It was a chilly (48 degrees) winter morning when Lee tested in one of the club's Grob 103 sailplanes.

—Lee Pagni

FINAL GLIDE

With our condolences, the SSA takes this opportunity to pass on to readers of *Soaring* the reports received in our office about the passing of the following friends of our sport. More detailed information about the lives of these, if provided to the SSA office, can be found at: www.ssa.org

Wendell A. Scott, *Houston, TX*
Marilyn M. Smith, *Fremont, CA*
George Prescott, *Sioux City, IA*
Herbert A. De Vries, *Laguna Beach, CA*
Robert Clupper, *Livingston, TX*
I. W. Stephenson III, *Menominee, MI*
Edward Thunen, *Ridgefield, WA*
Jesse D. Drake, *Yreka, CA*
Robert L. Janco, *Malvern, PA*

and our own clubs through all means - and several described how they were working on that objective. Chris O'Callaghan described how those efforts complemented those of the AOPA, which has become a good partner for SSA. Val Paget's efforts on behalf of the SSA to make tools available to clubs were explained, and each club was provided with those tools.

As in most conventions or meetings or conferences, a lot of the business of the meeting is conducted in the halls, during breaks, and over lunch - - and that was true at this meeting as well, as pilots clustered in small groups to share ideas on how to improve their operations. The group plans to meet again next winter and will continue to "... inspire others to dream more, learn more, do more and become more."

—Jeannie Pitsenberger

Danielson Soaring Association Acquires Tow Plane

Danielson Soaring Association expects increased soaring opportunities this flying season with the use of their new tow plane. DSA has leased a 1966 Piper Pawnee with an option to purchase the aircraft in the future. The Pawnee, originally with a 150 HP engine, was converted to 180 HP for use as a glider tug some years ago.

Previously, the club relied on the availability of a member-owned aircraft, limiting flying opportunities. John Koptonak, DSA President, says club members are excited about the potential for weekday tows in addition to the usual weekend operations.

Recent growth of club membership added 5 member-owned gliders to the roster and 4 student pilots. The Pawnee will be busy this soaring season at the Danielson Airport. DSA serves glider pilots from Massachusetts, Connecticut, and Rhode Island at this state-owned airfield in northeastern Connecticut.

East Coast Winter

As everybody knows, the middle East Coast recently went through one of the worst winters on record. Washington, D.C. came to a standstill and several East Coast clubs, which usually keep operating during the winter, had no or very few flyable days. One of the clubs hard hit by snow was M-ASA's Frederick operation. This was published in their newsletter.

Photo by Fred Mueller

FDK Hangar Damage. M-ASA *Convector*, March, 2010

The big snow in early February resulted in some roof truss damage at our Frederick hangar. Very fortunately, the roof did not collapse. However, with well over 30" of snow on the roof the trusses were overloaded. Many of the truss compression beams warped and bowed under the load, allowing the cantilevered roof

to sag and rest on the hangar doors. One of the truss beams broke. The damage was discovered by Bill Whelan, and a team of M-ASA volunteers came out on the following Saturday and shoveled the roof to relieve the load. Paul Rehm, Bill Whelan, Dick Mott, Tom Jones, Craig Campbell, and Victor Filipchuk all volunteered for the hazardous duty and did the cold and exhausting roof-top shoveling that day. Thanks!

From Air Sailing, NV

Use of Mode C Transponders

The potential conflict between gliders and commercial air traffic near Reno has increased with the growth of commercial jet traffic into Reno-Tahoe Airport (RNO) during the past few years. PASCO (Pacific Soaring Council, Inc.) emphasizes that glider pilots operating in the Reno area must be alert for all air traffic arriving and departing RNO.

Traffic Collision Avoidance Systems (TCAS) receive transponder signals on board commercial aircraft as well as by Air Traffic Control (ATC) Radar. By ATC Letter of Agreement, gliders in the Reno area can transmit on the 0440 transponder code in the blind without establishing radio contact with Reno Approach Control.

PASCO recommends, and Air Sailing endorses, that gliders operating cross-country, within 50 nm of Reno-Tahoe Airport, install and use a Mode C altitude encoding transponder.

"Women in Aviation" Learns about Soaring

By Neita Montague

Hundreds of women pilots descended on Orlando, Florida, for their yearly aviation convention. For the first time in its history, the attendees were able to see a presentation on soaring. Air Sailing members Neita Montague and Marti Klemm gave a talk on "Best Kept Secret in Aviation: Soaring!" to over 100 women.

Information about the SSA, the WSPA, ASI, and NSA was in the PowerPoint presentation and literature on soaring was quickly snatched up after the question and answer period.

Invitation to all clubs

The Women Soaring Pilots Association invites both women and men to their 34th Annual Women Soaring Seminar to be held at Air Sailing in Reno, NV July 19 to 23. We welcome you to arrive early to acclimatize to our high desert/high density altitude and to get ready for the formal program, which starts Sunday, July 18. For Saturday and Sunday, we plan tours to Virginia City, Pyramid Lake for a swim and to the Paiute Native American Museum near the lake as well as flight checkouts in order of registration.

Emphasis will be on cross-country work and we will hold a dry lake land out day. For registration go to www.womensoaring.org or email neitalibelle@aol.com.

Piedmont News

Gary Garavaglia from Piedmont Soaring Society in Farmington, North Carolina reports two accomplishments, Hugh Honeycutt added a private glider rating to his list of aviation accomplishments on December 4, 2009 at Bahnson Field in Farmington, NC. Hugh obtained his private SEL rating and instrument rating within the last 6 years. He took his first glider ride in 2008 and joined the club that fall. Charles Cook and Dalton Everhart were two of his instructor/mentors while earning his glider wings. His most memorable flight so far has been soaring the venerable 2-33 for more than an hour this past fall. He is looking forward to progressing through the SSA Badge program.

Also on December 4, 2009, Marty Beck earned his commercial glider rating at Bahnson Field Marty got hooked on gliders after taking a ride in the PSS Grob-103. He says that loops in the Grob are very cool! Marty also flies a corporate Beechjet out of GSO, NC and practices some sport acro in the Super Decathlon. In addition he is an A&P mechanic and does some club towing in the Pawnee for PSS.

