

APRIL 2007

# SPORT *aerobatics*

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

## A Pitts Model 12

- Why Aerobatics?
- Spin Recovery
- Life or Death in 13 Seconds

# CONGRATS!

to the members  
of the 2007  
US Unlimited  
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Back row from the left: Dan Clark, David Martin, Goody Thomas, Robert Armstrong, Zach Heffley, Michael Racy  
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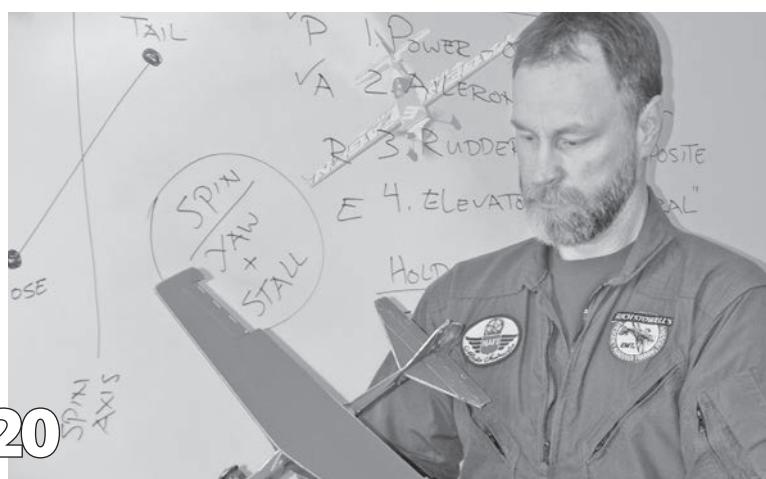
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Al DiGiulio pilots his Pitts Model 12, *Macho Stinker* N177AD, during EAA AirVenture 2006.  
– *Photo by Bonnie Kratz*



Judson Bartlett

## LETTER from the EDITOR

by Scott Westover

## Spring Fever

**I**t must be spring! Crocuses are popping into view, and my credit card statement reflects charges for a new exhaust system for my AcroSport II, one of those winter improvement projects that I can now check off the list.

For those of us who live in a part of the world where winter is defined by limited flying due to snow and arctic temperatures, spring is more than a change of seasons. It's a change of attitude. Part of my spring ritual is calling my instructor and setting up a time to shake out the cobwebs and discuss specific flying goals for the coming months. So far this year's goals are humble and related to verticals and inverted flight.

This particular spring marks my son Smith's second birthday. He's officially old enough to hand daddy a tool or two when I am working on the airplane, and I am eagerly awaiting the time (which is different than wishing it away) when he is both old enough to use those tools and small enough to reach places where his father can't quite fit. I have a growing list of items that require slithering through an inspection cover or crawling toward the firewall. At 2 years old, Smith is already familiar with our hangar. In fact, his first trip into the world after coming home from the hospital included a photo opportunity with his biplane.

Thinking about sharing aviation with Smith and his new brother or sister who will be joining us in the fall brings a huge smile to my face, especially when talking with people like Al DiGiulio. Al is the Pitts Model 12 builder and pilot that you will meet in this issue of *Sport Aerobatics*. I had a long conversation with Al when we were putting that piece of the magazine



The first trip Smith Westover made after coming home from the hospital included a swing by the hangar.

together, and at one point he started talking about his two boys, 14-year-old Roman and 11-year-old Reed. Roman is already taking flying lessons, and Reed probably isn't far behind. During our conversation, Al was excited to talk about the airplane, but when the topic shifted to sharing his passion for flying with his boys, his excitement climbed like his Model 12 on takeoff.

All of us in the aviation and aerobatic community are lucky to have a passion for flight as a part of our lives. To have a child who is interested in our sport gives us the opportunity to pass on our passion. I believe that is about as good as it gets for us barnstormers. I'll bet my father feels the same way.

I hope you enjoy this issue of *Sport Aerobatics*. Between the expertise of Rich Stowell, the honesty of Evan Suits, and the genuineness Al DiGiulio—not to mention the work of our regular contributors—there is a lot here. And that's the goal every month. Please keep your comments coming. They make this magazine better, and your interests help us to choose our focus going forward. Thank you for your help.

*Scott Westover can be reached at [Tookyflyer@tds.net](mailto:Tookyflyer@tds.net).*

**Sport Aerobatics** is your magazine. To submit news, comments, articles, or article ideas, please send them to: IAC, P.O. Box 3086, Oshkosh, WI 54903-3086; or email them to [Tookyflyer@tds.net](mailto:Tookyflyer@tds.net).

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## PRESIDENT'S PAGE

by Vicki Cruse • IAC 22968  
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# Waxing Nostalgic in Oshkosh

A treasure trove is found in Lisa's office

**A**s I write this, I am sitting in Lisa Popp's office in Oshkosh after a day's worth of meetings. I am also here to make sure Lisa's office isn't overrun by paperwork while she is away on maternity leave. By the time you read this she will be back, at least on a part-time basis. She had a healthy baby girl named Nik-kole on January 12, and she and her husband, Randy, are getting used to being new parents.

Ninety-nine point nine percent (99.9%) of the membership will never see Lisa's office, and of the 0.1 percent that will, only a small number of those will ever be able to find it again once leaving. Lisa's office is co-located with the other divisions (NAFI, Warbirds, and Vintage) along with some holdovers from the other side of the EAA complex, such as Steve Buss (the "voice" of EAA), who have been banished to the quiet side of the building. The executive

*"Despite the actual office space, don't jump to too many luxurious conclusions.*

*The office has no windows and is devoid of all living things, no plants or evidence of any animals."*

directors actually have offices with doors, while the staff have cubicles just outside. While the IAC has no other staff, Lisa still stakes claim to the cubicle outside her office in case we need it in the future. Despite the actual office space, don't jump to too many luxurious conclusions. The office has no windows and is devoid of all living things, no plants or evidence of any animals.

One of the neatest things about Lisa's office is the bound volumes of *Sport Aerobatics* dating back to 1971. In fact, the last bound volume from the Aerobatic Club of America rests here. For the past several years, IAC has 50 or so of these volumes produced from press overruns. I decided to crack open a few of these volumes at random and see what they had to say about the past of IAC. Might as well start at the beginning:

**October 1971**—This issue covered the untimely death of Harold Krier in a spin accident involving a prototype aircraft. For those of you who don't know, Mr. Krier represented the United States in world competition in Spain, Moscow, and East Germany. The issue also introduced the Achievement Awards program we know today.

**June 1982**—Frank Christensen of Christen Industries permitted the reprinting of the Christen Eagle II flight manual detailing spin mechanics and spin recovery from upright, inverted, and flat spins. Other information in this issue includes the statistic of 3,298 members and 31 chapters.

**September 1998**—Details the Rebel 300 by Akro Designs with construction pictures and details of

Rick Masagee's aircraft. This issue also detailed the Pilots Performance Averages for the contest year 1987. In 1985 there were 542 pilots, 545 in 1986, and 593 in 1987. Category champions for 1987 based on contest averages were Mike Penketh of California in Basic, Lorriane Hodge of Kansas in Sportsman, Dale Donalson of California in Intermediate, Lonnie English of California in Advanced, and Harold Chappell of Michigan in Unlimited...who just squeaked out Clint McHenry.

**April 1994**—Profiled the arrival of Sergei Boriak into the United States, provided information on the Zlin 50, and included instructional pieces on the loop, hammerhead (written by former President Gerry Molidor), and spin recovery by Gene Beggs.

**April 1999**—This issue brought us how to fly the perfect loop, flat spin recovery in a Yak-55, the 1998 Grand Prix of Aviation from China, highlights from the IAC Winter Convention and Aerosports Expos held in Knoxville (complete with photos of Tom Adams decked out in a full beard and ponytail), and Tom Poberenzny being inducted into the IAC Hall of Fame.

