SPORT Aerobatics

March 2014

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

SPORT Aerobatics

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The Borrego Springs aerobatic box is known as the "World's Greatest Aerobatic Box."

—Gary DeBaun

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Nationals 2013.

SPORT Aerobatics
OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

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REGGIE PAULK
COMMENTARY / EDITOR'S LOG

Summer Flying

Anticipating the beauty of flight

As these cold winter months drag on here in the Rocky Mountains of Colorado, and the howling winds fill my hand-shoveled trail to the wood-fired boiler, I yearn for the mild months of spring and even the sweltering heat of summer. It is during these times I'm most reminded of my warm-weather flying experiences.

In the summer of 1996, I had the privilege to fly some family members to Calgary, Canada, in a 1976 Piper Aztec . . .

In the summer of 1996, I had the privilege to fly some family members to Calgary, Canada, in a 1976 Piper Aztec (the year of my birth) with normally aspirated Lycoming IO-540 engines of 250 horsepower each. We started our day at dawn, leaving the Front Range airport, located just southeast of Denver International Airport, on an instrument flight plan in order to transit the Denver Class B airspace (recently renamed from the Denver TCA) for a more direct route to Calgary. Our first leg of the trip would take us to Billings, Montana, for fuel and food.

Arriving in Billings mid-morning, a check of the weather showed massive buildups of cumulonimbus all over the state, and I decided to stay in Billings to see if the weather might subside. Many hours later, there appeared to be a break in activity, and we pointed the nose to Cutbank in order to refuel and warn Canadian customs we were coming.

The flight to Cutbank was one of the more beautiful I can recall making. Under a high ceiling of cumulus, we flew over the spectacular scenery of Big Sky country—the rains that summer had turned the grasses into a vibrant green, and they covered everything! By the time we arrived at Cutbank, a wild thunderstorm had developed and threatened to close the field. I landed in a gusty crosswind that challenged the limits of that wonderful Aztec, but it was great fun. The storm blew in just as we were entering the terminal. We would have to wait until well past dark to blast off to Calgary.

The flight to Calgary was one of my easiest legs. Landing at close to midnight, after a day spent waiting and dodging weather, we were directed to the customs building by the tower. I got out of the airplane, called customs on the phone, was given a number to place prominently in my windscreen, and told to enjoy my stay in Canada—no one even came out to greet us at the airplane!

Of course, I forgot to mention the Ford Fury and the skunk—but that's for another time! *IAC*

Please submit news, comments, articles, or suggestions to: *reggie.paulk@gmail.com*

NEWS BRIEFS

Call for IAC Non-Flying Award Nominations

Each year, the membership of the IAC nominates outstanding volunteers to be recognized for their contribution to the sport of aerobatics.

This is an excellent opportunity to give recognition to an outstanding IAC member who spends their valuable time volunteering for the benefit of many. Let's recognize our unsung heroes!

Use this link *https://www.iac.org/award-nomination-form* to make an on-line nomination. You can nominate your fellow IAC'ers for one of the five non-flying awards listed:

- Frank Price Cup

Purpose of the award is to recognize the person who has contributed the most to the sport of aerobatics in the previous year.

- Robert L. Heuer Award for Judging Excellence

Member Sam Burgess of San Antonio, Texas conceived the idea for presenting a trophy to the outstanding aerobatic judge each year.

- Kathy Jaffe Volunteer Award

This award recognizes an outstanding volunteer during the previous year.

- Harold E. Neumann Award for Outstanding Contribution as a Chief Judge

The family of Harold E. Neumann provided the permanent trophy in 1998 to recognize the outstanding chief judge.

- Curtis Pitts Memorial Trophy

The purpose of this award is to recognize an outstanding contribution to aerobatics through product design.

A detailed description of all the non-flying awards can be found here:

https://www.iac.org/legacy/non-flying-awards

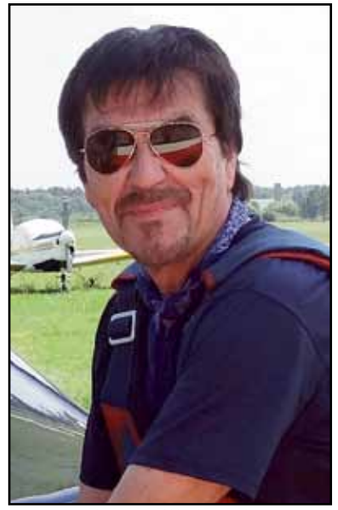
Deadline is June 30, 2014 for nominations of volunteers who will be recognized for their efforts in the 2013 flying season.

Webinars are now available any time!

IAC members have presented quite a few web-based seminars through EAA. You can now access those recordings whenever you like through our new page: *www.iac.org/webinars*. (Or go to *www.iac.org*, then click on Pubs/Archives and Webinars.)

Thanks to Lorrie Penner for her work on setting up the web page, and organizing the original webinars themselves.

Sunrise Aviation Creates Reinaldo Beyer Scholarship


REINALDO BEYER

An annual award dedicated to the memory and accomplishments of Reinaldo Beyer, physician and pilot, has been set up in his honor.

Scholarship details:

This award is created with the goal of encouraging and supporting a lifelong pursuit of aerobatic flight excellence. The award will be made annually to the pilot who best demonstrates a strong and continuing affinity for aerobatic flight.

The annual scholarship award is endowed to a minimum of $1,250 by Sunrise Aviation. The total annual award will vary with additional contributions received over the course of the preceding year.

The award will be made in the form of a training deposit at Sunrise Aviation.

The selection committee may choose to select more than one pilot for the annual award if the total endowment in any given year exceeds $2,500.

Applicant requirements:

- private pilot and above, certificated in the United States
- previous flight experience that includes professional spin and upset recovery instruction.
- Apply at Sunrise Aviation in person, by mail, or by e-mail dis*patch@sunriseaviation.com*.

19531 Campus Drive, Suite 7
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Sun N Fun Aerobatic Speakers Schedule

April 2-5


Patty Wagstaff


Greg Koontz


BRADY LANE


Johnny White


Jim Alsip


Allen Silver


Jim Taylor

Wed. April 2	
11am	Patty Wagstaff – *Aerobatics - Why get into competition?*
12pm	Greg Koontz – *Rolls-if you have a good roll you have aerobatics figured out*
Thur. April 3	
11am	Johnny White – *The Tail Wheel. Its design, installation, maintenance and HOW TO USE IT!*
12pm	Jim Alsip – *'Oh Shucks!' Moments: Stall, Upset and Spin Recoveries*
Friday, April 4	
11am	Allen Silver – *Emergency Bailout Procedures and Survival Equipment for Pilots*
12pm	Greg Koontz – *The five tools in the tail wheel pilot's toolbox*
Saturday, April 5	
11 am	Jim Alsip – *Artistry of the Great Flyer: Two Fundamentals to Master*
12pm	Jim Taylor – *Stick and rudder exercises that will improve your flying*

IAC™

Notice: As this issue was going to print, we learned that Zaon had ceased operations as of November, 2013. However, we felt the points raised in the article are worth considering - Ed

Electronic Collision Avoidance

BY EDDIE RUHL
IAC #8778

The subject of midair collisions, or more accurately, the avoidance of midair collisions, is one that is always of concern to any pilot, but a recent midair suffered by a member of our local chapter, while practicing in a waivered practice area, has caused increased discussion here in the crowded Northeast.

When I moved to the Philadelphia area, after having lived all over the country, I was impressed with the level of air traffic. It was obvious that to rely on the "big sky" theory to protect you from midair collisions, if unwise in other areas, was downright nuts around here. As VFR pilots we live by "see and avoid," and most of us work hard to maintain an effective scan, but the cold reality is that even the best of us don't see all the traffic that is out there. At common GA speeds, the amount of time that is realistically available to see an oncoming airplane in a head-on approach is about 20 seconds. Flying an aerobatic sequence, with all the sudden changes in direction and altitude, puts even more complexity into the situation. If there is anyone who has flown for very long, who cannot think of a time when an airplane seemed to suddenly appear out of nowhere, I would be very surprised.

At common GA speeds, the amount of time that is realistically available to see an oncoming airplane in a head-on approach is about 20 seconds.

Several years ago I bought a Christen Eagle and got back into competition after a long hiatus. I was used to using traffic collision avoidance systems (TCAS) at work, but I knew it wouldn't be an option in my Eagle. I looked around to see what, if anything, was available that would fit into my budget—and my airplane—that might give me an assist in picking out traffic. I settled on the Zaon MRX, and while it is a system with limitations, it also has some great qualities and I am absolutely convinced it saved my life once.