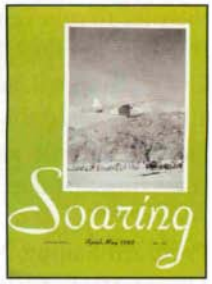
Two great additions to our club and we look forward to sharing thermals and cross-country time together in the future. Congratulations gentlemen. Welcome to the wide world of soaring!

Note: Clubs are the cornerstone of the sport. Please send your club's news for use in Club News to Frauke via email: clubnews@ssa.org

Soaring MEMORIES

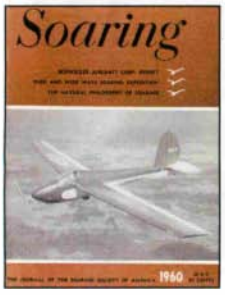
BY BERTHA RYAN

Seventy years ago: April / May 1940



Thirteen members of the Purdue Glider Club made their annual spring trip to Frankfort, Michigan, bringing their Baby Albatross and the two-place PGC-2, along with a winch. They put the winch in the middle of frozen Crystal Lake, which is surrounded by high bluffs providing good slope soaring during windy conditions. Four pilots earned their "C" badges. The only mishap was the necessity of changing fifteen flat tires in the 400-mile trip.

Parker Leonard describes a flight at Cornhill on Cape Cod, Massachusetts, lasting six hours and forty-five minutes. Fortunately, there was a full moon as he landed at 10 P.M. in a 50 mph wind. They used a system of 32 candlepower bulbs clipped to storage batteries as landing lights and marking the turn points on the dunes.



Fifty years ago: May 1960

The U.S. Team was announced: Richard H. Johnson, Richard E. Schreder, Paul F. Bikle with Team Captain Paul A. Schweizer. The contest will be at Cologne, Germany. A charter flight for SSA members and families is planned for the month of June.

Several complaints were received about the vote of the SSA Directors for recommendations to FAA for glider instructor requirements. Patrick Close suggested there is very little difference between the commercial and flight instructor certificates, it is expensive to obtain any rating, there is a lack of instructors, there would be no effect on the accident rate, and SSA would "stamp out soaring." John Smith commented that the recommendations would be "the prime factor in the growth termination of soaring." Zada Price stated the plan would do "considerable harm" to his club (Northwest Michigan Soaring Club) and he, a commercial pilot, will rush his last student, as the club "would be without an instructor very soon."

Twenty-five years ago: May 1985

Dick Johnson contributed two articles to this issue: The first "A Flight Test Evaluation of the DG-101G" and the second, "Turbulators: A Key to Performance Improvement?" Dedicated engineer that he was, Dick pointed out that test data are subject to uncertainties regardless of the method used.

The National Soaring Museum reports on a special exhibit for 1985 featuring "William Hawley Bowlus: A Man of Many Facets."

ANSWERS FOR CLIO'S WINGS

1. The GAL-49 *Hamilcar* was an enormous all wood cargo glider designed and built by the British firm of General Aircraft Ltd. for use during World War II. Front loading with a side hinged nose, it weighed 18,400 pounds and could carry up to seven tons of troops and/or cargo. It was the largest glider used by the Allies during the war.

2. The Brits gave the combat gliders names from ancient and classical history. Hamilcar was the Carthaginian Admiral who commanded their fleet in the First Punic War. He was defeated by the Roman Republic's fleet in 256 BC at the Battle of Cape Economus (today's Poggio di Sant'Angelo, Sicily), which was one of the largest naval battles in history.

3. It was kind of obvious. "When towing the glider the general performance will not be as good as that of the tug in normal free flight."

4. **A.** Loaded to "only" 25,000 pounds, the stall speeds went down to 53 mph clean and 43 mph dirty.

5. **True.** Although, depending on the tug, the maximum aero tow speed was between 140 mph and 150 mph IAS. However, the diving maximum speed was 190 mph.

6. The glider was designed as a tank-carrying glider. Just as a small bulldozer was designed to be carried in the CG-4, the British *Tetrach* and American M-22 *Locust* light tanks were specially designed to be carried in the *Hamilcar*. Neither tank would have stood a chance against a *Tiger* or *Panzer*, but they probably did the job they were designed to perform.

7. *Hamilcars*, carrying tanks, were used in several operations, including D-Day, Operation Market-Garden (Holland), and Operation Varsity ("Across the Rhine").

8. A. The tug pilot was considered the pilot in command under all conditions during the tow. If for some reason the glider pilot had to release, they had to first inform the tow pilot. This was primarily because of the change in the tow plane's pitch, which would result when the glider released.

9. The pilot and copilot sat in a tandem cockpit on top of the fuselage. The copilot had almost no view of the ground whatsoever either on the ground or in flight.

10. False. The forward portion of one, with stub wings, is on display in the glider room at the Museum of Army Flying, located at the Royal Army Air Corps Field, Middle Wallop, England.

SOURCES

"Battle of Cape Ecnomus," Wikipedia.
Pilot Notes for Hamilcar I Glider, 2nd Edition, A.P. 2219-A P.A. Air Council, London, c. 1942.