An adventure to the past can be a wondrous thing. Many of the members' concerns during these times still hold true today, especially information on spins and spin recovery. We see it over and over again and will continue to do so until we educate the masses. I hope you've enjoyed this look at the past as we write to make the future a better place, at least when it comes to spins and introducing people to the joy and safety of aerobatics.

# NEWSBRIEFS

Courtesy Nathan Altmann.



Nathan Altmann was the 2006 recipient of the Douglas Yost Memorial Aerobatic Scholarship Grant.

## IAC Chapter 78 Aerobatic Scholarship Grant Application Open

The **Douglas Yost Memorial Aerobatic Scholarship Grant** is administered by Chapter 78 of the International Aerobatic Club. The scholarship grant is awarded annually from an endowment established in memory of pilot Douglas Yost by his family in 2002. The scholarship fund also has continuing sponsorship from Link Snacks Inc.

The purpose of this merit scholarship is to promote air safety through aerobatics training. Each recipient of this scholarship will receive a complete course of aerobatics and stall-spin awareness training of approximately 10 flight hours. This training must be conducted at a facility approved by the IAC Chapter 78 Scholarship Committee. A list of approved facilities will be provided to the successful applicant.

The successful scholarship applicant must be well-rounded and involved in school and community activities as well as in aviation. The applicant's academic record should demonstrate that he or she could successfully complete the educational portion of aerobatic training. Flight instructor comment reports or letters of recommendation must indicate that the successful applicant has the basic flying skills and potential to benefit from this type of training. The minimum qualifications to apply include the following:

- Junior or senior in college or other post-secondary school.
- Proof of private pilot certificate or higher certificate.
- Proof of current FAA medical certificate.

The scholarship is awarded annually, and applications must be submitted to the scholarship committee no later than June 1, 2007. The application form may be downloaded and printed from the Chapter 78 website, [www.IAC78.org](http://www.IAC78.org). Applications or questions should be sent to the following address: IAC Chapter 78 Scholarship Committee, Attn: Michael Niccum, 4311 Cass Ct., Webster, MN 55088-2441.

## Nominations Sought for IAC Nonflying Awards

Each year at the U.S. Nationals, the IAC presents four special nonflying awards. The nomination period is now open for IAC members to submit nominations for the Robert L. Heuer Judges Award (judging excellence), the Frank Price Cup (outstanding individual in aerobatics), the Harold E. Neumann Award (excellence as a chief judge), and the Kathy Jaffe Volunteer Award. These four prestigious awards will be presented at the U.S. Nationals awards banquet. Nominations are based on the significant contribution of individuals for their achievements according to the criteria of the award in the previous contest year, 2006.

A complete history of each award may be found on the IAC website, [www.IAC.org/trophies/nonflying\\_awards.html](http://www.IAC.org/trophies/nonflying_awards.html), along with the list of past recipients, a picture of the master trophy, and a nomination petition. Nominations are welcome from either individual members or collectively as a chapter. Chapter meetings are a good forum to discuss potential candidates. The nomination deadline is June 15, 2007. For more information, please see the above web address or contact Awards Chairman Loren Smith at [LS@IAC78.org](mailto:LS@IAC78.org).



Robert Bismuth

The IAC is now accepting nominations for the 2007 nonflying awards.

## Vote for All-Time Greatest Aviation Movie

The question will be decided once and for all this year, as the Experimental Aircraft Association has opened the voting for "The Greatest Aviation Movie of All Time" at EAA's AirVenture website, [www.AirVenture.org](http://www.AirVenture.org). This website is the complete information center for EAA AirVenture 2007, which will be held July 23-29 at Wittman Regional Airport in Oshkosh, Wisconsin.

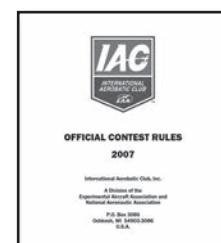
Online voters can choose from one of 10 finalists, which were the most-mentioned films from more than 140 productions nominated by EAA's 170,000 members earlier this year. The top vote-getter will be shown on the huge outdoor screen at the Ford-Eclipse Fly-In Theater during EAA AirVenture 2007.

The 10 finalists span more than 40 years of moviemaking and are based on diverse sources from historical events to bestselling novels. The 10 movies that were the most popular nominations by EAA members, earning their way as finalists, are:

*Twelve O'Clock High* (1949), starring Gary Merrill, Gregory Peck, & Robert Arthur; *The High and The Mighty* (1954), starring John Wayne and Claire Trevor; *The Spirit of St. Louis* (1957), starring James Stewart and Murray Hamilton; *The Flight of the Phoenix* (1965), starring James Stewart & Richard Attenborough; *Those Magnificent Men in Their Flying Machines* (1965), Stuart Whitman & Sarah Miles; *The Blue Max* (1966), starring George Peppard and James Mason; *Battle of Britain* (1969), starring Laurence Olivier and Robert Shaw; *The Great Waldo Pepper* (1975), starring Robert Redford and Bo Svenson; *Top Gun* (1986), starring Tom Cruise and Kelly McGillis; and *Memphis Belle* (1990), starring Matthew Modine and Eric Stoltz.

Everyone is welcome to vote in the online poll. Voting will continue through May 2, with the winner and viewing date announced shortly thereafter.

## 2007 IAC Contest Rule Book Available



The 2007 *IAC Official Contest Rule Book* is now available for downloading from the members-only section of the IAC website, [www.IAC.org](http://www.IAC.org), in the Contest Information section.

The changes run from the minor, but helpful, reformatted page numbers and changes to the Free Program requirements for gliders, Advanced and Unlimited power, to fairly extensive rewrites to clarify sections that previously had been identified as problem areas. Be sure to also check Chapter 8 for the judging criteria on the new Family 5 hammerheads. Just look throughout the book for the "change bars" in the margin to identify any change more significant than a typo correction.

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# ...THIRTEEN SECONDS.....

## Inspiring second thoughts on safety

By Giles Henderson, IAC 159

### RESTLESS NIGHT

I was lying on the ground in a small backpacking tent between two hangars at Illinois' Aurora Municipal Airport. I had been thinking about the last time the Cub and I flew an aerobatic contest here 37 years ago. We had been invited to Bob Heuer's strip, a few miles north, on a Friday for a day of practice. Bob and his boys, Mike and Mark, were putting the finishing touches on their brand-new S1 Pitts. Their Bonanza, N3N and Ryan STA were parked outside on the flightline. During the day there were several memorable arrivals, including Paul Poberezny flying the only remaining North American P-64 fighter and Pete Myers making a low-level inverted arrival with Dan McGarry in the front seat of Dan's clipped wing. By late afternoon there were a total of five clipped Cubs scattered among the 30-odd trick planes.

That evening on the flight down to Aurora, my wife, Lyn, pointed out the right window as Mary Gaffaney pulled in off our wing with her little

yellow Pitts, inverted. She somehow managed to fly inverted formation with us at 65-hp Cub speed.

My thoughts were interrupted by a loud crash of thunder. The wind had been picking up and now came the familiar sound of rain on the nylon tent fly. My tent was pitched on the only patch of grass that offered any protection from the westerly winds that prevailed during the afternoon. By midnight the wind was out of the north at 30 to 40 mph and the little tent was right in the throat of two hangars. The noise level from the fluttering nylon tent and rain splattering on the steel hangar a few feet away made sleep seem impossible.

### COLD AND WET

I must have eventually drifted off because I remember the awakening shock of rolling off the sleeping pad into cold water about an hour before sunrise. As the rain-soaked ground became soggy, the force of the wind pulled a couple of the rain-fly stakes out of the ground, allowing water to leak in and accumulate in the bot-

tom of the tent. A quick inventory revealed that all of my clothing was soaking wet.

With no good options, I put on the cold, wet clothes with the hope that in a few hours I would be dried out and good to go. I crawled out of the tent around 6 a.m. and was immediately shivering as the stiff breeze started to evaporate water from my clothing. Isometric exercise helped. By 7 a.m. the contest hangar was open and hot coffee was being made.