The MRX is what Zaon calls a portable collision avoidance system (PCAS). It is small, about the size of a deck of cards, and can be powered by two AA batteries or connected to a 12-volt power adapter plugged into what we old geezers still call "the cigarette lighter hole." It has gone up in price some since I bought mine but is still relatively inexpensive at under $500. It requires a small antenna that can be mounted either on the side of the unit or attached to the inside of a canopy with suction cups. And, as the name implies, it is portable and can be easily moved from plane to plane. To explain how it works, perhaps the best way to start is to say what it is not.

The MRX is not TCAS. TCAS is an active system that sends out an "interrogation," just like ATC does, and the transponders on our aircraft then reply and send back information on our position and altitude. The TCAS then receives, interprets that information and, using its computer brain, even tells the pilot of the TCAS-equipped aircraft which way to climb or descend in order to avoid a midair. I would love to have that in the Eagle, but for many reasons, that's not realistic.

The MRX, on the other hand, is a totally passive system. It sends out no interrogation but "listens" for the replies that all the other transponders in the area are sending out when they are interrogated by ATC, TCAS, or any other active system. The MRX then takes all that information and, using its own powerful little computer brain, analyzes which traffic is the greatest threat and displays that information for the pilot. While it can track and remember multiple targets, it only displays the one it considers the highest threat. What the pilot sees on the display is the range of the threat aircraft, its altitude relative to the PCAS-equipped aircraft, and whether the threat aircraft is climbing or descending. It does not show azimuth, as TCAS does, so if you want to find that aircraft visually, you must look in all quadrants. If the situation changes and a different aircraft becomes the biggest threat, the PCAS will display "NEW" and then show the new threat's information.

When I'm practicing a sequence I don't want to spend a lot of time even glancing at a display in the cockpit, and happily, the PCAS caters to that preference by including an aural alert. The PCAS comes with audio cables that allow you to plug your headset into the system and hear beeps that notify you when there is traffic that the MRX thinks really deserves your attention. Two beeps are what Zaon calls an "advisory," four beeps are an "alert." I won't go into the details here of what criteria the MRX uses to differentiate these, that would be beyond the scope and if one is interested that information can be found online. Suffice it to say, when it beeps, I look.

Now, limitations. As previously stated, no azimuth information is displayed, and sometimes that is annoying because it would be really nice to narrow your search so you can find that traffic and get back to practicing, but if you want that feature, you're going to have to go for a much more expensive and physically larger system.

Also, the MRX, being totally passive, will not "see" any aircraft if there are no interrogations. With all of the ATC and TCAS interrogations going on around my area that probably never happens, but a couple years ago my

wife and I were flying up the California coast to Oregon in a light twin with one of my old Air Force buddies. We were 300 feet off the water all the way, and somewhere around Eureka we had a head-on pass with a Super Cub that the Zaon never picked up. I saw it in time to evade because I was doing what we are supposed to do, looking out the window, but the Super Cub never even twitched so I assume he never saw us. My wife wanted to know if my new Zaon toy had detected that Super Cub. I had only gotten started explaining to her that we were both down in a radar shadow where there were no interrogations when she stopped me to sternly admonish us both, "More looky looky, less talky talky!" That illustrates the "no interrogations" limitation nicely.

In order to eliminate false alarms the MRX always requires two replies to be observed before it considers any target to be real. I don't know if that is the reason, but often I will get an advisory beep and see the traffic just passing, too late to really have been of any help. That happens, and I know that is just further proof that this system is not perfect, but as the saying goes, you don't want to let perfect be the enemy of good. There are also many more occasions when I see traffic displayed, put in an extra scan, and pick it up visually in plenty of time to be of use. And then there was that one time. Earlier I mentioned that I am convinced the Zaon MRX saved my live once. I was out practicing on a beautiful, clear day, was right in the middle of a sequence, and was just about to pull vertical. My muscles had already tensed and started to pull the stick when I got an "advisory," two beeps. I paused in the pull for just a nanosecond and glanced at the display, which showed traffic one mile away and 1,000 feet above me. Annoyed at the interruption I briefly considered going ahead and just looking for the traffic as I pulled, but good sense prevailed and I relaxed the stick and began to look for the traffic. In less time than it has taken you to read this sentence, a bizjet, 1,000 feet above me, passed straight down my longitudinal axis from fore to aft. If I had continued that pull to vertical, we would almost certainly have met. He may have even seen me. Surely he had TCAS so it is likely he knew where I was, but then, we do weird things like pull vertical, which other pilots do not expect.

Another possible limitation is the fact that the MRX logic looks at altitude as the first factor in whether there is a conflict and which traffic is the biggest threat. The reasoning is that no mid-air can occur unless both aircraft are at the same altitude. That is very reasonable for cross-country operations, but we in the IAC do change altitudes rather more abruptly than is normal for most operations so I'm not sure the MRX always quite knows just what is the most serious threat for us. Nevertheless, the altitude thresholds for detection and alerts are large enough so that this should not, generally, be a problem.

Zaon also will not see any aircraft that does not have an operating transponder. We do have a lot of antiques and gliders in my area, and no collision avoidance system I know will pick those up. But, on the plus side, I should mention that, even if you do not have a transponder in your aircraft, the MRX will still work for you as long as the other aircraft does have one.

So the MRX in no way replaces your own vigilance outside the cockpit. No system does. But the way I use it is as a supplement to that visual scan. When I'm practicing I glance at the display before I start a sequence to see if there are any aircraft within the detection range, and if I get a beep while I'm practicing, I pause to check the display and see if I need to interrupt my practice and look hard for this one. Sometimes I never acquire it visually, but I can monitor it and I can see that it has passed and is getting farther away until it passes out of the 5-mile detection range.

Time passes and technology keeps advancing at a seemingly ever-accelerating pace. There are new systems associated with ADS-B that may provide the next generation of collision avoidance aids at comparable prices. I look forward to that next advancement that will provide an even better tool, but for now my Zaon is doing good work. IAC

So the MRX in no way replaces your own vigilance outside the cockpit. No system does. But the way I use it is as a supplement to that visual scan.

MEMBERS: YOUR VOTE IS NEEDED

IAC needs your help to correct an error in the revised by-laws approved by the membership in 2013.

Those by-laws contain a clerical mistake that changes the years in which directors are elected. We're not permitted to "just fix" this; we need membership approval to do so. Every member may vote for or against this correction, online or by mail.

We encourage you to vote via the web. Do so by logging in to www.*iac.org*, then click the "Members: Please Vote" link found in the right margin. If you don't have (or have lost) login credentials, email *webmaster@iac.org*.

If you're unable to vote online, you may fill out, stamp and return the ballot card insert found in this issue of Sport Aerobatics. We must receive your ballot no later than **April 10, 2014**.

Please find further details online and on the ballot card.

The Article He Could Not Write

Avoiding the pitfalls of dehydration

BY ANNE-MARIE LUNDE-DONNENFIELD
AS TOLD TO PENNY FIELD

[Editor's Note: NTSB probable cause summaries—especially for light airplane accidents—leave a lot to be desired when more information might be helpful to the pilot population at large. Read the NTSB's summary of this accident, and then read the Mrs. Lunde's story of the days leading up to the accident. You be the judge.]

Excerpt from NTSB file number: ERA12FA345

"Several witnesses reported the pilot was conducting aerobatic maneuvers over the Gulf of Mexico. The airplane initiated a loop between 300 to 500 feet above the water. At the top of the loop, while inverted, the airplane started the descent; however, the airplane was too low to recover. The airplane collided with the water in a nose-down, left-wing-low attitude. There was no noticeable change in engine noise during the accident sequence. Examination of the airframe, flight controls, engine assembly and accessories revealed no anomalies.

According to the pilot's wife, for the 4 days leading up to the accident, the pilot had symptoms of a cold and was prescribed Amoxicillin, an antibiotic which treats infections. On the day of the accident, the pilot did not complain of or was not known to have any issues with light headedness or dizziness. Based on this information the pilot did not appear to have a medical condition that would have contributed to the accident and witness accounts indicated the pilot was maneuvering the airplane until impact with the water.

According to the operating rules section of 14 Code of Federal Regulations Part 91, which defines the restrictions on aerobatics, no person may operate an aircraft in aerobatic flight below an altitude of 1,500 feet above the surface.

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's decision to conduct aerobatic flight at a low altitude, which resulted in a collision with the water."

JP Lunde with his 1986 Pitts.