BADGES & RECORDS

BY JUDY RUPRECHT • SSA & FAI AWARDS

INTERNATIONAL FAI BADGES FOR SOARING

Earned or Recorded in the United States through March 15, 2010

SILVER BADGE LEGS

Altitude Gain: 1,000 meters (3281')
Brad Parlin; Jantar Std2; Logan, UT
Distance: 50 Km (31.07 sm)
Brad Parlin (See Silver Altitude)
Mark Violet; SGS 1-36; Reno, NV

A BADGES

Tyler Haunreiter-USAF Academy, CO
JL Sollender-Greenwood Village, CO
Andrew Westfall-Bouder, CO
Quinn Kettlewell-Locust Grove, GA
Hans A Lie-Nielsen-Hillsborough, NC
Josh Bauder-USAF Academy, CO
Trevor Lockhart-USAF Academy, CO
Nate Moyer-USAF Academy, CO
Richard Gates Bean III-USAF Academy, CO
Cole Wagner-USAF Academy, CO
Robert L Volsey-USAF Academy, CO
Jacob MacRae Ricks-USAF Academy, CO
Jeremy Grawon-USAF Academy, CO
Jamie LaRiver-USAF Academy, CO
Courtney Vidt-USAF Academy, CO
Zackery Williams-USAF Academy, CO
Joseph John Boben-USAF Academy, CO
Jason Breaux- USAF Academy, CO
Daniel Mosher-USAF Academy, CO
Robert Lenzen-USAF Academy, CO
Clayton G Macomber-USAF Academy, CO
Russell D Wilson-USAF Academy, CO
Andrew Michael Jardetzky-Los Gatos, CA
Nathanial T Swanson-Pensacola, FL
Travis Sebree-USAF Academy, CO
Dominic Michael Collins-USAF Academy, CO
Kallen Judah-USAF Academy, CO
John R Greenway-USAF Academy, CO
James Albano-USAF Academy, CO
Tyler K Hazel-USAF Academy, CO
Patrick Dennis Gill-Colorado Springs, CO
Justin Lennon-USAF Academy, CO
Kyle Alexander Smith-USAF Academy, CO
Hunter Van Stetsen-USAF Academy, CO

B BADGES

Tyler Haunreiter-USAF Academy, CO
Christopher Giacomo-Nelson, NH
John A Rowe-Yorktown, VA
Nathanial T Swanson-Pensacola, FL
Walter Connelly-Orlando, FL

BRONZE BADGES

2024-Charles Gore-Crystal Bay, NV
2025-Charles Waldo III-Wolcott, CT
2026-Elizabeth Ruth Maynard-Denton, TX

... SSA's FAQ "101 Questions About Badge & Record Flying" and the "SSA Guide to Badge & Record Procedures" are available at SSA.org, via "Soaring Achievement" and "Info & Resources" links. Both documents have been updated twice in the last year, in view of NEW Sporting Code Section 3 ("SC3") rules effective 1 October, 2009.

... The unexpurgated SC3, SSA's badge-related Summary and the new "Table of Soaring Performances" are also online at the links above, along with SSA's revamped badge application and Worksheet forms, and updated US National & State Record Rules.

Last year, SSA was on the receiving end of 396 such submissions, including a total of 584 individual claims for one or more FAI badge legs, SSA Awards, State, National and/or World records. As in 2008, fully 38% of the 2009 submissions received were initially placed on hold, while pilot and Observer were advised of applicable SC3 requirements and the remedial actions needed by a date certain – most often, the 6-month anniversary of the flight. Therein lay redemption for the vast majority of "holds," but no response was received regarding others.

The net result: 85% of claims submitted in 2009 were approved. As detailed in the box scores below, just under 5% of the claims submitted last year were denied per se and nearly 10% more died on the vine for lack of information sufficient to prove – or disprove – badge, record or award eligibility in compliance with SC3.

Claims Denied in 2009

... Flawed in-flight performance

9 Ineligible distance task or Way Point not achieved
2 Badge altitude gain not achieved
2 Loss of Height invalidates Silver/Gold duration

... Other flaws

9 *No valid pre-flight declaration
3 No pre-flight ID mark on barogram
2 Irredeemable data file security failure
2 CD data layer peeling; no other data file available

29 individual claims = 4.97% of those received

* 8 distance claims and 1 Diamond Altitude subject to the declaration requirements effective 1 October 2009

Claims placed on Hold in 2009

... 152 of 396 submissions were placed on hold pending corrective action requested of the Official Observer. In most cases, this enabled claim approval. No response was received regarding 41 submissions, with individual claims flawed by:

39 Application incomplete / unexplained anomaly
11 Data file security failure, possibly redeemable
5 Unclear/incomplete notations on barogram
1 Data file CD unreadable
2 Calibration needed & requested, not submitted

58 individual claims = 9.93% of those received

SOARING CALENDAR

CONTESTS and SPECIAL EVENTS

Sponsors are requested to submit details of their events for this calendar. The submission deadline is the 15th of the month, two months prior to the cover date (e.g. February 15th for the April issue). Send calendar listings to:
Calendar Editor - *Soaring* Magazine • P.O. Box 2100 • Hobbs, NM 88241-2100
Email: magazine@ssa.org

2010, Alby's Voyage began from the Pacific Ocean October 11, 2008. Pilots will take this albatross across America to the Atlantic Ocean. Check the adventures, or fly with Alby at http://albysvoyage.blogspot.com.

May 10-15 Region 9 South. Practice day May 9. Sponsored by Tucson Soaring Club. Contact Micki Minner 520-743-1556 or email mickiminner@msn.com.

May 13-16 36th Central California Soaring Club Camp, Avenal, CA. The 36th Annual Central California Soaring Club Camp is the perfect place to start the season. Friendly terrain, great soaring, and a fun club to make this event a classic. Contact Mario Crosina at 559-251-7933 or 559-977-9396.

May 16-22 Region 2 Contest. Practice day May 15. Sponsored by Karl and Iris Striedieck, Mifflin County Airport, Reedsville, PA. Contact Iris Striedieck 814-237-7996 or striedieck@psu.edu.

May 22 – 25 VSA Western Vintage / Classic Regatta. Mountain Valley Airport (L94). Tehachapi, CA. Tows available daily except Tuesdays from Skylark North (661-882-5267). Modern Camp Ground with facilities on airport. Other lodging nearby. Ravens Next Restaurant at Airport. Contact Josh Knerr at 661-912-2102 or VSANews@gmail.com.

May 24-29 Region 10 Contest. Practice days May 22-23. Sponsored by Memphis Soaring Society, Cherry Valley, AR. 18-Meter, 15-Meter, Standard and Sport Class. Contact Micki Minner, mickiminner@msn.com or 520-743-1556.

Third Annual Memorial Day Weekend Contest at Sky Soaring, Hampshire IL. May 29, 30, and 31. Two classes-Beginners and Advanced tasks. Great introduction to contest flying. Contact Geoff Weck at cell 815-354-4611 or home 815-344-2920, email weck@mc.net.