### EXPEDITE

I was made No. 5 in the flight order. After making a note of the pilots' names and N-numbers and visually locating the aircraft of those ahead of me, I did a preflight of the Cub. All was in order. I was putting on my parachute when the starter advised me that I had been moved up to No. 4 because of a mechanical problem. He agreed that perhaps I should get off as soon as possible because of the Cub's slow rate of climb. Once buckled up and rolling, a calm confidence started to displace an occasional shiver and a dull headache. During the past 40 years the Cub and I have become well-acquainted friends. We have rehearsed the taxi for takeoff well over 10,000 times. *Come on, let's go* anxiety returned as I saw No. 3 in the box and the tower delayed my takeoff for a few minutes to accommodate inbound traffic. The climb and box entry proceeded without problems.

### TROUBLE

The first figure, a wedge, is difficult for the Cub. Over the course of the season I learned that most of the folks in the lawn chairs were not satisfied with a bump-and-go on the vertical. To get a winning score on this figure it was necessary to maintain a full-power entry dive to an estimated 150 mph (the Cub is redlined at 122 and the last number on the ASI is 140), set a short horizontal line, and then make





Giles was the recipient of the L. Paul Soucy Award in 1971, 1975, 1986 and 1988.

a 5g pull to vertical. This window-shaking entry renders a sufficiently long vertical line to please the judges and have enough remaining energy for a nice radius to the 45 inverted downline. The down 45 was then held long enough to assure adequate entry speed for the second figure, an Immelman.

The half-loop/half-roll sops up all the kinetic energy and leaves the airplane in a perfect configuration for the upcoming spin. The Cub enjoys an Aresti-style spin and usually earns a 9 or 10 score unless the driver screws something up. On this morning the judges were right where they should be when the stall occurred, directly off the end of the right wingtip. Smooth autorotation and a crisp, clean recovery on a nice vertical downline. Hold the line with the throttle going to full power to assure adequate energy for the upcoming shark tooth. Now the pull. The stick won't move! Any more back force will likely break something. Definitely something more than a pencil jamming the system. I was rapidly descending through 2,500 feet AGL in a vertical dive with an airspeed that had just gone through red line. Just 15 minutes before I had used a flashlight to look at the elevator bell crank assembly and to verify that

there were no foreign objects in the fuselage. *How can this be happening to me?*

#### TIME TO GET OUT

During the 1977 Salem contest we watched a Sportsman pilot remain with his crippled aircraft for 13 seconds before the fatal vertical impact. At approximately 200 feet per second I had about the same window of opportunity. My left hand rapidly closed the throttle and yanked the headset off as my right hand unlatched the shoulder harness. I looked down at the buckles to unlatch the seat belt.

Now I could see the problem. The crotch strap was not secured. The rear control stick in a Cub is connected to the front stick by means of an aileron torque tube with an internal elevator push rod. The bottom of the control stick is attached to the push rod with an AN-4 bolt and castle nut. The quick-release lug on the end of the crotch strap had fallen down and had jammed between the push rod bolt and the torque tube.

#### NEW OPTION

I now had a new lease. With an *a-ha, gotcha!* kind of smirk and a brief push on the stick, I was able to free

**THERE IS INDEED A DOSE OF HUMILIATION IN EXPLAINING TO ONE'S PEERS WHAT WENT WRONG IN THE BOX AND A SECOND DOSE IN SETTING THIS CONFESSION DOWN ON PAPER.**



Inverted fuel, oil and smoke enhanced the airshow credentials of Giles Henderson's clipped-wing Cub.



While best known for piloting his Cub, Giles feels equally at home in the cockpit of his Cassutt racer.

the crotch strap lug and recover. In retrospect, I cannot reconcile my decision to exit the box, latch up the harness and re-enter to complete the sequence. I was certainly in no condition to compete. I was also disappointed that I had failed to consider the option of pushing out the bottom of the hammerhead before initiating plan B. The Cub is fine with this. At the suggestion of Charlie Hillard more than 30 years ago, my first introduction to the world of outside maneuvers was pushing out of hammerheads.

#### WHAT CAN WE RELEARN

This experience used up way too much adrenaline. All of us who fly or have flown low-level airshow exhibitions have intentionally put our lives in short-duration windows. But these are windows that we control; we apply the right pressures at the right time to open the window and live another day.

With a structural failure, fire, or loss of a control we may no longer be able to open the window. At altitude the parachute can provide a way out. However, even at two or

three thousand feet AGL, the window is incredibly small<sup>1</sup>.

Perhaps it was from being cold and tired, or a low blood-sugar level<sup>2</sup>, or a sense of urgency to get under way<sup>3</sup> or maybe just *getting old and forgetful*<sup>4</sup>. How about bad luck? Most likely, each of these factors contributed to the unlatched crotch strap and a jammed elevator.

There is indeed a dose of humiliation in explaining to one's peers what went wrong in the box and a second dose in setting this confession down on paper. However, I share this incident with the thought that it might inspire some second thoughts on safety. ☺

<sup>1</sup>Allen Silver's persistent recommendation is extremely important: Practice plan B.

<sup>2</sup>One's ego should not override a deficiency in one's physical or mental condition.

<sup>3</sup>Flight preparations should never be hurried, even if unforeseen circumstances might cost others delay.

<sup>4</sup>A checklist seemed quite unnecessary for a Piper Cub that I've flown for 40 years, but could have prevented this incident.

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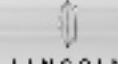
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Bonnie Kratz

# The Pitts Model 12 **Macho Stinker**

By Larry King and Scott Westover

"She was an angel who took pity on a kid with his face squashed against the fence at Brown's Field in Monroeville, Pennsylvania," recalls Al DiGiulio when asked about his first ride in a small airplane. "She was flying a Champ and invited me to take a ride. I was 7 years old." It is the timeless dream shared by every kid who considers his local airport to be more fun than television—a sympathetic pilot extending the gift of flight.

Al was one of those lucky youngsters to make it to the other side of the fence. When he passed through that gate he entered a world that would shape the rest of his life. The "angel" who took him up for that first flight must have seen something special in her passenger, and she was right. In addition to flying as captain on a Citation X, Al is the proud builder and pilot of the 31<sup>st</sup> Model 12 to fly: N177AD, the fire-breathing, vodka-swilling "Macho Stinker" that he now flies in air shows and demonstrations across the country. The last in a long line of unique aerobatic airplanes crafted and nicknamed by Curtis Pitts, the Model 12 is his biggest and, according to the pilots who strap them on, his best design. Al's current cockpit environment must make that ride in the Champ feel like a lifetime ago.

He pursued his aerobatic training in a humble Citabria before moving up to a Pitts S-1 and Christen Eagle for air show performances. He credits his time in the Citabria with teaching him the important lessons of energy management. In an airplane with a modest power plant, every bit of energy counts. There is no extra energy to help the pilot when he unexpectedly needs a bit more "umph" to complete a maneuver or make up for

**"One day I decided  
to build an airplane  
and went to the  
workshop...Then  
I came back in for  
dinner and my kids  
had grown up."**

a botched execution. While the Pitts Model 12 does not have that problem (the entire airplane was designed to maximize the power of the Russian-built Vedeneyev M14P engine) a solid foundation in energy management allows Al to fly the Model 12 at 60 percent power and perform any maneuver he wants. That translates into significant fuel savings. At 60 percent power the M14 engine sips a modest 18 gallons per hour (gph) compared to the 45 gph it gulps at takeoff power. Al readily admits that knowing he has extra power up front is a confidence builder. "If I push the throttle forward and point the nose up, I am going to climb. It's nice to know it's there."

When thinking back on his Citabria days, Al has some advice for pilots who are training in similar aircraft. "I often see pilots upgrade too quickly. Staying with an airplane until you have mastered everything it is capable of helps ensure that your skills are increasing in proportion to the money you are spending to step up to a higher-performance airplane. It's a shame to see pilots spend money faster than they build their skills."