My husband, JP, was dedicated to his family, to flying, and to staying fit. As a pilot for a major airline, he had to overcome the long cockpit hours and airline food by converting his layover hotel room to a workout facility and by packing healthy snacks. At home he would undertake high intensity DVD workouts, play tennis, and enjoy healthy home-cooked meals. In 2011, his two greatest wishes came true: on Father's Day his first child, a son we named Landon Avion, was born, and in August he found and purchased his first plane, a 1986 Jimmy D Shepard Jr. Pitts Model S-1D biplane. To ensure his proficiency, he trained with the most experienced and capable instructor to be found. He built his routines in the single-seat aerobatic plane from 10 minutes to around a half-hour, the better to entertain the onlookers who would come out to watch his performance whenever they heard the roar of his engine. One man nicknamed him "the Red Baron," applauding JP's feats in his striking bright red and white flying machine.

My husband was of a rare breed that made goals with the intention of reaching them, which he did. It was his eventual plan to complete the many hours it would take to qualify as an air show performer, and he did win the one aerobatic competition that he entered. To those who knew him and to me, his positive and assured manner made him invincible. I never could have conceived for one moment that the circumstances could exist that would contrive to so affect his piloting abilities that he would crash that plane and abruptly end his life. Had we known what I believe to know now, he would not have made that fatal flight. Now I wish for every pilot to hear his story and to heed the circumstances that might have prompted his death.

On May 12, 2012, JP returned home from work. Shortly thereafter he experienced headaches, then a sore throat, progressing to a bad cold that lasted several days. Still fighting a bad cold, on May 17 he returned to work. The next day, just prior to his final scheduled flight for the day, a pain pierced his bloodshot eye and streaming tears ensued. His crew captain suggested he go home, to which JP agreed. The next morning, Saturday, May 19, he went to an urgent care clinic and was diagnosed with acute bronchitis. He was given a prescription of AMOX TR-K CLV, 875 milligrams (mg) amoxicillin and 125 mg clavulanic acid tabs, a medication that was approved as safe for use while piloting. He took the medication and proceeded to cut the lawn in the formidable Florida heat. JP had trouble falling asleep that night, only slept for a few hours, and awoke with pajamas that were sweated through. Although JP felt unwell, he joined his family for a brunch outing and played on the beach with his son. Around 4:30 p.m. he went to work on his plane, saying it would take 15 minutes, but, in fact, working on the craft for the next five hours. The un-air-conditioned hangar was hot, and he probably did the job without food or water. He returned home at 9:30 p.m., eating a late dinner of macaroni and cheese.

That Sunday night JP slept well and for the full night. The next morning he was feeling better, and he began the day with breakfast and coffee. He then experienced two episodes of severe diarrhea that he thought was due to the macaroni and cheese dinner; however, had he read the medication warnings, he would

have learned that diarrhea is a possible side effect of AMOX TR-K CLV. Because JP had been sick and under a heavy work schedule, he had not flown the Pitts for almost a month, and was determined to fly his airplane that morning. When I asked him not to do it, he told me that it had been a while since he had taken up the plane, and he must fly to keep his skills up. He said if he did not fly, it could become too dangerous to fly.

I relented when JP told me that he would fly whether or not we came to watch him. I got Landon ready to go, then joined my parents, plus my uncle who was visiting from England, and we all drove to the park on the Gulf Coast where JP routinely put on his air displays. Just before JP took off, we spoke by cellphone, and he mentioned that he had to use the bathroom again.

Once JP was in the air, I immediately observed that his aerobatic maneuvers were not smooth and defined as they normally would be. It was as though a drunken person was at the stick, his maneuvers even breaching his "aerobatic box" of safety. In the past his routines looked confident; his moves were aggressive, but in control. This day his maneuvers seemed haphazard and hurried. It looked like he was rushing from move to move. About 15 minutes into his routine a maneuver concluded at an alarming altitude below his "aerobatic box" as follows. First he pulled the plane up with a climb, leveled out, then proceeded higher with a second climb; after which he stalled and went into a spin that lasted so long the plane approached the water. His last two actions, which were done at dangerously low altitudes, were totally out of sync. In the first maneuver, he put the plane into an awkward looping motion that nearly put him in the water. He then pulled up hard, shot straight up, stalled again, and went into a steep spiral dive toward the water. Bushes prevented my view of the impact, but I saw the huge upward splash of water. My dad, who

JP Lunde with his wife, Anne-Marie, and their son Landon.

is taller, tells me that JP tried at the last second to pull up, but his effort was made too late.

It seemed to take forever before emergency services arrived, and JP was in the saltwater for a long time, more than an hour. Landing in saltwater would impede the testing options that could help us understand what happened to JP.

This tragedy made no sense to me! I had to find out what had caused my husband to fly so haphazardly. A fellow pilot, a friend of JP's who had done some aerobatic flying, said that dehydration could have been involved. I did an Internet search coupling "dehydration" and "aerobatic flying" and found CAAP 155-1, AEROBATICS, Civil Aviation Safety Authority, a PDF file at www.CASA.gov.au. This is a Civil Aviation Advisory Publication composed in Australia and published in January 2007. The study was undertaken because five out of six fatal accidents that occurred during the period under study "were due to loss of control while performing aerobatic manoeuvres." The publication's introduction continues, "One possible significant factor in aerobatic accidents is that the high G forces experienced in aerobatic manoeuvres can result in loss of consciousness (G induced Loss Of Consciousness or GLOC), with or without prior warning symptoms, and this condition may not be widely understood by pilots."[1] "One G (gravity force) is an accelerative force equivalent to the force of gravity at the earth's surface."[2]

Further research brought forth another Australian report, The Possibility of G-Induced Loss of Consciousness (G-LOC) During Aerobatics in a Light Aircraft (Research Report 872-1017) by the Bureau of Air Safety Investigation. It explains, "Acceleration in the vertical axis is referred to as Gz, and is the principal consideration in the G-LOC phenomenon."[3] "G-LOC is due to the reduced flow of blood to the brain when the magnitude of Gz passes beyond . . . the G-LOC threshold. Before the G-LOC threshold becomes a critical factor, a physiological reserve period of 3-5 seconds exists, after which, at the G-LOC threshold, neurons fail to function in the absence of the oxygen replenishment provided by the normal blood flow. Visual symptoms of grey-out followed by black-out . . . often precede G-LOC. These occur as the arterial blood flow to the retinae of the eyes is progressively reduced. Grey-out is a partial loss of vision, commencing with peripheral vision, while blackout results in total loss of vision. … It is not well known that quite moderate rates of Gz onset sustained for longer than the body's physiological reserve period may result in instantaneous loss of consciousness if the G-LOC threshold is exceeded within this time. Loss of consciousness will then occur without the prior visual warning symptoms of grey-out or black-out."[4] In the CAAP article, paragraph 4.10, it states, "In a GLOC event, there will be a short period of total incapacitation where the pilot is completely unconscious, followed by a recovery period of relative incapacitation where the pilot has regained consciousness but is in a confused state and unable to control the aircraft. However, after recovering sufficiently to regain control, there is likely to be a longer period before full normal functioning and situational awareness returns. GLOC in flight normally results in the pilot relaxing the control forces and therefore reducing the G force, so that the actual duration of loss of consciousness may only last, on average, for about 15 seconds. The following period of relative incapacitation may last another 15 seconds but could be up to 50 seconds. Full recovery may take several minutes, during which time the pilot will be functioning below normal ability and may be more susceptible to another GLOC episode. A particularly insidious aspect of GLOC is that it can often occur without the pilot subsequently being aware of it. Centrifuge studies have shown that 50% of pilots do not recall a GLOC event."[5] In the article G-LOC, Could It Happen To You?, Dr. Dougal Watson warns, "Anyone who pulls G could suffer G-LOC . . . . You are not immune! . . . Even unlimited aerobatic competition pilots who've been 'doin' it for years' are not immune."[6]

CAAP paragraph 4.19 details the "Physiological Factors Adversely Affecting G Tolerance." "Pilots can build up their tolerance to G with practice, but need to be aware that tolerance levels that have been established can be significantly reduced by various factors affecting their physical condition."[7] Of the 15 items listed, JP's condition could have been affected by five of them. First is dehydration. "Studies have shown that dehydration can reduce G tolerance by up to 50%."[8] In the article Thirst and the Drinking Pilot, Dan Johnson warns, "The few studies on dehydration and mental performance show that mental acuity and coordination are already decreasing at 1% dehydration, and are consistently and significantly decreased at 2%." Since "thirst begins at 2% dehydration", . . . "thirst is a reliable sign that you are actually impaired. It is a sign that you should not get into an aircraft right now."[9] The morning of May 21 was already a hot day. That morning JP had had multiple incidents of diarrhea, a major cause of dehydration. He also had an illness that brought on sweating, the exposure to high heat while doing yardwork, and the many hours spent working on the plane in a hot and humid hangar, all of which led to sweating, another primary cause of dehydration. I believe the level of dehydration could have actually impaired JP's judgment that morning when he insisted upon flying. Other factors listed by CAAP that JP should have considered are fatigue, illness, and medications. Dr. Dougal Watson's article points out, "General health plays an important role in your tolerance of Gz. Any illness even a minor 'cold' or 'Gastro' will reduce your G-tolerance significantly. Adequate rest is essential to maintain a maximal G-tolerance. Similarly any medication has the potential to reduce this tolerance. . . . Caffeine can also have a detrimental effect of G-tolerance."[10] Finally, both Dr. Watson and CAAP stress that the "lack of recent aerobatic practice will also reduce a pilot's G tolerance and pilots returning to aerobatics after some time away will need to check and then gradually re-establish their tolerance level." [11]

Had JP been fully apprised of the nature and causes of G-LOC, I believe he would not have made his flight on that fatal day. I cannot be certain that he did lose consciousness, and due to the saltwater no test could confirm or suggest G-LOC, but it is the only scenario that conforms to my observations.