May 31-June 5 Johann Kuhn Memorial. Practice day May 30. Sponsored by Benz Aviation, LLC. Ionia MI. For information contact 616-527-9070 or email benzeast@benzaviation.com.

June 1-10 World Class Nationals. Practice days May 30-31. Sponsored by Bermuda High Soaring, Lancaster, SC. Contact Jayne Reid 803-475-7627 or soaring4fun@mindspring.com. Visit our website at www.glider.org.

June 2-9 1-26 Championships. Practice days May 31-June 1. Sponsored by Bermuda High Soaring, Lancaster, SC. Contact Jayne Reid 803-475-7627 or soaring4fun@mindspring.com. Visit our website at www.glider.org

June 7-12 Region 5 South. Practice days June 5-6. Sponsored by Mid Georgia Soaring Association, Cordele, GA. Contact Hartley Falbaum 770-985-8389 or hfalbaum@comcast.net.

June 7-11 Sixteenth Annual Air Sailing Thermal Camp, Air Sailing Gliderport, Reno, NV.

Contact Rob Stone 775-240-9461 or rstone118@charternet additional info www.airsailing.org.

June 13-18, 2010 Twenty-fourth Annual Air Sailing Cross-Country Camp, Air Sailing Gliderport, Reno, NV. Contact Dave Prather 530-748-7275 additional info www.airsailing.org.

June 13 - 21 Spring Fling and Glider Encampment - Sugarbush Soaring Association hosts a week of flying in the Green Mountains of Vermont. Daily wx briefings, cross country tasks, badges declared, x-c mentoring by local pilots, evening BBQ. No fee for those who would like to camp on the field for the week. Warren-Sugarbush Airport. Contact soar@sugarbushsoaring.com or go to our website at: www.sugarbushsoaring.com.

June 15-24 18 Meter Nationals. Practice days June 13-14. Sponsored by Caesar Creek Soaring Club, Waynesville, OH. Contact Linda Murray 513-897-7566.

June 15-24 Sports Class Nationals. Practice days June 13-14. Parowan, UT.

June 17 – 20 Fathers Day Weekend 2010, Fourteenth Annual Midwest Vintage / Classic Sailplane Regatta. Lawrenceville-Vincennes Airport (KLWV), Lawrenceville, IL. Tows available from Wabash Valley Soaring Association. Camping on the field. Motels and lodging nearby. Contact Dave Schuur at 618-584-3328 or via e-mail at dschuur@frtci.net.

June 21-26, Minden Cross-Country Camp, Minden-Tahoe Airport, Minden, NV. Sponsored by SoaringNV. Presentations, discussions, instruction, and dual flights available. Briefings and checkouts on cross-country soaring, oxygen use and aero medical factors. Bring your own glider or use our Duo Discus or LS-4. Contact Fred LaSor or Laurie Harden, SoaringNV, info@soaringnv.com or 877-2SOARNV (877-276-2768).

June 25 – 27 The Second Annual West Coast Fly-In will be held at Minden, Nevada. Activities will include flying, technical discussions, and camaraderie. Spectators welcome. SoaringNV, a glider FBO at Minden airport will again be the onsite host. We are also planning a Fly-Out after Minden to Cedar City/Parowan, Utah, to link up with the Auxiliary Sailplane Association's annual Camp & Contest. Contact Richard Pearl (pennyrich@aol.com) or Ray Buhr (jb92563@yahoo.com) for details. Updated information will be posted in the Yahoo group site: Touring_Motor_Glider_Fly-In. We will be arranging hotels and meals.

June 28-July 3 Region 8 Championships. Practice Day June 27. Sponsored by Seattle Glider Council Soaring Foundation. Ephrata, WA. For information contact 509-754-3852.

June 29-July 8 Open/Standard Class Nationals. Practice Days June 27-28. Sponsored by the Llano Estacado Soaring Society, Hobbs, NM. Contact Edre Maier at 307-672-5277.

July 5 TAGARs! (Truckee Airport Gliding Air Races!). Spectacular, challenging, funny, different. Racing circuit to be repeated three times in the beautiful and friendly Truckee Valley, collecting points at every lap, highest score wins. Handicapped, no entry fee. Spectators welcome, this race is for you to see and follow from the ground. Contact Sergio Colacevich, sergiocola@sbcglobal.net.

July 11-17 Warren-Sugarbush Airport in Warren, VT. Youth Soaring Camp. Ages 13-17. Daily flying and flight instruction. Ground school, hiking, swimming, camping on the field and other fun activities. For further information visit www.sugarbushsoaring.org, email soar@sugarbushsoaring.com or call Rick Hanson at 802-496-4478.

July 12-17, 2010 Air Sailing Sports Class Contest, Air Sailing Gliderport, Reno, NV. Contact Rob Stone 775-240-9461 additional info www.airsailing.org.

July 18-23 Wurtsboro Region 2. Wurtsboro, NY. Practice day July 17. Contact Warren Cramer or Dan Depew at 845-741-2354.

July 19-23 Women Soaring Pilot's Association Annual Soaring Seminar at Air Sailing, Reno, NV. Arrive by July 16 for special events before the seminar. Contact Neita Montague, President, Women Soaring Pilot's Association at neitalibelle@aol.com.

July 24-29 Region 9 North. Sponsored by Logan Cache Soaring. Logan, UT. Contact Micki Minner at 520-307-0174 or email mickiminner@msn.com.

July 26-31, Minden Cross-Country Camp, Minden-Tahoe Airport, Minden, NV. Sponsored by SoaringNV. Presentations, discussions, instruction, and dual flights available. Briefings and checkouts on cross-country soaring, oxygen use and aero medical factors. Bring your own glider for lead-and-follow or use our Duo Discus or LS-4. Contact Fred LaSor or Laurie Harden, SoaringNV, info@soaringnv.com or 877-2SOARNV (877-276-2768).

July 26-July 31, Central Texas Region 10. Llano, Texas. Practice day July 25. Sponsored by FaultLine Flyers. Contact Schaefer@faultlineflyers.org or 512-923-2755.