As you may have guessed by now, especially if you have seen one of these biplanes up close, the thing that really sets this aircraft apart is the Russian radial engine. This engine has been around a long time and there are several sources for both engines and parts. Pound for pound, nothing matches it for power. The fact that it is a "geared" engine, which means the propeller turns slower than the crankshaft, gives it an amazing amount of pulling power. The takeoff roll is measured in seconds, not distance, because the actual distance is absurdly short. Al has compared the sensation in the cock-

pit during takeoff to the feeling he got behind the controls of a Learjet 24. "The Model 12 is a Sukhoi with two wings. She goes up like a homesick angel." Al estimates his required takeoff roll to be 300 feet.

This Pitts Model 12 is a two-place biplane that has a 19-foot, 8-inch steel tube fuselage with aluminum side panels. Aft of the cockpit is fabric-covered, and up front is a molded engine cowling. The 22-foot upper wing and 21-foot lower wing has wooden spars and ribs with fabric covering. The landing gear is one solid piece of aluminum from wheel to wheel. The propeller is an MT 8-foot-diameter, three-blade unit that produces more than 1,600 pounds of static thrust. The engine is a nine-cylinder radial that displaces 620 cubic inches and produces 360 hp at 2,900 rpm and 35 inches of manifold pressure. Empty, the Model 12 is in the 1,530-pound range and has a gross weight of 2,250 pounds. Top speed is about 220 mph straight and level with a  $V_{NE}$  of 239 mph. The rate of climb approaches 4,000 fpm at lighter weights. It carries 54 gallons of fuel to give a cross-country range of well over 500 miles.

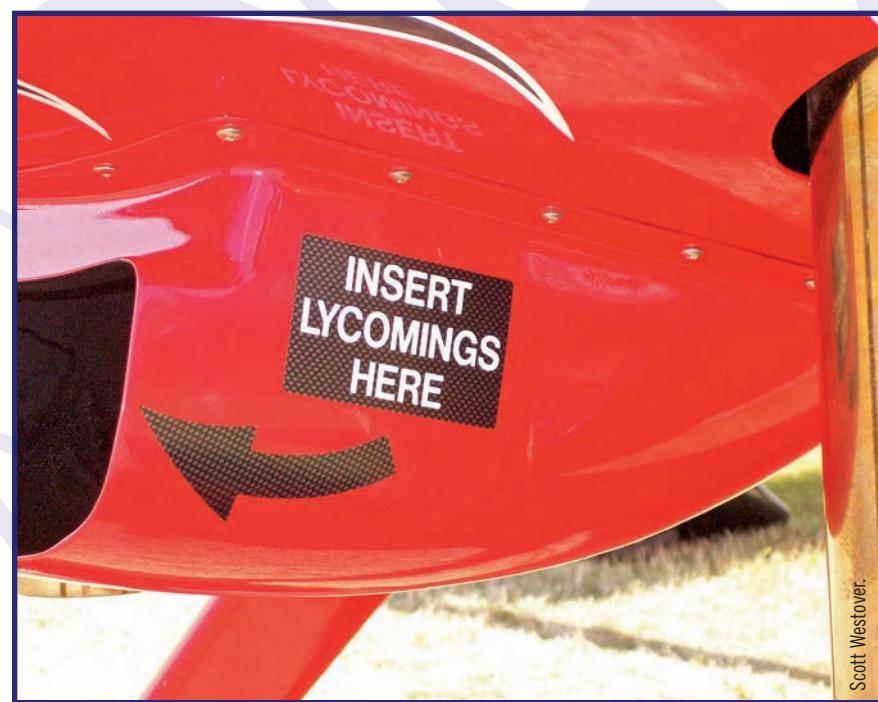
Al remembers developing a crush on the Model 12 immediately.

"The first time I saw it fly I knew this was the experience I had been searching for. Watching the demon-

stration performance was pilot déjà vu. With all the raw power from the giant radial engine and massive propeller, I couldn't wait to experience that kind of flying. I had already purchased my Model 12 kit before I took a demo ride in the first-ever yellow-and-purple Model 12 that Jim and Kevin Kimball built with the world's highest-time Model 12 driver, Larry King. It was the most awesome and explosive example of fun I have ever had in a biplane. You can see out of it better than any other of this type. The takeoff and landing is much less dramatic than in a smaller design. It really is a very straightforward aircraft that is relatively easy to operate."

By any measure, the Model 12 is a lot of airplane. However, Al (who is an expert builder of other aircraft) did not hesitate to take on a building project like this. Even though all of the necessary materials come in the kit or are readily available from all the usual sources, there is no reliable source for the most precious component of any homebuilt aircraft, which is time. With the normal day-to-day life of a working pilot, husband, and father it took more than four years to complete. And it has been worth the wait.

One of N177AD's early public appearances was at Oshkosh 2006. Prospective builders gathered around the handful of Model 12s parked



AI DiGiulio posts a warning for other aircraft.



Bonnie Kratz

near the International Aerobatic Club building and asked questions. When Al hears people talk about the possibility of building an airplane, he offers more than technical advice. "Building an airplane is a life-changing experience," he says. "There are a lot of partially built airplanes on the market. Make sure your life is going to handle the airplane before you get started." He knows what he's talking about.

"One day I decided to build an airplane and went to the workshop," he jokes. "Then I came back in for dinner and my kids had grown up." He's not discouraging people from tackling their dream. He just believes in being realistic. "It is going to change your life. It can be a good thing, but be ready for it."

During the construction of N177AD, Al's most prized resource was motivation. He recalls that he learned to rely on Kevin Kimball for both technical advice and inspiration. Kevin is the Pitts Model 12 guru who has built a reputation for taking a personal interest in the success of the builders and pilots who are drawn to this unique biplane. Thirty-six Pitts Model 12s have flown, and more are on the way. A total of 295 sets of plans have been sold to date, as have 74 kits.

Based on his experience working with pilots, Kevin believes there are three kinds of aviators drawn to the Model 12. These include those searching for a round-engine biplane, those

interested in competition, and pilots who want to fly in air shows. While the airplane has a reputation for dramatic maneuvers and breathtaking power, Kevin and Al both believe flying this airplane is a reasonable goal for many aerobatic pilots.

"I've seen pilots take the stick of a Model 12 with five hours of tail-wheel experience and some specialized instruction," Kevin says.

Al concurs. "It flies like a Pitts. It appears to be huge on the ground, but it is actually comparable to a Pitts S-2B, just a little wider and with more substantial landing gear." In the air, says Al, the controls are all Curtis.

"It feels the same because Curtis designed it and Kevin refined it. It rolls as fast as the S-1, and the rudder, elevator, and ailerons are a perfectly matched design."

Al has spent hours giving rides to both pilots and non-pilots. He says that passengers always have the same two questions when they taxi to the ramp after the flight. "How fast did we go?" is the first, almost always followed by, "How many g's did we pull?" Those questions helped Al decide what instruments to install in the front hole of his Pitts.

"I went with the airspeed indicator and the g-meter," Al explains. "Now my passengers can answer those questions for themselves."

Al's favorite passengers in any type of airplane are his sons, Roman and Reed. Roman is the older brother. At 14, he is already taking flying lessons and bugging his dad about borrowing the family airplane in the not-so-distant future. Reed, 11, isn't far behind. Al might not be quite ready to hand out extra keys to his round-engine baby, but he has already exposed his kids to the world of aerobatics and shared the smiles that only a couple of g's can bring.

Keep an eye out for Al DiGiulio's Macho Stinker air shows. When you catch up with him, who knows...you might just get a ride. Just remind him how he got his start in aviation, and you will learn that he is the kind of guy who is willing to welcome you to the other side of the fence. 



Bonnie Kratz



Larry King pilots the 35<sup>th</sup> Model 12 owned by Tom Kampel of Harrisburg, Pennsylvania.