Good pilots are trained to be methodical and exacting. The aircraft and the logbook must be maintained; the plane must be checked out prior to every flight. I now hope that every pilot who reads this article will be even more exacting and methodical when considering his or her own physical state, and conduct a personal preflight checkout accordingly. It could save your life. IAC

All of the articles quoted were found on the Internet. The articles are listed first, followed by the relevant footnotes.

CAAP 155-1, AEROBATICS, Civil Aviation Safety Authority, a PDF file at www.CASA.gov.au. This is a Civil Aviation Advisory Publication composed in Australia, published in January 2007. Introduction, "Why this publication was written. "Paragraph 2.5, "Gravity (G) Force. "Paragraph 4.10.1 to 4.10.4, "G Incapacitation."(7) and (8) Paragraph 4.19.1, "Physiological Factors Adversely Affecting G Tolerance."
(11) Paragraph 4.19.3, "Physiological Factors Adversely Affecting G Tolerance."

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(3) "Introduction," paragraph 4.
(4) "G-Induced Loss of Consciousness (G-LOC)," paragraphs 1, 2 and 5.

Watson, Dr. Dougal, G-LOC, Could It Happen To You?, at Aeromedical.org/Articles/g-loc.html, originally published in the AOPA (Australia) Magazine, Vol 43, No 8, August 1990.
(6) "Who Gets G-LOC?" (10) "Prevention of G-LOC," paragraph 3.

Johnson, Daniel L., MD, FACP, Sr. AME, Thirst and the Drinking Pilot, at www.DanLJ.org/~danlj/Soaring/Thirst.SoaringMag.html, copyright 2002.
(9) "When does thirst begin?" paragraphs 8 and 9.

2013 Borrego Hammerhead Roundup

BY GARY DEBAUN, IAC 4145

Chapter 36, the San Diego Hammerheads, has been putting on a great contest in the Borrego Valley since 1975. Borrego Springs and the Borrego Valley is a beautiful setting for flying aerobatics. Descending into the valley, whether it's in an airplane or from the mountain pass, is like descending into a time warp. Little in this desert valley has changed since 1975. When I flew my

Little in this valley changes . . . except for the competition

first contest there in 1980, the little 180-hp Pitts S-1S was the king of the skies and dominated the Unlimited category. Smith Miniplanes, Stardusters, Acrodusters, Skybolts, Clipped Cubs, and Citabrias filled the ramp; composite monoplanes were just a figment of the imagination at the time. There was a motel/bar/pool just across the street from the FBO where we stayed for $35 a night and critiqued practice flights from the edge of the pool while we sipped some cool ones and worked on our tans. Yup, those were the days.

Today all that's left of the motel is a broken concrete slab, and the ramp is dominated by Walter Extra creations, composite monoplanes with monster AEIO-540s pumping out wild horsepower figures. The Smith Miniplanes and Stolp Starduster homebuilts are ghosts of the past relegated to the backs of dusty old hangars.

The Borrego Springs aerobatic box is known as the "World's Greatest Aerobatic Box."

It is the only place in the country where you will find a CIVA regulation size box marked to this standard. Chapter 36 takes pride in keeping it in prime shape year-round. This year is no exception; despite the 80 mph wind gusts and sandstorm apocalypse that took out all power to the valley just a few days prior to the contest, the markers still stood out bright and unyielding against the desert floor.

The weather this year was, well, typical Borrego. Light winds in the morning hours, howling dust devils in the afternoon. The temperatures remained mid-80s with sunshine for the entire contest.

Here were the contest officials:

Contest Director and Volunteer Coordinator – Yolandi Jooste
Registrar – Brenda Frazier
Chief Judge – Michael Church
Chief Technical Monitor and Starter – Gary DeBaun
Scorer – Michelle Kole
Program – Kate DeBaun
Setup – Bill Hill/Gray Brandt

Thursday was registration/practice with seasoned registrar Brenda Frazier keeping paperwork well-organized while veteran Reno air racer and aerobatic competitor Casey Erickson played the role as box master. Longtime chapter members and aerobatic instructors Bill Hill and Gray Brandt (chapter president) along with a little help from their friends ac-

Chief judge Michael Church stands for a better view of the competition.

First-time competitor John Scruggs.

First-time unlimited competitor Howard Kirker strapping in.

Beth Stanton, Sportsman competitor.

Sportsman Anthony Oshinuga.

Sportsman competitor Beth Stanton stretching out before competition.

complished the judges line setup. Only a few minor technical issues were found during the technical inspections, and all aircraft were given a thumbs-up by Chief Technical Monitor Gary DeBaun (oh, that would be me!). All competitors got time in the box, and everyone was happy.

Friday, after breakfast and briefing by Yolandi we started with the biannual group photo taken by Kate DeBaun who also was the program editor/designer and official photographer for the event. Michael Church, who owns and operates Sunrise Aviation out of the Orange County Airport and who played the role of chief judge for all categories, briefed the judges and volunteers, and then it was time to fly.

Advanced was up first with John Howell in the beautiful pink/white Extra 300A, followed by Primary competitors Anthony Oshinuga and Barry Faust, both flying Super D's. Advanced continued with Randy Owens flying his awesome orange/white Velox 540, Mike Hartenstine (Extra), Mike Eggen flying his Laser 200, Chelsea Engberg flying Diane Towne's all-white (hard to see in the sky) Extra, Hiroyasu Endo (a 777 captain) flying the Sunrise Aviation Extra, and Kathy Howell (Extra). Yuishi Takagi, a flight instructor out of Redlands, flew his Pitts S-2B, while longtime competitor Dave Watson rounded out the Advanced group in his Laser 200.

Next up was the Sportsman category with Kevin Elizondo taking point in the Sunrise Aviation Pitts S-2B. Kevin was followed by Yoga Master Beth Stanton flying Dave Watson's Super D, first-time competitor John Scruggs flying 5G Aviation's Super D, Japan's Miyako Kanao in Yuishi's Pitts S-2B, Barrett Hines (Extra), Scott Simmons flying the movie star (Cloud Dancer) Pitts S-2A (bad-boy Brad Randolph was not able to make it as he had an issue with his Ernst belt—ask Tom Myers about that), and finally Matt Dunfee in his new (to him) Extra 300.

Only three Intermediate pilots contested for podium spots: Andrew Slatkin flying his four-banger Skybolt, Yohei Shiratori in Yuishi's Pitts S-2B, and Elias McGeeney in his beautiful Extra, which was once owned by actor Gene Hackman.

Hiroyasu Endo, Advanced competitor with Sunrise Extra.

Unlimited was a bit thin this contest but nevertheless exciting to watch. First-time Unlimited competitor and all-around great guy Howard Kirker stepped up this year to find the ground rush at 600 feet quite breathtaking! Howard won the Free program and is now ready to try for the Unlimited team this year! (Well, maybe not this year.) Veteran Unlimited Team Member Tim Just rounded out the two-man podium battle with Tim taking the overall spot in the end.

Here are the final results (podium finishers)
Primary:
Barry Foust
Anthony Oshinuga

Sportsman:
Matt Dunfee
Barrett Hines
John Scruggs

Intermediate:
Corey McGeeney
Andrew Slatkin
Yohei Shiratori

Advanced:
John Howell
Dave Watson
Hiroyasu Endo

Unlimited:
Tim Just
Howard Kirker

It was a fun contest as usual, and we thank Yolandi, Gray, and the whole Chapter 36 team for the hard work they do twice a year at Borrego to host this contest. IAC

TECH TIPS

Reprinted from the International Aerobatics Club
Tech Tips Manual, volume IV

SPIN ENTRY

BY SAM BURGESS

If you check the comments of judges on spins over the years of competition aerobatics, you would find that the spin entry is where the most points are lost compared with the "horizontal line, spin rotation, exit heading, downline, etc."