August 3-12 15-Meter Nationals. Practice days August 1-2. Sponsored by Uvalde Soaring Association, Uvalde, TX. Contact Kerry Huffstutler@sbcglobal.net.

August 7-8, 2012 Gerlach Dash, Air Sailing Gliderport, Reno, NV. Contact Bob Spielman 775-560-2406 additional info www.nevadasoaring.com.

August 14-22 Annual Safari. King Mountain Glider Park in Idaho. Sailplanes, Self Launching Sailplanes, Hang Gliders, and Paragliders are all welcome. Fly to Canada or Yellowstone and back. Wave Window. Campfire, Potlucks, Star Gazing, Hiking, Mountain Biking and Fishing. Free camping at the Glider Park just east of Sun Valley. Call John at 208-407-7174. Go to www.kingmountainglidерpark.com for directions and more info. See the pictures from last years Safari in our gallery.

September 4-6, 11-12, Region 5 West. Benton, TN. Practice days September 2-3. Sponsored by Chilhowee Soaring Association. Contact 423-338-2000 or email infor@chilhowee.com.

September 5- TAGARs! (Truckee Airport Gliding Air Races!). Spectacular, challenging, funny, different. Racing circuit to be repeated three times in the beautiful and friendly Truckee Valley, collecting points at every lap, highest score wins. Handicapped, no entry fee. Spectators welcome, this race is for you to see and follow from the ground. Contact Sergio Colacevich, sergiocola@sbcglobal.net.

September 20-25 Region 4 South. Practice day September 19. Sponsored by Blue Ridge Soaring Society. For information contact Patty Smith at 540-580-1434 or email patty2p@aol.com.

September 23 - 26, Wichita, KS. The 5th Great Plains Vintage / Classic Sailplane Regatta will be held at Wichita Glider Port, 2 miles east of Jabara Airport on the northeast side of Wichita. Weather permitting tows will be available all four days. Evening activities are planned at either the Glider Port or at nearby restaurants. There will also be a seminar on Saturday morning on a wide range of soaring and vintage gliding topics. Contact Neal Pfeiffer at nealpfeiffer@sbcglobal.net.

October 15 - 17, ("Early bird" arrivals Thursday, October 14), Eastern Vintage / Classic Regatta, Massey Aerodrome (MD1) 1.5 miles east of Massey, MD. Contact Rusty Lowry at 240-925-5683 or e-mail Lowry94@verizon.net. Airport information at 410-928-5270 or www.masseyaero.org.

LET US KNOW ABOUT YOUR UPCOMING EVENTS

Please submit material regarding your special event, plus contact information, to *Soaring* Magazine at your earliest opportunity. Please call 575-392-1177 or by email at magazine@ssa.org.

SOARING CLASSIFIEDS

SAILPLANE AND EQUIPMENT LISTINGS

NOTICE TO ADVERTISERS

The deadline for Classified listings is the 15th of the month for two months in advance. Soaring Classifieds can also be found online at: www.ssa.org.

DEADLINE FOR THE JULY 2010 ISSUE IS MAY 15TH

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HP-304-17 plus Cobra trailer. Both in excellent condition. No accidents. $66,000.00. Contact neumannpc@sbcglobal.net.

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1970 Libelle 201B, # 106. 1531 TT. Covered trailer, Strong 303 chute. Terra 720 radio, Borgelt audio vario. $9,500.00. 253-857-7344 or 253-973-8145 or email mvdreamtime@comcast.net. WA.

OBERLERCHNER

1964 Oberlerchner MG-23 SL. Beautiful classic built in Austria, refinished in 1995 and always stored in its custom trailer in hangers. Located in Lawerenceville, IL. $10,900 or $8,500 w/o trailer. Graves 708-481-1324 office or 708-638-2453 cell. IL

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1997 PW-5. 482 hours TT. NDH. Current annual. Excellent condition. Standard instruments, Borgelt B40 Vario, Microair 760 radio, boom mic, Borgelt B500 VE G meter. Always hangared. Beautiful metal top Cobra 15-Meter trailer. $28,000.00 Call Bob 615-519-1062 or Werner 615-512-4904 or email brich459@comcast.net. TN

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LS-8a. Competition ready. NDH, tow out gear. Kept in trailer in hangar. Many extras. $73,000.00. Contact Ray at gallowayp1@earthlink.net or call 919-735-5709. NC

LS-10a complete with 15M and 18M tips. Please contact Ed Hollestelle your Central North DG/LS Agent. 519-461-1464 or ed@solairecanada.com.

Planning your soaring vacation for 2010? For those last minute supplies, remember to check our Online Store or browse through the latest edition of Soaring Outfitters. For faster service, place your order by phone at 575-392-1177. Most major credit cards accepted.

SCHEMPP-HIRTH

Ventus 2cx, 2004, 550 hrs., NDH, Dittel FSG 2T with gooseneck mike, Ilec SN10, Borgelt 9v backup vario, Ipaq 3850 , 2 Cambridge GPS 20s I Cobra aluminum top, ground handling dollies and tow bar. $115,000 Sam Zimmerman, srz3@mindspring.com, 970 879 6330 cell 864 430 3435. SC

Ventus 2b. A delight to fly this nationals winner is in beautiful condition. Complete package includes lots of extras and TLC. One Owner. NDH. John Seaborn. 30-588-5747 Cell. See full details on the web http://home.comcast.net/~alphaeight. CO

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1989 ASW-24. 1403 hrs TT. NDH. 302 with PDA, Winter mech, vario, Dittel radio, FSG 17M, Oxygen and two batteries. Cobra trailer with solar battery charger. Asking $45,000.00. Call Jim at 707-987-3641 or email jim@crazycreekairadventures.com. CA

ASW-15, S/N 15039, 975 hours TT, Standard Airworthiness, gel coat. Near Muncie, Indiana, original Schleicher trailer, Colibri Version 3.01, Cambridge MK iV .CMP 150, Terra TX760. Contact dbnsoaring@ameritech.net for more info. $13,500. IN

SCHWEIZER

1968 Schweizer SGS 1-26D located in Athens, TX. $10,500. Call Marsha at 903-681-1944. TX

1-23B Exp. published in 27-1. 1600 hours. Open trailer. dhobel@verizon.net. NY

Do you have unused soaring related equipment? Pocket some extra cash by selling your merchandise with a Soaring Classified. Deadline for the July 2010 issue is May 15th. Call Mechelle and get your ad placed today!