## Larry King: "Mr. Model Twelve"

*Larry King has accumulated more than 700 hours in Pitts Model 12 airplanes. Larry generously contributed to the article about Al DiGiulio's Model 12, and Sport Aerobatics asked him to share his journey to becoming "Mr. Model 12."*

"My involvement with the Model 12 started on December 12, 1999, by giving a friend a ride to Zellwood, Florida, to pick up his new biplane, which was the original Model 12 that was at Sun 'n Fun in 1999. After having met the Kimball family and touring their shop, I was very impressed. Part of the sales agreement for the aircraft was that the Kimballs would use it for demo and sales purposes. I was elected to do the flying.

"I have maintained several Russian/Chinese aircraft since 1995. Because of this and my relationship with the Kimballs, I started working with the kit builders, helping them to complete and fly their Model 12s. I have flown 14 of the 36 that exist and have done six or seven first flights. Today I travel all over North America working on and flying Model 12s. It is my first choice in an air show aircraft because it performs so well."

Larry's experience proves that the airplane can be safely flown by many different kinds of pilots. "It's easy to fly and is forgiving at the absolute edge of the envelope. I've completed many pilot checkouts at the request of the insurance companies, and as part of those flights I have spun the Model 12 numerous times. It is the most

straightforward aircraft to recover from spins that you will find that has this kind of performance."

Larry credits superior design with the success of the Pitts Model 12. "The joy of flying this aircraft comes from the very unique capabilities this design has. It can and will do the most aggressive aerobatics that any pilot wishes to do. It has the performance to accomplish all the competition figures with ease. With the engine running wide open at 100 percent power it will climb 3,500 feet vertically. It will do 10 vertical rolls in 2,000 feet. It can roll once per second and snap faster. It has impossible hang time for tail slides and those maneuvers that use power to show well. It can dive at max speed and pull level instantly, losing less speed than a non-biplane, and do a very stable low-level pass that makes the pilot smile from ear to ear."

Even "Mr. Model 12" can't keep the grin from his face when talking about the takeoff experience.

"The first sensation is the blazing acceleration...it actually nails you into the seat. The other thing you learn right away is the amount of left rudder it needs to stay straight off the runway. It will fly off in about 300 feet and feels like a 20-cup Starbucks rush. My first flight was the most fun I had ever had in the air."

For more information on the Pitts Model 12, visit [www.pittsmode12.com](http://www.pittsmode12.com).



# Why Aerobatics?

**Because I want to be a better and safer pilot**

By Evan Suits, IAC 432789

In 2003, at age 59, I became a private pilot, and the following summer I earned my instrument rating. Once I got the instrument rating, I was faced with the question, "what next?" The ultimate goal is to get a commercial certificate and then cement the achievement by earning money flying an airplane. I'm not talking about a career as a commercial airline pilot. If I could simply get someone to actually *pay* me, say, \$100 to do something—anything—that involved flying, then I would finally feel justified in calling myself a pilot. Earning a commercial rating requires that you learn to fly well. In fact, it requires that you fly very, very well. You must demonstrate a professional level of proficiency.

I knew that climbing the ladder to a commercial ticket was going to take awhile, however, and I was looking for a shorter-term project. I mentioned this to Charlie, the proprietor of Wings Pilot Shop at the Nashua, New Hampshire, airport (KASH) where I buy many of my toys. Charlie suggested that flying aerobatics would be both challenging and help me build confidence. "There's a school right over there," he said as he pointed in the general direction of the runway. "It's called Aerial Advantage and Rob Holland is one of the best in the country."

It was an interesting suggestion. I had seen the airplanes parked just inside the fence: a Pitts Special (a specialized, all-out aerobatic airplane) and a Super Decathlon (a somewhat milder design used as a trainer). I wasn't particularly eager to do loops and barrel rolls, but I came through my primary training with a respect for spins that bordered on fear. The concern was that, if I ever got into one, I wouldn't react correctly. My brain knows how to get out of a spin, at least well enough to explain it on paper, but the brain sometimes freezes up under stress. The only real safety is making sure the hands and feet know what to do.

Spins kill a lot of pilots. Spin training used to be part of the private pilot curriculum, but too many students and instructors died practicing them

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and the requirement was eventually dropped. On my way through primary training I asked my instructor for a demonstration. He obliged and even let me try one or two myself, but the sickening drop when the low wing and nose headed for the ground and the acceleration of the high wing coming around are the things bad dreams are made of in the straight and level world.

But must they really be that scary? I had read accounts of pilots who started out fearful of spins but

through practice actually came to enjoy them. And the military requires that student pilots become proficient in spins before they are allowed to solo. It all comes down to training. The difference between a startling deviation from normal flight and a life-threatening emergency is how well you are prepared to deal with the deviation. The airlines are a good example of how well this can work. The pilots train and train and train so that when something goes wrong they follow the appropriate procedure. Training for emergencies is all in a day's work.

Eventually I contacted Rob, explained the situation, and asked if spins might become less mysterious with practice. Rob said yes. If you do enough of them, spins became just another maneuver—something to be respected but not feared. He told me that Aerial Advantage offered a five-lesson course that would lead to a spin endorsement, a formal statement by an instructor that the named pilot had received training and demonstrated proficiency in performing spins. He also pointed out that practicing spins in an airplane designed and rated for aerobatics was much safer than doing them in a primary trainer, where spins are begrudgingly permitted but not enthusiastically encouraged.

As we talked he also mentioned that Aerial Advantage offered a course in basic aerobatics, which included the spin training and a tailwheel endorsement. Completing the course would mean I could rent the Decathlon to practice aerobatics, and maybe even enter a local contest.



Aerial Advantage provided Evan with a tried and true trainer that has helped hundreds of pilots discover aerobatics.

The notion of actually flying aerobatics on my own was so far beyond my expectations as to be meaningless, but the tailwheel training rang a nostalgic bell. My very first flying experience was in high school when my grandfather, once a commercial pilot himself, took me out to Weiss field near St. Louis and treated me to a 30-minute orientation flight in a Piper Cub. I've still got the logbook he gave me to commemorate the occasion. It's now half filled in, and here was a chance to realize the potential of the initial gift.

Suddenly the decision was clear. I could learn to fly a taildragger, learn to do a "victory roll" and maybe even a loop, and do so in an airplane designed for the task under the supervision of an accomplished professional. The opportunity was simply too good to pass up. I signed on for the basic aerobic package.

Meeting Rob Holland turned out to be a lucky chance. He's a young guy, early 30s, who started out on the airline pilot track. After becoming one, he found himself getting bored hauling passengers back and forth and decided to specialize in aerobatics. With financial and emotional support from a lot of people, he formed Aerial Advantage, acquired the Pitts and the Decathlon, and hung his inverted shingle. Rob teaches, performs at air shows all over the country, enters aerobatic competitions to measure himself against other pilots, and is a member of the U.S. aerobatic team.

The course was organized in a syllabus and backed up by a textbook. I was expected to arrive for each lesson with the background reading completed, prepared to explain those materials that I understood and ask questions about those I did not.



Every accomplished pilot, including 2006 U.S. Unlimited Champion Debby Rihn-Harvey, benefits from solid instruction and practice.

Evan Suits

Robert Bismuth



Evan Suits believes that completing a basic aerobatic course has helped him become a better and safer pilot.

Every day there would be a ground school discussion, followed by a flight of about an hour. The ground session for the first lesson was more than two hours long. It was all about safety. Rob explained over and over, in every way possible, that I was not there to become a Waldo Pepper and so impress the ladies with my daring. I was going to learn to fly the outer regions of the performance envelope but I was going to do it *safely*.

I was given a long list of Aerial Advantage house rules and we reviewed them all. No aerobatics at night. Strict VFR. No aerobatics anywhere other than the carefully defined practice area and above 4,000 feet AGL. Then we moved out to the airplane and spent another half-hour discussing emergency procedures: how to ensure that the parachute was legal and had been repacked in the last 120 days, and how to put it on, how to determine that the straps are tight enough (if you can stand up straight, they aren't), how to make a parachute landing in a field, and how to land in trees or in the water. We also went over the rules under which the lessons would be conducted, particularly Rob's authority as instructor. "When I say it's my airplane, it's *my* airplane. When I say the lesson's over, it's over," he said with a smile.