"Flew it in, did not break, poor entry, aileroned it in, not fully stalled—ZERO" are some of the comments recorded by scorekeepers. Actually, this portion of the spin could be the easiest part of the whole maneuver, but why do we lose so many points on the spin entry??? It's because we get into too much of a hurry and do not apply simple rules of aerodynamics.

When the power is reduced and the aircraft slows, it must compensate for this deceleration, while holding altitude, by increasing the angle of attack. This is seen by the judges as an EVER INCREASING change in pitch attitude with the nose of the aircraft quite high until the aircraft stalls. Any hesitation or stopping the rotation of the nose before the stall, the aircraft will be observed to "mush" and a clean stall will not occur. When the spin entry is flat a judge will look for the outside wing to rotate ABOVE the horizontal line of the aircraft indicating no stall and that it was "flown in." As in a snap roll, the nose must definitely break or the figure is ZEROED.

You can be off your lines, gain altitude on the loop recovery, torque the Hammerhead, have a line before the roll in an Immelman, over rotate the spin or snap, tuck under, bobble, positive, eggshaped, climbing, off heading, segmented, pinched, under rotated, shallow, anticipated push, late turnaround, crabbing, finished off heading, etc., etc., in just about every other figure in the 8,500 maneuvers in the Aresti "aerocryptografico" and still receive a score. BUT you can get a ZERO in a spin or snap roll before you ever get it started.

Here are some tips for spin entries for the aspiring grass roots competition pilot.

1. Maintain altitude by CONSTANTLY raising the nose for a good, clean, sharp stall.
2. Don't hurry it and fly it in.
3. Make certain that your throttle does not creep from the idle position.
4. When composing a Free group, do not place the spin after a vertical downline, but rather precede it with an Immelman, snap roll, up 45, vertical upline with cap, etc. Do not make downwind spin entries. You will see them on Unknowns and this is where more points are lost or the figure is ZEROED by hurrying the entry before going out of the box, but for a lesser penalty — a pauper's choice.

SQUARE LOOP

BY JIM ROSSI

The square loop, once a spectacular airshow figure, is now commonplace in competition, but it is still a bit difficult to make as square as one would like. Let's try to analyze the square loop, point out a couple of common errors, and perhaps we can make the next one a little more to the judge's liking.

The judge is looking for the vertical up and down sides to be of equal length and, of course, vertical and the top line, the length of the two vertical sides with no climbing or descending during the inverted portion of the figure. The corners should be moderately squared off, but without the pulling of excess G loads.

The two most common errors are the sides not being of equal length and the bottom corners being flown in a great long arc. Both of these errors stem from the fact that the aircraft has too much speed going into the down portion of the square loop.

After the airplane is flown over the top and on to its back, the power should be left on full only until sufficient inverted flying speed is attained and then backed off in order to hold a reasonably slow speed for pulling down to vertical. If the power is left on full all the way across the top, usually too much speed results by the time the vertical downline is entered. When this happens, in order to level out at the starting altitude, the pullout must be started too soon in the downline, resulting in a long arc and no square bottom.

On the other hand, if a reasonable downline is held, then the loop may be made square, but with the downline much longer than the upline and the figure ending up much lower than its starting altitude. This is all due to too much speed prior to the pulldown.

Next time, try concentrating on the proper speed on the top of that square loop and you will be delighted to see that it will cure a couple of those common mistakes in one fell swoop!

INTRODUCTION TO A LOOP 'SECRET'

BY SAM BURGESS

IAC Editor Jean Sorg is collecting stories from contributing editors, competition pilots, judges or anyone else with a tip on performing simple and intricate aerobatic maneuvers and they're entitled, "HOW TO FLY." Well, how many books have been written on this theme, plus many excellent ones on aerobatics? But, what Jean is after are "tricks of the trade," "secrets," "how tos," etc. for the grass roots contestant and perhaps for the old-timers to take notice too.

First of all, during hangar sessions when a pilot — seasoned and student alike — comes up with, "Now when I first learned to fly . . .", I always counter with, "I'm still learning, aren't you?" If you ever stop you better hang it up.

Jean's idea — which was not hers alone but was a result of considerable input from IAC Tech Safety Chairman Fred Cailey and IAC President Mike Heuer — is really a story on the evolution of the IAC. Back in the late 60s the majority of competitors were airshow pilots and guarded their esoteric flying techniques with closed mouth tenacity and would not reveal the mechanics of performing the figures for the evolving sport of competition aerobatics.

Attending my first contest in 1968 in a Great Lakes at Oak Grove, Texas, I couldn't get anyone to talk to me far less entrust me with the mysteries of a Hammerhead, vertical roll, inverted flight, etc. Four of us neophytes hired an instructor for a short course before the contest but the attitude of our professor was, "Why should I teach these guys what it took me years to learn?" This was a selfish, narrow, pompous outlook and an analogy that could have safety of flight consequences. It was partly because of this attitude towards the grass roots aspiring young competition pilot that Bob Heuer had the guts and foresight to start the IAC. I met Bob and his sons, Mike and Mark, in 1969 when they were touring the country in their Bonanza recruiting pilots desirous of a broader outlook on the sport.

The IAC OFFICIAL CONTEST RULES tell us how the various families of aerobatic figures are to be judged, but for the first-timer something is missing — like, how to move the controls to actually draw those geometric lines of the artistic flight? This is exactly what SPORT AEROBATICS magazine is trying to bring out in this "HOW TO FLY" series approach to an age old dilemma in our sport.

So, what's your secret, Mac? Here's one from me regarding the loop.

The simple loop is a humble looking figure. But try getting a 10! So, let's consider some of the point reducers.

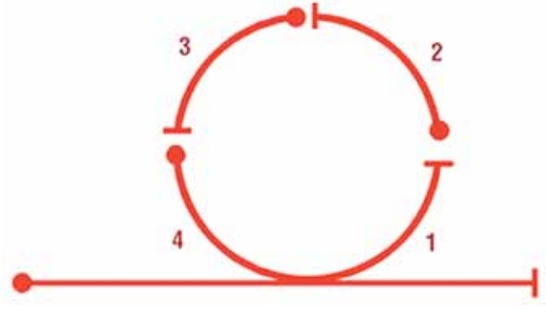
Okay, you start with a 10, you dive to enter (9), you are not on the axis (8), the second quarter segment is not the same as the first (7), you loosen up at the top (6), you pinch the third quarter (5), and you have finished at a higher altitude (4). The K factor is 12. Your score winds up being a lowly 48 for a figure you flew 1200 miles to perform.

Break the loop up into four sections and try and make it ROUND (wind corrected). The first quarter arc will determine how the other three are seen by the judges. You are in the loop a considerable period of time exposing yourself to many point reductions. It is a beautiful figure to watch but will see very few tens.

At Fond du Lac once, I noticed many first time Sportsman pilots were looping like an egg standing on end, wings not level at the top, etc. So, I inquired of some, "What do you look for after the nose comes up above the horizon on the pull up?" Several replied, "I put my head back and look for the horizon again." Herein is their problem.

To fly a ROUND loop you must have visual reference THROUGHOUT its orbit. So, after you first lose the horizon, look out at the wing and use it as a gauge to control your speed of rotation and also to maintain wings level. You will be surprised how many points you will pick up.

A good rule to remember in performing a loop is as your speed (airspeed) increases and decreases so should the movement of the nose. Harold Neumann—80-years young—in a 45-year-old Monocoupe gets tens on his loops—so can you if you rubber-neck a little.



2013 Regional Series Wrap-Up

Winners list

BY DOUGLAS LOVELL

Results are in for the 2013 IAC Regional Series. We have 27 taking gold in our five categories and six regions, 25 silver, and 20 bronze winners. Each pilot flew three contests in each region in which they qualified, or two contests in the region plus the Nationals. We don't have space to write about all 30 of the contests (five categories times six regions), but we can print the names and identify some highlights.