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T. 51 Dart 17 R by Slingsby Sailplanes Ltd. in England. New in 1966 and one of the few in the United States. She is 37 LD and gorgeous to see. Several have made 500 out and back in England! I have owned "Clouddance" for 22 years and she only has 400 hours today! She comes with the original Slingsby wooden trailer. $16,000.00. Owner Bill Ogley, Cincinnati, OH. 513-248-4906 or email wvo@zoomtown.com. OH

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LAK-17A, LAK-19, LAK-20. Contact BLANIK AMERICA, INC., exclusive importer. blanikam@nwi.net or http://www.nwi.net/~blanikam/ba/lak.htm, 509-884-8305 or fax 509-884-9198 See our display ad.

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2002 DG-1000S. 125 TT, electric landing gear, Cambridge 302, Becker radio and Cobra metal trailer. $125,000.00. Contact Knute at 352-617-8049. FL

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SUPER XIMANGO, Several available, new and pre-owned. Call Ximango USA 386-760-4072 or XimangoUSA@aol.com. Website: www.XimangoUSA.com. FL

2005 Super Ximango AMT 200S 100hp. Like new inside and out! No damage history. Always hangared. 1100 hrs airframe, 500 hrs engine. Contact Manny Sousa, 850-539-5677, mannysfl@aol.com. or, Jerry Owens, 850-875-2598, jowens1824@tds.net. FL

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AMS Carat, 2003 with most factory options including polyurethane finish, winglets, GPS/302, Becker, solar, 02. One-man rigging and Cobra trailer. $125,000.00. AMS-USA 707- 942-5727. CA

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ANTARES 20E. 20m:56:1, 57 hp electric motor, Lithium batteries, integrated charging system; climb 8-9K AGL fully charged; simple operation; reliable in-flight restart; engineered crash protection; solo assembly. Cambridge 301; Becker radio; ELT; transponder; Cobra. Based Williams CA. Annual. $196K or best offer by June. bruce.mcnaughton@uleth.ca.

DG

Available DG1001M option. Delivery available. Your options! 519-461-1464 or ed@solairecanada.com.

PZL BIELSKO

SZD-45A OGAR Two seat, self launching, 27:1 glide, Lowtime, NDH, Dual radio.nav, Mode C, Digital CHT, Large Oxygen, Revmaster 2100TD. http://ogar.bravepages.comPrivatePilot/priplt.htm. $34,000 509-878-1292.

SCHLEICHER

ASH-26E, (N26WD) 850 hrs. TT, 29 hrs. on overhauled engine. Becker radio with head set and boom mike, Cambridge version 5.8 LNAV/GPS, dual varios, wing fuel tanks, wing water tanks, wingtips, Mountain High O2 system, Cobra fiberglass trailer, ground handling dolly and towbar, always hangared. Located in Colorado, $130,000. Contact: Val Dean, 720-935-5655, dino49@aol.com.

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Stemme VT. 011-038. Most options, trailer, low hours. $218,000.00. For information email starkbill577@gmail.com or martistarick@hotmail.com. CO

2002 Stemme S10VT # 11-073 with Cobra trailer. 55 hrs A/C TT, 11.5 hrs engine time, 5.5 hrs prop time. TSMO. Maintained exclusively by Rick Wright at Copper State Aero. Excellent condition. Contact Don at dburmingha@aol.com. LA area CA.

S-10 VT, 2000. 103 hours engine time. Very nice condition. NDH. All SB and AD up to date. Tail caster kit. O2 bottle. February 2010 annual. $210,000.00. Contact 423-543-1230. http://webstarts.com/N54br. TN

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1964 Weatherly AG plane that would make a nice tow plane. 240 HP W670 Continental engine. 295 hrs TT on engine 3292 hrs TT on airframe. Always hangared. $25,000.00. Have pictures and video available. Rick Spear 605-460-1233 or email flyboy69@yahoo.com. SD

Morane-Saulnier Rally. 180 hp, 1700 TT. 250 SMOH, new prop, slats, engine motor. Factory installed tow hook. $51,000.00. Contact 514-862-1216 or email marcarsenault@sympatico.ca. CANADA

INSTRUMENTS

GPS FLIGHT RECORDER CALIBRATION & BAROGRAPH CALIBRATION SSA Approved Category 2 Lab Quick Turnaround, Craggy Aero, 3901 River Court, Hornbrook, CA 96044 www.craggyaero.com 530-905-0062. CA

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Barograph and Flight Recorder Pressure Altitude Pressure Calibration. CH Engineering has provided the SSA Category 2 mobile calibration facility since 1989. CHE has all the cables, software, and manuals. Before you ship your instrument to CH Engineering, please phone or e-mail to me where to ship. I will answer your phone and email and attach a six page Informative Calibration Brochure. Cell 775-230-0527, Email carlherold@clearwire.net on standby at all hours. NV

REPLOGLE BAROGRAPH sales & service category 2 calibration service. Winter, EW & most non electronic baros. Joe Trinkwalder call 716-692-4326 or jtrinkw914@aol.com. NY

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SAILPLANE DEALERS

ALISPORT, Italian manufacturer of the Silent series of light sailplanes and self-launchers. Contact Leo Benetti-Longhini, authorized USA representative, at 931-434-3434. www.alisport.com.

STEMME GLIDERS, Bell Stemme is the exclusive US distributor. For further information contact Don Bell at 803-822-4114. www.BellStemme.com.