He was clear and emphatic without being bullying.

He showed me how to open and jettison the cockpit door in an emergency. We reviewed the sequence of steps for a bailout. I had to recite the list and practice the movements: "Mixture IDLE CUTOFF—Headset OFF—Door OPEN—Seatbelt UNLATCH—GO!"

We walked around the airplane doing an extensive and exacting pre-flight inspection, including a good look under the seats for loose gear that might fly around the cabin when we turn upside down. The same inspection was accomplished with a tap of the fabric under the aft fuselage and listening for any forgotten items jangling around. Then back into the hangar to empty our pockets. Nothing is allowed in the airplane that isn't securely fastened to something else.

Finally, Rob helped me get belted in. The harness has seven straps: one over each shoulder, one up from the floor between the legs, one from each side for the lap. Over all these go a second set of lap belts, which is hand tightened, and then further cranked down with a ratchet. The lap belts are what hold you to the seat. If they are tight enough, they hold you to the seat well enough that you

can fly the airplane inverted without swinging around like a pendulum. I discovered that they have to be very tight indeed.

Eventually, we started the Lycoming, got our taxi clearance from KASH ground, and headed out. This was my introduction to handling a taildragger. They are much trickier on or near the ground than tricycle-gear airplanes. The difference is the location of the center of gravity (CG) relative to the main wheels. In a tricycle-gear ship, the CG is forward of the mains. This makes the airplane stable for taxiing and easy to land. Taildraggers have the CG aft of the mains, which makes them dynamically unstable when taxiing and potentially treacherous when landing, particularly in a crosswind and in the hands of an inexperienced pilot. It was immediately clear there was a whole new class of skills to learn.

Once we took off, I discovered something I had not expected: I really didn't know how to fly an airplane! All my experience to date was with Cessnas and Cherokees, which are so stable that they practically fly themselves. Indeed, this is their design goal. They are *supposed* to be easy to fly. While the Decathlon is tame compared to some of its fire-breathing aerobatic cousins, to the novice it feels like a rocket ship, and the tradeoff of stability for controllability is apparent. In short, the Decathlon does what you tell it to do, not what you want it to do. In my 250 hours of flying I had never experienced an airplane that actually had to be *told* how to fly straight and level. The Cessnas and Cherokees could do so by themselves. This one couldn't. I slipped and skidded and yawed all over the sky. I was simply terrible.

When we got to the practice area, about 10 miles northwest of the airport, we began with basic familiarization maneuvers. Rob had me do shallow turns, and then some steep ones. Then he had me slow to just above stalling speed and do them again. This was even worse! I'd bank for a left turn and the nose would swing to the right! Adverse yaw, heretofore only a theoretical construct described in books, was brought to life. For the first time I could see what the rudder of an airplane is actually for.

We then progressed to stalls. First

a power-off stall with the usual recovery, losing less than a hundred feet of altitude. Then a power-on stall, and recovery without losing any altitude at all. Then we repeated the stalls, recovering only enough to reenter the buffet. This was a standard of proficiency I had never attempted. I couldn't come close.

Fortunately, Rob is an excellent instructor. He has the knowledge and the ability to communicate. He also understands that students need time to learn so he does not react with impatience. Finally, he has a rare, delicate way of offering encouragement and support that also lets the student know that there is room for improvement. I would scream into the headset microphone, cursing my clumsiness after another botched maneuver. Rob would calmly reply, "No, you're doing fine. You're going to get it. I can see the progress already."

Then we did something entirely new. We stalled the airplane and delayed recovery. Primary training emphasizes recovering from unintended stalls as quickly as possible. Letting the airplane remain in a



Getting used to a new airplane and learning about different tools, like the sighting device, was part of the aerobatic orientation.

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*The sequence wasn't particularly smooth, never mind precise, and I didn't stop the spin on quite the right heading. But we got through it, and did so without seriously compromising either our comfort or safety.*

stalled condition is never discussed. Students may conclude, as I did, that if you don't recover immediately, the airplane will go completely out of control. It turns out that is not true. Rob talked me through it. "When it breaks, just keep the stick back. The wing won't be flying so the ailerons won't do any good, and using them might even make things worse. Don't bother with them. Instead, use the rudder to keep the wings level."

I entered the stall and held the stick full back. We sank and sank. The left wing began to drop, but standing on the right rudder brought it begrudgingly back up. It was a revelation! Even when fully stalled, the airplane was basically controllable. Finally Rob said, "Okay, stick forward, unstall the wing and pull out of the dive." I still marvel at the new understanding I gained in that



The Decathlon environment is very different from the aircraft that Evan had flown to become a private pilot and earn his instrument rating.

Evan Suits

one demonstration.

Finally, we did an aileron roll. The maneuver is simple to describe. Nose down to gain speed and then pull level. Pull the nose up about 30 degrees and then give it full left aileron with a touch of left rudder to match and hang on for a full rotation. Properly done, the airplane will roll gracefully through 360 degrees and finish upright in a shallow dive at about the starting altitude. My first attempt wasn't so graceful. The second was somewhat better, but still not good.

We called it a day and returned to the airport. I got out of the airplane drenched with sweat and slightly overwhelmed by the new experiences. I was also pumped with enthusiasm about the opportunities to increase my proficiency. Any lingering doubts over whether this course would be worth the money had bailed out.

The second lesson followed naturally from the first. We went over what I learned in lesson one and then we were over the practice area again. My next attempts at aileron rolls were far from perfect, but the improvement was noticeable, even to me. We then attempted a slow roll. This is a straight-line maneuver, which means that the control timing and coordination are much more critical. This is the first basic maneuver that requires coordinated use of all controls. Like most basic aerobatic maneuvers, it's not difficult to do, but it's hard to do well.

Lesson three was loops. By this time we were doing aileron rolls for a warmup exercise. I was also beginning to get comfortable with the unfamiliar attitudes and g forces. We rarely exceeded +4 or -2 g's, but even these moderate forces require some getting used to. Looking forward through the windshield and seeing pine trees pointed straight at you also takes some getting used to. The lessons are arranged in a logical sequence such that the more advanced maneuvers are built on elements already learned. The Immelman, for example, is a half-loop followed immediately by a half-roll. The hammerhead turn is a quarter-loop, a vertical upline, a carefully timed 180-degree pivot around the CG, a vertical downline, and another quarter-loop to pull level. The only new maneuver is the pivot itself.

I continued to progress. By lesson five I was no longer skidding and yawing all over the sky, and was warming up with slow rolls and loops. By lesson nine I was warming up with reverse Cuban-eights. What a difference a few hours of focused flying and instruction can make. Lesson 10 was the checkride, a review of everything and anything we covered in the course. Before boarding, Rob announced that I was doing the first half of the lesson entirely on my own. I was to start the engine, taxi, take off, fly out to the practice area, clear the area for traffic, and do a loop. During all this he would observe my performance but would say nothing. I got through it okay.

Then we did an aerobatic sequence, similar to one flown in a competition. A number of maneuvers are performed in quick succession and are choreographed in such a way that potential (altitude) and kinetic (airspeed) energy states are appropriately matched between the exit from one maneuver and the entrance to the next. I began with a loop, which left me low and fast (just right for starting a hammerhead turn), which also left me low and fast (just right for going into an Immelman), which left me high and slow, (just right for a one-turn spin). The sequence wasn't particularly smooth, never mind precise, and I didn't stop the spin on quite the right heading. But we got through it, and did so without seriously compromising either our comfort or safety.

We practiced a simulated engine-out emergency landing, and then headed back to the airport. Rob endorsed my logbook and then explained the deal for solo flight. "Our arrangement with the insurance company is quite explicit," he said. "Foolishness will not be tolerated. Any hot-dogging, any carelessness, any lapses in judgment and your solo privileges are revoked."