Mid-America region had two close races: Mitchell Wild and Larry Ernewein, half a percentage point apart in Sportsman; Jeff Granger and David Underwood, less than one-tenth of a percentage point apart in Intermediate. In the Northeast, Ron Mann was less than a percentage point behind Sheldon Apsell, who won gold in Sportsman. Northwest has Sportsman winner Steven Bennett ahead of Larry James by about half a percentage point. Third-place Rick Feicht is less than two-tenths out of second. South-Central had three close races: Pete Setian half a point ahead of Greg Howell in Primary; Sportsman again, Paul Thomson less than half a percent before Jim Doyle; Intermediate, Craig Gifford 0.18 percent ahead of Craig Dobesh. Advanced was close in the Southeast region where Marty Flournoy got ahead of Steve Johnson by less

Gold (1st)	Mid-America	Northeast	Northwest	South-Central	Southeast	Southwest
Primary	Bryan Hayden (81.37 percent)			Pete Setian (80.60 percent)		Marian Harris (79.55 percent)
Sportsman	Mitchell Wild (84.6 percent)	Sheldon Apsell (78.53 percent)	Steven Bennett (76.66 percent)	Paul Thomson (86.76 percent)	David Cole (81.31 percent)	Matthew Dunfee (85.28 percent)
Intermediate	Jeff Granger (82.04 percent)	Jason Flood (81.61 percent)	Christopher Branson (80.73 percent)	Bill Denton (84.65 percent)	Foster Bachschmidt (87.42 percent)	Chris Olmsted (82.38 percent)
Advanced	Steven Johnson (85.97 percent)	Tony Zorn (75.95 percent)	John Howell (79.93 percent)	Craig Gifford (79.18 percent)	Martin Flournoy (80.83 percent)	John Howell (80.45 percent)
Unlimited	Tony Wood (72.93)	Brett Hunter (75.26 percent)	Jerzy Strzyz (75.74 percent)	Tony Wood (73.15 percent)	Hector Ramirez (78.58 percent)	Malcolm Pond (73.57 percent)

Silver (2nd)	Mid-America	Northeast	Northwest	South-Central	Southeast	Southwest
Primary				Greg Howell (80.10 percent)		
Sportsman	Larry Ernewein (84.10 percent)	Ronald Mann (77.55 percent)	Larry James (76.19 percent)	Jim Doyle (86.55 percent)	Rus Howard (80.29 percent)	Barrett Hines (83.71 percent)
Intermediate	David Underwood (81.96 percent)	Charles Cohen (76.38 percent)	Donn Richardson (75.11 percent)	Mike Plyler (83.27 percent)	Charles Cohen (78.40 percent)	Andrew Slatkin (79.67 percent)
Advanced	Klaus Mueller (84.61 percent)	Paul Russo (72.06 percent)	Kathleen Howell (78.73 percent)	Craig Dobesh (79.00 percent)	Steven Johnson (80.11 percent)	Hiroyasu Endo (78.54 percent)
Unlimited	Craig Gifford (68.58 percent)	Sergey Prolagayev (65.01 percent)	Ann Marie Ward (69.15 percent)	Michael Gallaway (70.77 percent)		Howard Kirker (70.42 percent)

Bronze (3rd)	Mid-America	Northeast	Northwest	South-Central	Southeast	Southwest
Primary				John Lill (76.46 percent)		
Sportsman	Michael Hoy (83.65 percent)	Blair Mohn (68.91 percent)	Rick Feicht (76.00 percent)	Doug Jenkins (86.55 percent)	William Barnard (79.06 percent)	A.J. Wilder (82.80 percent)
Intermediate	Thomas Hartvigsen (75.32 percent)	Sarah Tobin (75.93 percent)		Robert Buckley (80.82 percent)	Alain Aguayo (73.24 percent)	Mitchell Robinson (78.53 percent)
Advanced	Hella Comat (79.81 percent)	Eric Sandifer (70.49 percent)	Douglas Sowder (77.86 percent)	Julia Wood (77.47 percent)	Stanley Moye (76.75 percent)	David Watson (77.61 percent)
Unlimited		John Fellenzer (61.46 percent)	Dave Barbet (67.56 percent)			

Qualifying Pilots	Mid-America	Northeast	Northwest	South-Central	Southeast	Southwest	National
Contests	7	6	5	9	5	6	39
Primary	1			3		1	5
Sportsman	5	5	5	9	4	5	33
Intermediate	4	10	2	8	4	6	34
Advanced	5	7	9	6	5	11	36
Unlimited	2	4	3	2	1	2	14
Total	17	26	19	28	14	25	122

When you are planning your contest attendance for 2014, do not neglect the two IAC Open Title contests.

than a percent.

The contest with the most participation was the Advanced category in the Southwest, with 11 qualifying pilots. The Sportsman category in the Northeast had 10 qualifying pilots.

Several pilots qualified and placed in more than one region. Chuck Cohen took second Intermediate in both East Coast regions. Steve Johnson took first Advanced in Mid-America, second Advanced in Southeast. Craig Gifford won gold for Advanced in the South-Central, second for Unlimited in Mid-America. John Howell won Advanced in both West Coast regions. Possibly more qualified in multiple regions and did not place. It is always wonderful to have the fortune to attend many contests plus the Nationals in any season.

Once again this year, Regional Series winners will receive stickers that they can place on their airplanes or elsewhere to advertise their accomplishment. We had sponsorship one year, a few years ago, for trophies in the Southwest and South-Central regions. Our IAC manager, Trish Deimer-Steineke, estimates funding for trophies at about $750 per region. Sponsors who sign on now will get coverage and access at each of our approximately 40 contests during the year as well as in this national magazine. We wouldn't want to go back to pay-to-play, but tagging a few bucks onto the per-pilot sanction fee, earmarked for the series, might guarantee a trophy year to year. Talk with your regional director if you have ideas.

Thanks to Randy Owens for recording, posting, and tabulating IAC contest results these many years. Congratulations to all of our 2013 IAC Regional Series qualifiers and winners. The only thing better than attending one contest is attending two. The only thing better than attending three contests is placing in the Regional Series.

When you are planning your contest attendance for 2014, do not neglect the two IAC Open Title contests. The East will have the Ohio Open at Bellefontaine, Ohio, sponsored by IAC 34. The West will have Happiness Is Delano, sponsored by IAC 26, in honor of its 40th anniversary.

Thank you all for a great 2013 competition season. All of the numbers reset for a fresh start in 2014. Bring on your best! IAC

Call for Photos

We're looking for cool photos to adorn the pages of the new and improved IAC web site and the magazine. Colorful, action-oriented pictures are preferred. Don't worry about cropping or resizing, we'll handle that. Email your best pics to Reggie Paulk at *reggie.paulk@gmail.com* for the magazine and Laurie Zaleski at *artzgraphics@comcast.net* for the web, along with the date, location, and names of people if possible.

ALLEN SILVER

www.silverparachutes.com

Dusting off the cobwebs

For those of you who have a life other than flying, it may be time to start thinking about putting away the skis or returning from your winter home in some warm exotic place. Flying season will soon be here for all you fair-weather pilots. So now is the time to start thinking about dusting the cobwebs off your parachute and aircraft and changing the oil (not on your parachute).

Now is also the time to start thinking about your emergency procedures. This applies not just to your bailout procedures, but all your emergency procedures. In my experience most emergencies that come up could be avoided with proper preventive procedures. The one I specialize in is bailout training and the use of survival equipment like your Nomex flying clothing and your helmet. How about organizing or attending a bailout/survival equipment seminar in your area? I have many openings still available. Can your IAC, EAA, XYZ (or other lettered organization) afford a seminar from me or someone else in your area? If not, I have a webinar on the EAA website that is free and goes down quite well with a nice glass of wine or a cold beer. Go to www.SilverParachutes.com and click on the link (about halfway down my home page).

Now is a good time for me to discuss some of the ongoing problems popping up that could affect your safety. I'm constantly receiving parachutes, especially from new customers, that are so far out of adjustment that during a bailout you and your parachute may become separated, kind of like an ugly divorce. My customers, for the most part, have found it much easier to keep their parachutes adjusted properly, with a little training, than having me haranguing them about it when their parachute comes in for inspection and re-certification. I'm always glad to hear from you and can explain how to properly don your parachute and adjust it. All you need to do is call or e-mail me.

What I'm worried about are my new customers and people new to aerobatics who have had no firsthand training on the ins and outs of their parachute. In a perfect world I would like to see everyone return their parachute(s) to the factory or to a factory representative at least once every few years to make sure their expensive cushion has been receiving the tender loving care it deserves from you

or your rigger. Also, there are many riggers who are not as familiar with pilot emergency parachutes as they should be.

Has your rigger spent time with you and answered all your questions about your parachute? It does me no good to pack your parachute if you do not know how to properly adjust, wear, and use it.