DIANA SAILPLANES is exclusive US & Canada distributor for DIANA 2. New generation sailplane for 15m racing class, tube type BPB trailer. Contact Jerry Zieba, 8051 N. Wisner, Niles, IL 60714. Website: www.dianasailplanes.com, email: jerryzieba@dianasailplanes.com, 847-384-1144 or fax 847-384-1154. IL

HpH Glasflügel 304CZ Sailplanes. New 304S sailplanes, 304S 18 meter (15 and 20 meter optional wingtips). Self-launch sailplane and exclusive HpH 304S JET Sustainer. Contact Wings & Wheels, 2049 Shadyside Rd., Lakewood, NY, 14750. 716-763-3213 or fax 716-763-3214. NY

JEZOW PW—6U /PW-5 sailplanes with durable polyurethane finish exclusively from CMYeates & Associates. Modern designs and technology plus Avionic trailers. Details from http://www3.ns.sympatico.ca/yeatesc/world.html or email yeatesc@ns.sympatico.ca or 902-443-0094. CANADA

Schempp-Hirth Sailplanes, contact US dealer and authorized US repair station M&H Soaring for information sales and parts call 607-796-4973, or 607-734-2346 or www.MandHsoaring.com.

SOLAIRE CANADA is now the DG & LS dealer for North East - North Central U.S. and Canada. For more information contact Ed Hollestelle Jr. or Sr. Phone/fax 519-461-1464 at Solaire Canada, 5356 Cobblehills Road, Thamesford, Ontario N0M 2M0, Canada. www.solairecanada.com.

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SZD GLIDERS, long tradition, built to last and outperform, SZD-50-3, Puchacz; SZD-51-1 Junior, SZD-55-1; SZD-59 "Acro." Authorized dealer for SZD and ZRIPS Marganski MDM-1 Fox for North America. www.windpath.ca. info@windpath.ca or 905-848-1250. CANADA

Alexander Schleicher Sailplanes USA dealer Eastern Sailplane, Contact John Murray for sales, parts and repairs John@easternsailplane.com or 513-897-5667 OH

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Composite Solutions has relocated to northwest Arizona! 30 years experience of structural repair and performance tuning of all makes and models of composite sailplanes. Visit our website at www.alphazulucomposites.com or email composites@mindspring.com. Phone 928-757-8698. Kingman, AZ.

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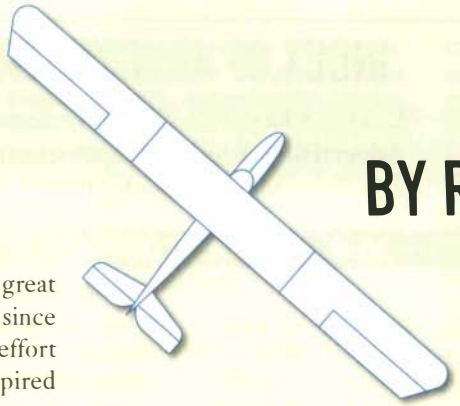
GEHRLEIN PRODUCTS. Quality fiberglass and metal repairs. FAA certified repair station GP1R174K. 9001 Hamot Road, Waterford, PA 16441. 814-866-1131. PA

CLIO'S WINGS

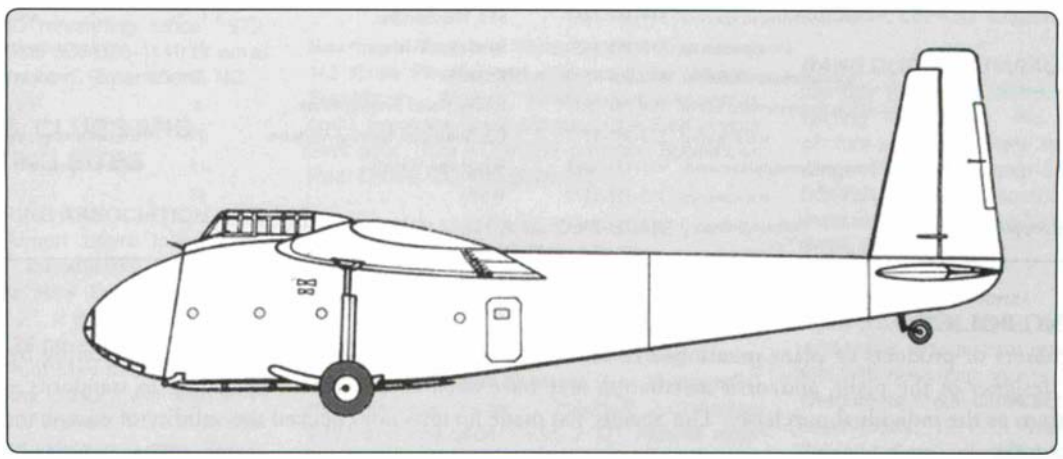


BY RAUL BLACKSTEN

Clio, the ancient Greek muse of history, has had a great interest in the history of gliding and soaring ever since Icarus and Dedalus first spread their wings. In an effort to foster an appreciation of that history, she has inspired the following quiz.

THIS MONTH'S TOPIC:

The GAL-49 Hamilcar



1. What exactly was the *Hamilcar*?

2. The Brits came up with some really odd names for their combat gliders, all starting with "H" by the way. They called one the *Hengst,* another *Horsa,* and they called the WACO CG-4 *Hadrian.* Where does the name for the *Hamilcar* come from?

3. What is the very first thing that the tug pilot was warned about in the flight manual when towing a fully loaded *Hamilcar*?

4. What was the IAS stall speed of a *Hamilcar* loaded to 36,000 pounds gross, flaps up (clean) and flaps down (dirty)?

A. 64 mph clean, 52 mph dirty
B. 45 mph clean, 45 mph dirty
C. 75 mph clean, 60 mph dirty
D. 100 mph clean, 90 mph dirty
E. 35 mph clean, 25 mph dirty

5. The recommended towing speed for the *Hamilcar* depended upon the aircraft used as the tug, but in all cases was between 120 and 135 mph IAS. TRUE or FALSE

6. Why in the world would such a big glider have been built? Wouldn't smaller gliders like the CG-4 have done just as good a job and not been nearly as vulnerable?