"There are no exceptions," he concluded. "One strike and you're out."

The following week I went up by myself and began work on the long list of proficiency exercises I had developed. The stalls were somewhat mushy given the lighter load, but the spins were actually fun, and at the end I flew my solo "victory roll." A dream fulfilled, but most important of all, I'm a better and safer pilot.

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# Normal Upright SPINS

A mechanical approach to recovery



By Rich Stowell, MCFI-A

*Warning: The spin environment places unique demands on both airplane and pilot. Do not be cavalier about spinning. Never intentionally spin airplanes not approved for spins, or outside an airplane's spins-approved envelope. Performing the intentional, incipient spins described in this article has little bearing on how you or the airplane might behave during unintentional, aggravated, or prolonged spins. Dual instruction from a qualified instructor who is experienced in teaching spins from unusual attitudes is considered mandatory.*

**P**ilots of homebuilt airplanes beware: Treat each and every homebuilt airplane as one of a kind when it comes to spins. You cannot predict how your homebuilt might act in a spin based on the purported spin behavior of a similar type. Spin dynamics are far too

complicated for such cursory treatment. The tipping point between an airplane that displays benign and recoverable spin characteristics and one that doesn't literally could come down to the shape of the wing root fairing, or a few pounds of weight located in a slightly different location. The spin behavior of any given homebuilt can only be known after a thorough spin test program has been conducted in that airplane. If spin tests were not performed during the flight test phase of your homebuilt, realize that you will be acting as a test pilot should you elect to spin it. Be careful. Be very, very careful!

Thousands of words can be written about spin dynamics (and numerous different spins experienced) and still not cover the subject entirely. Fortunately for us, we'll just be dipping our toes into the spin pool here

with the most rudimentary upright spin. Spinning requires two main ingredients: yaw and stall. Since rudder and elevator are our primary yaw and stall controls, we'll rely exclusively on these two controls throughout our intentional spins. We'll also set up our spins to be as docile as possible. We'll add a precision element, too, which gives a much better sense of control over what can sometimes appear to be a melodramatic and random maneuver.

No matter where we are or what we perceive to be happening during our spins, we will adhere religiously to the following formula: rudder followed by elevator. Whether it's the moment of spin entry, or the initiation of spin recovery, or the post-recovery cleanup (that's cleaning up the airplane from an aerodynamic standpoint...cleanup of the cockpit

should not be necessary!), we will always make a rudder input before we make an elevator input. Preserving this critical sequence of events can be difficult, especially since many of us were taught early in our flying careers to shove the elevator control forward when something bad happens (i.e., a stall). Unfortunately, this reaction by itself is inappropriate when spinning. The rules are different in the spin environment; the push-only response, therefore, must be replaced with the rudder-then-elevator reflex.

#### Idle & Other Checks

Before spinning, here are a few things to check: Aircraft engines have four idling modes (throttle against the aft stop), two on the ground and two in the air. On the ground, cold idle is the rpm registered after starting up a cold engine. Hot idle, by comparison, is the rpm you see once the engine has thoroughly warmed up. In the air, flight idle is the rpm you see when gliding with the throttle closed. Flight idle rpm generally decays as you dissipate airspeed. Lastly, we have "fright idle," where a tense pilot's death grip on the throttle can cause the engine and prop to stop during a spin! (Engine and prop stoppage can occur without any pilot inducement during multiple turn spins in some airplanes, too, but prolonged spinning is beyond the scope of this article.)

Experience has shown a correlation between the potential to attain fright idle and the hot idle setting. If the hot idle is too low then a white-knuckle grasp of the throttle could choke off the engine. If this should happen, you must still perform the required spin-recovery actions. Attempt engine restart only after spin recovery is complete. Better yet, don't hang on so tight to the throttle.

If the hot idle is set too high, on the other hand, the spin entry attitude may be abnormally nose-up, the rate of rotation noticeably faster, and the recovery delayed. Be sure your hot idle is set properly, usually in the 500-700 rpm range. Also be sure you have full and unrestricted use of the controls, especially the rudder. And if it's been a while since the cable tensions have been checked, be sure they are within published specifications. The airplane should be reasonably well rigged, too.

#### Finding $V_{SPIN}$

We need to establish our spin entry speed, or  $V_{SPIN}$ . To find this speed, perform a power-off, wings-level, flaps-up stall. Hold a general heading with small, quick rudder inputs as you pull the elevator control aft. Trade your airspeed to hold a constant altitude. You'll find that the aft stick movement will initially need to be relatively slow and subtle. But as airspeed diminishes (and along with it, control authority) you must pull a bit faster, harder, and farther to hold your altitude as you approach the 1g stall speed. Although altitude remains constant, the nose of the airplane will necessarily rise.

Note the indicated airspeed at the instant the airplane exhibits stall behavior. In a Pitts S-2B, that may be slightly faster than 60 mph IAS; it may be as slow as 40 knots IAS in a Cessna 150. Whenever the indicated stall speed is somewhat fast, use that airspeed as  $V_{SPIN}$ ; thus, we'd use around 60 mph as our entry speed in the S-2B. Whenever the stall speed is relatively slow, simply add five to that number ( $V_{SPIN} = V_{STALL} + 5$ ); thus, we'd use 45 knots or so for spin entry in the Cessna 150.

In our featured airplane, a Zlin 242L with two people and 20 gallons of fuel, the first signs of separated airflow occur at 62 knots IAS. This will be  $V_{SPIN}$ . The classic nose-down pitch change, however, doesn't occur in the 242L until 58 knots IAS. Even though this style of spin entry will not meet the competition standard, entries will tend to be more consistent and more predictable, both of which are desirable from a learning standpoint.

#### Upright Spin Mechanics

Our intentional spins will be entered from a wings-level, power-idle, ailerons-neutral, constant-altitude, constant-heading configuration. All of the physical actions we'll take are sequential, deliberate, disciplined. Your brain must consciously command your body to apply the specific input called for at the moment—no more, no less. No simultaneous inputs, no throttle jockeying, no wiggling of the ailerons—just the controls moved exactly as choreographed. After clearing the area, the spin sequence proceeds as follows:

#### Pre-Entry

##### Power – Idle

##### Ailerons – Neutral

##### Hold altitude; pitch to $V_{SPIN}$

*Don't rush. Take your time decelerating here. Hold your altitude and heading as you actively bleed off the airspeed.*

#### Spin Entry

##### Rudder – Briskly Full In

##### Elevator – Full Aft

##### Hold these inputs!

*As the airspeed needle touches  $V_{SPIN}$ , briskly press the rudder pedal to the firewall. As soon as the rudder hits the stop, pull the stick the rest of the way aft. Practically speaking, the elevator control will almost be full aft at  $V_{SPIN}$ . Nevertheless, put the rudder in and then pull the stick that last inch or two into your stomach and pin it there. The cadence should be 1, 2, 3-rudder, elevator, hold. Continue to hold these inputs until you consciously decide to effect recovery (more on when to decide this in a moment).*

#### Spin Recovery

##### Rudder – Full opposite

##### Elevator – Forward

*Avoid slowly feeding in the opposite rudder, or applying it in increments. Swing that rudder from full in to full opposite in one quick action. Once the opposite rudder hits the stop, it is now appropriate to move the elevator control. Don't sit there holding the stick back; push it straight forward to finish off the rotation. Avoid haphazardly shoving the stick or deflecting the ailerons. Displace the elevator control just far enough forward to lock the nose onto a point on the ground. How far forward will depend on the airplane. It might only be a couple of inches off of your stomach in a 7ECA Citabria or as far forward as the neutral elevator position in our Zlin 242L.*