A while back I had two new customers fly to my airport and pick up their new parachutes. I spent over an hour with them until I felt confident they had an excellent chance of survival in case an emergency egress was needed. In addition, they left with my bailout seminar handout material. It goes without saying a lot of war stories were exchanged, with the understanding that they could call or e-mail me anytime with questions. That also goes for you who are not my customers. I'm very specialized and have serviced only pilot emergency parachutes in my shop for more than 30 years.

I've had many articles published over the years addressing many of the issues you might like to know more about, such as how to properly take care of your parachute, putting it on, and of course how to pull that shiny silver rip cord handle properly. I may sound like a broken record, or is it now a broken CD, but I constantly receive parachutes in my shop that are in need of a generous helping of TLC. Having your parachute packed every once in a while at the closest place may be cost-effective and may save you time, but will it save your life in an emergency? There are areas where you can save, but not getting proper parachute care is not one of them. You need to make sure your rigger is tending to you and your expensive cushion properly.

Let me first start off with proper adjustment and fit. Put your parachute on and tighten the straps as you normally would, but remain standing. You should not be able to lift up the portion of the harness that goes over your shoulders by more than about an inch. You need to make sure your parachute stays with you when it's deploying. Does your parachute (see photo) look like this? If yes, you need to have your rigger adjust it right away before you go flying again. If you ship your parachute to your rigger, call and give your height and weight, and maybe send a photo with it or e-mail one so your rigger can better understand what's going on. Many riggers, like myself, hand tack the webbing in place after adjusting it so it does not slip between repacks. In an emergency bailout if your parachute is out of adjustment, the chest strap, if you have one, could also cause serious injury to your neck and/or face. For more information about this read the account of Kirill Barsukov titled "Mid Air Collision" in the February 2012 issue of Sport Aerobatics.

Now, if you're literally still with me I'd like to discuss two other items that keep appearing in my shop. Checking the length of the pack closing loop(s) and the condition of the rubber bands. I've harped on these two issues several times before. First let's go over the rubber bands. Does your rigger have replacement rubber bands? They don't last forever and need replacing from time to time. These rubber bands hold your lines in place and help to properly sequence the opening of your parachute. If your rubber bands are rotted and/or weak, your suspension lines could easily fall out of them. This can cause an out-of-sequence opening. You and/or your deploying parachute could become entangled. If you ship your parachute to your rigger, you can check the rubber bands yourself by donning your parachute and practice pulling the rip cord and inspecting them. Make sure you keep your parachute and especially the suspension lines away from the scratchy part of any Velcro tape. Now locate the rubber bands. If you pull up on them and they are pitted, sticky to the touch, or very weak when you pull on them, they need to be replaced. I probably go through 5-10 pounds of rubber bands a year. However, they can easily last for many repacks if you properly store your parachute. Keep in mind they will deteriorate a lot faster if you live in a hot and humid climate or store your parachute is a hot place like the trunk of your car.

Since you now have your container open, check the length and condition of the closing loop(s) that the rip cord pins go through. They are what hold the container closed. The specs are in your owner's manual. The closing loops will always stretch between repacks and must be either shortened back to factory specs or replaced if worn. If they haven't been checked and replaced in a long time, they will usually be at least one or more inches out of tolerance. The closing loops keep your spring-loaded pilot chute properly centered and compressed so it can launch far away from you when you pull the rip cord. It also keeps your rip cord pins from coming out. Those loops must be properly adjusted. You don't want your parachute accidentally deploying on the ramp to the amusement of your fellow pilots.

Now that winter is almost over I hope to see you at Sun 'n Fun. My bailout seminar is scheduled for April 4 at 11 a.m. in the Central Florida Aerospace Academy Building. IAC

Mark your calendars for these upcoming contests. For a complete list of contests and for the most up-to-date contest calendar, visit **www.IAC.org**. *If your chapter is hosting a contest, be sure to let the world know by posting your event on the IAC website.*

Midwest Collegiate Challenge
Friday, April 25 – Sunday, April 27, 2014
Practice/Registration: Friday, April 25
Power Categories: Primary Sportsman
Location: Seward Municipal (SWT), Seward, NE
Region: Mid-America
Contest Director: Ed Bowes
Contact Information: 402-730-3396
E-Mail: *edbowes@windstream.net*

Duel In The Desert
Friday, May 2 – Saturday, May 3, 2014
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Apple Valley Airport (APV): Apple Valley, CA
Region: Southwest
Contest Director: Chris Olmsted
Contact Information: 831-334-7232
E-Mail: *chris@olmstedaviation.com*

Ben Lowell Aerial Confrontation
Friday, May 23 – Sunday, May 25, 2014
Practice/Registration: Friday, May 23
Power: Primary through Unlimited
Location: Sterling Municipal Airport (STK), Sterling, CO
Region: Mid-America
Contest Director: DJ Molny
Contact Information: 303-619-4814
E-Mail: *djmolny@gmail.com*
Website: *www.iac12.org*

Best Box in Texas
Friday, May 30 – Sunday, June 1, 2014
Practice/Regist: Saturday, May 24-Thursday, May 29
Rain/Weather: Sunday, June 1
Power: Primary through Unlimited
Location: Jackson County (26R), Edna, TX
Region: South Central
Contest Director: Gary Walker
Contact Information: 832-656-8314
E-Mail: *gawwalker@aol.com*

Wildwoods AcroBlast
Friday, May 30 – Sunday, June 1, 2014
Practice/Registration: Friday, May 30
Power: Primary through Unlimited
Location: Cape May County (WWD) Lower Township, NJ
Region: Northeast
Contest Director: Dave Crescenzo
Contact Information: 609-517-0922
E-Mail: *dmolar@comcast.net*
Website: *www.iac58.org*

Coalinga Western Showdown
Friday, May 30 – Saturday, May 31, 2014
Practice/Registration: Thursday, May 29
Power: Primary through Unlimited
Location: New Coalinga Municipal Airport (C80): Coalinga, CA
Region: Southwest
Contest Director: Martin Price, Tom Myers
Contact Information: 510-579-3407
E-Mail: *martin@pull.gs*
Website: *http://www.iac38.org*

IAC Open East Championship – Ohio Aerobatic Open 2014
Friday, June 13 – Sunday, June 15, 2014
Practice/Registration: Thursday, June 12
Rain/Weather: Sunday, June 15
Power: Primary through Unlimited
Location: Bellefontaine Regional Airport (EDJ), Bellefontaine, OH
Region: Mid-America
Contest Director: Chris Keegan
Contact Information: 614-890-9711
E-Mail: *sdavis_1985@yahoo.com*
Website: *iac34.com*

Lone Star Aerobatic Championships
Friday, June 20 – Sunday, June 22, 2014
Practice/Registration: Thursday, June 19 – Friday, June 20
Power: Primary through Unlimited
Location: North Texas Regional (GYI): Sherman, TX
Region: Mid-America
Contest Director: Kathleen Kyer
Contact Information: 972-365-8767
Alternate Phone: 903-378-7827
E-Mail: *Kateflies8@aol.com*

Midwest Aerobatic Championship
Friday, June 20 – Sunday, June 22, 2014
Practice/Registration: Friday, June 20
Power: Primary through Unlimited
Location: Seward Municipal (SWT), Seward, NE
Region: Mid-America
Contest Director: David Moll
Contact Information: 402-613-5422
E-Mail: *davidmoll66@gmail.com*

Apple Cup (Northwest)
Friday, June 27 – Saturday, June 28, 2014
Practice/Registration: Wednesday, June 25 – Thursday, June 26
Power: Primary through Unlimited
Location: Ephrata Municipal Airport (EPH): Ephrata, WA
Region: Northwest
Contest Director: Jerry Riedinger and Larry James
Contact Information: 425-985-9469
E-Mail: *JRiedinger@perkinscoie.com*
Website: *www.applecup.org*

Michigan Aerobatic Open
Saturday, June 28 – Sunday, June 29, 2014
Practice/Registration: Friday, June 27
Power: Primary through Unlimited
Location: Jackson County Airport–Reynolds Field (JXN), Jackson, MI
Region: Mid-America
Contest Director: Brian Roodvoets
Contact Information: 810-667-0642
E-Mail: *redfoot@usol.com*
Website: *iac88.eaachapter.org*

Green Mountain Aerobatics Contest (GMAC)
Friday, July 11 – Sunday, July 13, 2014
Practice/Registration: Thursday, July 10 – Friday, July 11
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Springfield Hartness Airport (VSF), Springfield VT
Region: Northeast
Contest Director: Bill Gordon
Contact Information: 802-585-0366
E-Mail: *wsgordon@earthlink.net*