7. The Germans almost never used their own gargantuan gliders, the *Gigant* and *Mamut*, because they were too difficult to tow, were the *Hamilcars* ever actually used under combat conditions or were they limited to training exercises because they were just too big for combat? Or were they just too big to fly at all?

8. When the time came for the *Hamilcar* to release from the tug, who made the decision?

A. Tug pilot.
B. Glider pilot.
C. Neither
D. Both the tug and glider pilots had to agree
E. Either one depending upon the situation

9. In the CG-4, the pilots sat in the nose of the glider, which would flip-up for loading. The *Horsa* pilots also sat in the nose, but the glider had a side door for loading. The entire nose of the *Hamilcar* swung to the side for loading, so where did the *Hamilcar* pilots sit?

10. Unfortunately, today all *Hamilcar* gliders have been destroyed and we will never again be able to see just how big this monster was. TRUE or FALSE

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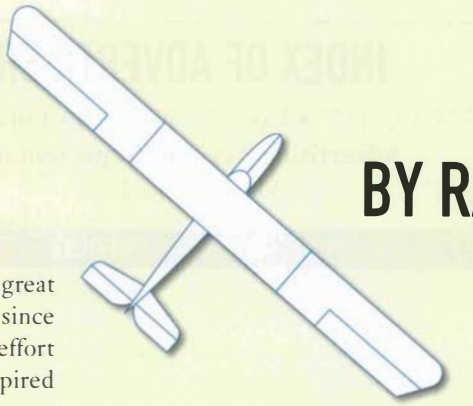
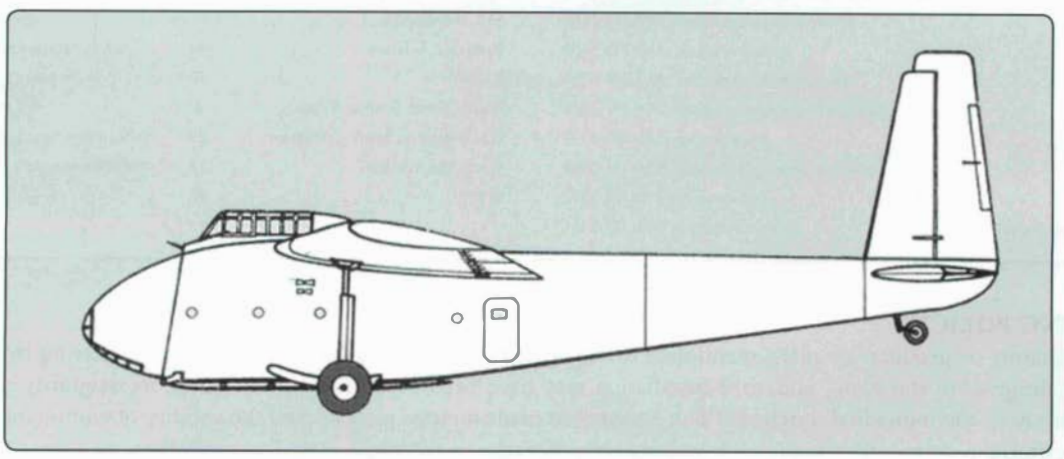


BY RAUL BLACKSTEN

Clio, the ancient Greek muse of history, has had a great interest in the history of gliding and soaring ever since Icarus and Dedalus first spread their wings. In an effort to foster an appreciation of that history, she has inspired the following quiz.

THIS MONTH'S TOPIC:

The GAL-49 Hamilcar



1. What exactly was the *Hamilcar*?

2. The Brits came up with some really odd names for their combat gliders, all starting with "H" by the way. They called one the *Hengst,* another *Horsa,* and they called the WACO CG-4 *Hadrian.* Where does the name for the *Hamilcar* come from?

3. What is the very first thing that the tug pilot was warned about in the flight manual when towing a fully loaded *Hamilcar*?

4. What was the IAS stall speed of a *Hamilcar* loaded to 36,000 pounds gross, flaps up (clean) and flaps down (dirty)?

A. 64 mph clean, 52 mph dirty
B. 45 mph clean, 45 mph dirty
C. 75 mph clean, 60 mph dirty
D. 100 mph clean, 90 mph dirty
E. 35 mph clean, 25 mph dirty

5. The recommended towing speed for the *Hamilcar* depended upon the aircraft used as the tug, but in all cases was between 120 and 135 mph IAS. TRUE or FALSE

6. Why in the world would such a big glider have been built? Wouldn't smaller gliders like the CG-4 have done just as good a job and not been nearly as vulnerable?

7. The Germans almost never used their own gargantuan gliders, the *Gigant* and *Mamut*, because they were too difficult to tow, were the *Hamilcars* ever actually used under combat conditions or were they limited to training exercises because they were just too big for combat? Or were they just too big to fly at all?

8. When the time came for the *Hamilcar* to release from the tug, who made the decision?

A. Tug pilot.
B. Glider pilot.
C. Neither
D. Both the tug and glider pilots had to agree
E. Either one depending upon the situation

9. In the CG-4, the pilots sat in the nose of the glider, which would flip-up for loading. The *Horsa* pilots also sat in the nose, but the glider had a side door for loading. The entire nose of the *Hamilcar* swung to the side for loading, so where did the *Hamilcar* pilots sit?

10. Unfortunately, today all *Hamilcar* gliders have been destroyed and we will never again be able to see just how big this monster was. TRUE or FALSE

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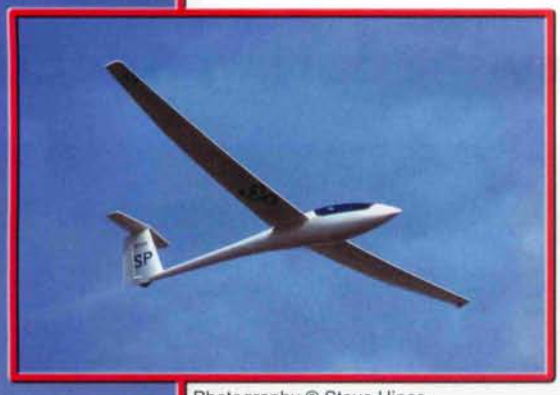

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