Doug Yost Challenge
Saturday, July 19 – Sunday, July 20, 2014
Practice/Registration: Thursday, July 17 – Friday, July 18
Power: Primary through Unlimited
Location: Spencer Muni (SPW), Spencer, Iowa
Region: Mid-America
Contest Director: Dan Pichelman
Contact Information: 612-386-0352
E-Mail: *dan.pichelman@swivity.com*

CanAm Challenge
Friday, July 25 – Saturday, July 26, 2014
Practice/Registration: Thursday, July 24
Power: Primary through Unlimited
Location: Cut Bank International (CTB), Cut Bank, MT
Region: Northwest
Contest Director: Christopher Branson
Contact Information: 503-501-1496
E-Mail: *flyhran@aol.com*

Hoosier Hoedown
Saturday, August 9 – Sunday, August 10, 2014
Practice/Registration: Friday, August 8
Power: Primary through Unlimited
Location: Kokomko Municipal Airport (OKK): Kokomo, IN
Region: Mid-America
Contest Director: Mike Wild
Contact Information: 765-860-3231
E-Mail: *mike.wild@hotmail.com*
Website: *www.hoosierhammerheads.com*

Beaver State Regional
Friday, August 15 – Saturday, August 16, 2014
Practice/Registration: Thursday, August 14
Power: Primary through Unlimited
Location: Eastern Oregon Regional (PDT), Pendleton, OR
Region: Northwest
Contest Director: Christopher Branson
Contact Information: 503-803-7167
E-Mail: *christopher.branson@comcast.net*

2014 Oshkosh Air Maneuvers Challenge
Friday, August 22 – Sunday, August 24, 2014
Practice/Registration: Thursday, August 21 – Friday, August 22
Power: Primary through Unlimited
Location: Wittman Regional Airport (OSH), Oshkosh, WI
Region: Mid-America
Contest Director: Audra Hoy
Contact Information: 920-203-9000
E-Mail: *audra_hoy@yahoo.com*
Website: *www.iacchapter1.org*

AC Open West – 40th Annual Happiness Is Delano Contest
Saturday, August 30 – Sunday, August 31, 2014
Practice/Registration: Friday, August 29
Power: Primary through Unlimited
Location: Delano Municipal Airport (DLO): Delano, Ca
Region: Southwest
Contest Director: Steve De La Cruz
Contact Information: 760 963 6426
E-Mail: *DelanoCD@iacchapter26.org*
Website: *www.IACChapter26.org*

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BY GARY DEBAUN, IAC #4145

Judy Phelps

IAC 430826
Chapter Affiliation: 26
Occupation: Flight school owner/certificated flight instructor
E-mail: judy@cpaviation.com
Age (not mandatory): I turn the BIG 50 in July!

GD: Judy, tell us how you got started in aerobatics.

JP: In July of 2001 I signed up for the Emergency Maneuver Training course with Rich Stowell. Flying with Rich taught me that airplanes don't fall out of the sky when you stall and that you can have a whole lot of fun in just 0.6 on the Hobbs meter.

GD: How did CP Aviation come about?

JP: In 1987 Clay (my husband) purchased the flight school from his cousin Mike Dewey, then Michael Dewey Aviation. Obviously he renamed it.

GD: Why did you choose Santa Paula Airport to base your operations?

JP: This is where Clay's family has roots. In 1940 Clay's father Bob Phelps operated a flight school in the same location.

GD: As an aerobatic flight instructor, what is the most common fear you see in students?

JP: I believe it to be the fear of the unknown, "the dreaded stall/spin scenario," and of course being able to recover from an unusual attitude.

GD: Who, in your career, has helped you the most to reach your goals?

JP: Bob Phelps, my primary flight instructor and father in-law; Rich Stowell, my mentor; Vicki Cruse, who introduced me to the IAC and competition aerobatics; and Clay Phelps (the CP of CP Aviation).

GD: Do you have a special routine you do before you fly aerobatics, like listen to music, yoga, or stretching?

JP: I don't do anything special, but I do like to have a few minutes of quiet time and a big drink of COLD water.

GD: When and where did you fly your first contest and how did you do?

JP: My first contest was in October of 2005 at Borrego Springs, California. I finished second place in Primary.

GD: What's your opinion of contest banquets?

JP: It's a good time to unwind and visit after a long weekend.

GD: Do you think too much focus is on the upper categories?

JP: Not necessarily, but I do feel more focus should be put on those who are just getting started in the sport, be it just for fun or competition.

GD: If you could change anything about the IAC, what would it be?

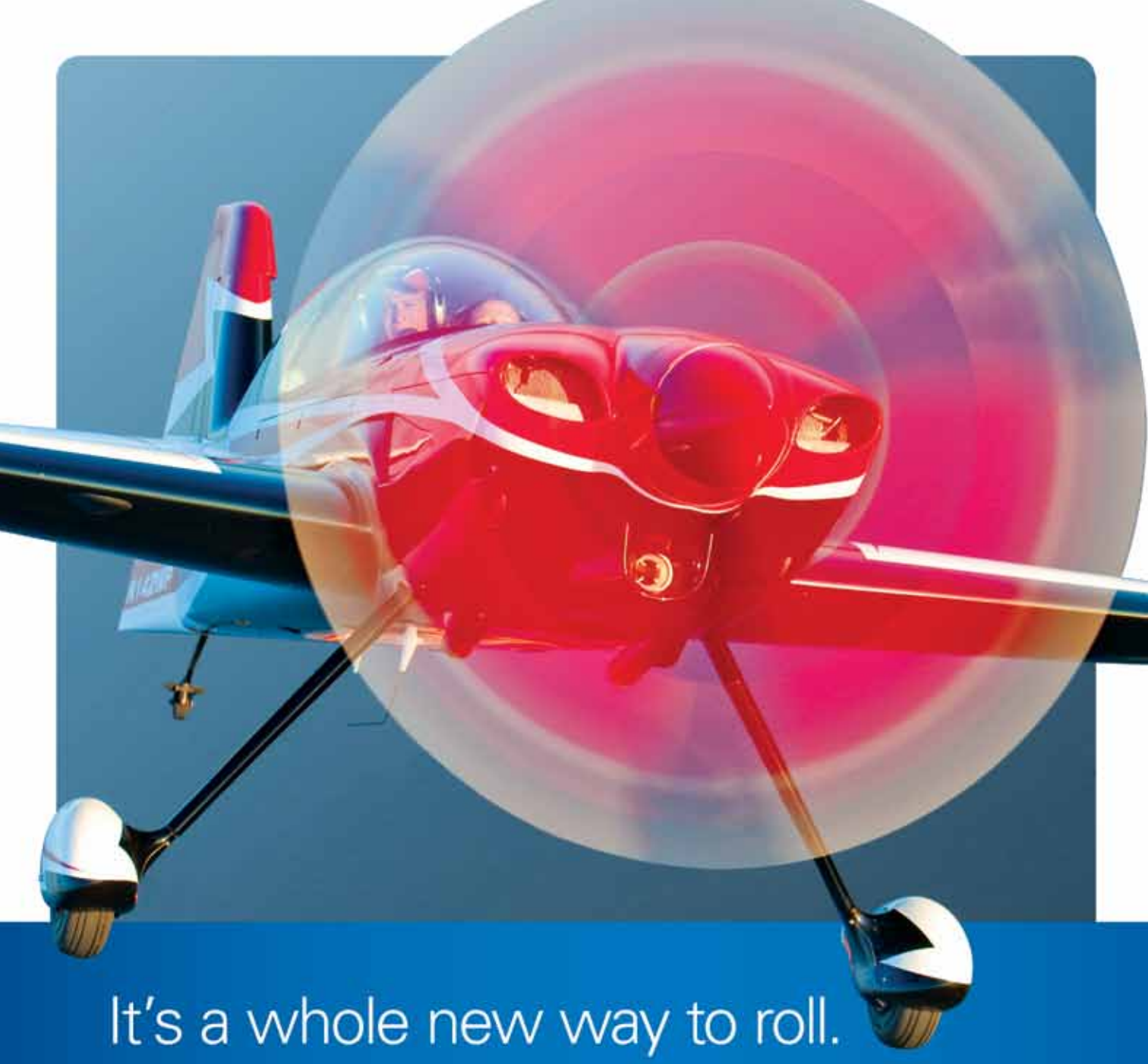
JP: Less B.S. and more FUN! Seriously, I would like to see more focus on those who don't compete. It's not all about competition.

GD: Do you have any other interests outside of aviation?

JP: Presently NONE. Aviation has become my whole life.

GD: Do you know what the "dead prop" area is?

JP: I think you know the answer to that. Would this have something to do with Apple Valley?



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