#### Rotation Terminated

##### Rudder – Neutralize

##### Elevator – Pull to straight and level

*The urge will be to snatch the elevator control aft as soon as rotation stops. Even though this is a natural instinct—after all, we are pointing at the ground—it can trigger a secondary stall/spin. We must override the urge to pull too soon in favor of neutralizing the rudder first. Positively move the rudder to neutral, and then wiggle your feet a little to make sure you're truly there. Done? Okay, now return to level flight. The pull-out should feel like a steep turn (about 2g).*

#### Post-Spin

##### Get your bearings

##### Add power

##### Check for traffic and climb



**Left Spin Entry in the Zlin 242L.**

**The Zlin 242L Post-Spin Attitude is 60-65 Degrees Nose-Down**



### Spin Orientation

The mechanics of the intentional spin develop discipline with the controls. For the precision element, we need to develop our sense of vision. Unlike the instantaneous on/off characteristic of rolling and looping maneuvers, spinning has a certain amount of lag to it when trying to stop the rotation. Knowing when to apply recovery inputs is the key to stopping on the desired heading. It's all about timing. For example, to stop a one-turn spin on the original heading in a Decathlon, the recovery process begins 90 degrees early; in a 7ECA Citabria, it begins with slightly less than 90 degrees to go; in a Cessna 150, it begins a mere 20 degrees ahead. But in our Zlin 242L, the recovery must begin when the nose of the airplane cuts through the half-turn point almost 180 degrees prior to the original heading for a one-turn spin.

This knowledge now allows us to select two ground references: the landmark that will trigger the application of full opposite rudder, and a marker representing our original heading. As part of your pre-spin traffic check, take a moment to orient yourself by selecting your references. Not only should the landmarks be prominent, they should also be as close to the airplane as possible. This ensures that the references will be

within your normal field of view during the nose-down spin.

With landmarks chosen and pre-spin actions under way, lock your head forward for the rest of the maneuver. Move only your eyes from here on to gather information. Focus not on the nose of the airplane, but extend your vision down to the ground below. It's not uncommon to want to turn your head in the direction of rotation in an attempt to locate the recovery reference. And with the panoramic view offered by bubble canopies in airplanes such as the 242L, pilots sometimes will look up near the top of the canopy and swivel their heads to see the recovery landmark. Avoid these temptations. Look directly over the nose and let the recovery reference come to you! Be sure not to lean away from the spin, either; sit relaxed in your seat throughout the maneuver.

Even though we're seeking a particular exit heading, don't get so carried away with trying to hit the mark that you forget to follow the scripted control actions. In fact, maintain whatever heading the spin stops on. Do not correct the heading post-spin. Consistently exiting on the heading of your choosing typically won't happen until your movements become consistent and you begin to see clearly during the spin. The only thing you can vary in the entire



**When the indicated stall speed is somewhat fast, as in a Pitts, then use that speed for spin entry.**

process is the time delay between holding your pro-spin inputs and initiating spin recovery. Everything else is constant.

Follow the script no matter what, even if the actual exit heading isn't the one you wanted, the spin isn't behaving itself, or if you lose your orientation. You still must go through the same recovery process nonetheless. Consistently undershooting the one-turn heading? You need to be a little more patient before kicking the opposite rudder. Consistently overshooting? Apply opposite rudder sooner.

Following the above recommendations results in the slowest, steadiest spins possible with the quickest, most precise recoveries. Change any of the conditions presented and you introduce unwanted variability into the mix. Descending prior to spin entry, for example, can result in a labored departure with sluggish rotation initially, followed by a sudden, rapid rotation rate at about the half-turn point. Sticking to the script without deviation will smooth out such behavior. Remember, no input can occur until the preceding action in the list is completed first.

Get some dual instruction, give



Courtesy Judson Bartlett

Every homebuilt airplane must be considered as one of a kind when it comes to spins.

yourself plenty of altitude, and practice the basic spin until you can control every aspect of it. Integrate your vision with the step-by-step physical actions. You'll quickly find that the intentional spin is equally as controllable and as satisfying as other well-learned aerobatic maneuvers. Advancing from the basic spin to a competition-style spin is then easily

accomplished with a few adjustments to the above technique, but that's a subject for another time.

Rich Stowell has performed close to 30,000 spins in more than 170 different spins-approved airplanes, representing 20 different manufacturers. E-mail your thoughts and ideas to [Rich@RichStowell.com](mailto:Rich@RichStowell.com).



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**NOMINATIONS ACCEPTED UNTIL JUNE 15, 2007**



Nathan Altmann applied his Douglas Yost Memorial Aerobatic Scholarship at Amelia Island Aerobatics School, located in Florida.

**NOTE:** In 2001, Doug Yost was an inspiring young International Aerobic Club (IAC) competition pilot flying in his first year of competition when his life was tragically ended in a motorcycle accident. In 2002, his family established a scholarship grant to be awarded annually in his memory. The purpose of this scholarship is to promote air safety through aerobatics training. Nathan Altmann, a certified flight instructor (CFI) completing his degree in aviation management at St. Cloud State University, was the scholarship recipient for 2006. He wrote the following story about his first experience with aerobatics.

## The Douglas Yost Memorial Aerobatic Scholarship

### A CFI has help making his flying dream come true

By Nathan Altmann

It has always been my flying dream to dance in the sky as aerobatic pilots do. I have had a passion for flying ever since I can remember. My aerobatic journey began last year when I was the fortunate recipient of the Doug Yost memorial aerobatic training scholarship. I had just completed my initial CFI, but felt a need to experience more of what airplanes can really do, and the scholarship offered a tremendous opportunity for me.

I reviewed the scholarship's list of approved aerobatic training facilities and chose Keoki Gray's Amelia Island Aerobatics School, located in Fernandina Beach, Florida. I learned that Keoki is a top-notch aerobatic instructor and air show pilot. I can tell you that I had the experience of a lifetime flying with him and understand why he is so highly regarded.

I scheduled my flying during the Christmas break. The weather was great for my first day of training. We began with a wide-ranging ground session that included Pitts S-2A operations and a discussion of the aerodynamics of loops, aileron rolls, and

spins, including upright normal spins, entries, failure modes, and various recovery techniques. We also covered emergency parachute procedures thoroughly, and we talked about the physiological effects of g-forces, explaining that g tolerance is based on a number of different factors, including fitness, fatigue, nourishment, and clenching of the abdomen.

We moved on to the flying phase, and my first surprise was how difficult the Pitts S-2A is to taxi. S-turns along the whole taxi route were very challenging. Keoki demonstrated the takeoff procedure for me and handed me the controls immediately after takeoff. I made S-turns and learned to adjust rudder pressures depending on angle of attack, power, and bank. Once we reached our maneuvering altitude, I completed steep turns and stalls to get a feel for performance and unusual attitudes.

Keoki demonstrated an aileron roll, then allowed me to try my hand at them. I felt the same as when I had my very first addictive flying experience. He demonstrated a loop and then gave me the airplane. The loops

were an altogether different experience for me. The most g-force I had ever felt previously was about 1.5g's. I felt sick from the smell of exhaust, my body's hot and sweaty reaction to g-forces, and new experiences. I said I was feeling hot and we immediately turned back to Fernandina Beach airport. Keoki joked that the hot feeling was a sign that the flight was about to lose its fun. My first aerobatic flight lasted only 45 minutes.

When we took a break for lunch, I was not able to eat. I usually have a



Courtesy Keoki Gray

Aerobatic instructor Keoki Gray helped make CFI Nathan Altmann more comfortable when teaching spins to his students.

big appetite, but this was a rare exception. I lay on a couch feeling exhausted after only a 45-minute flight. My afternoon flight called for two-point aileron rolls and spins. I taxied to the runway, still feeling the effects of the last flight. I climbed to our maneuvering altitude and warmed up with an aileron roll in both directions. Keoki put the airplane in nose-high attitude and added full left rudder, which spun the airplane. I recovered with the normal procedure as I was taught in my CFI spin training. My nerves calmed down, and after this flight I was feeling more comfortable with the unusual attitudes of this airplane. Needless to say, I slept amazingly well after my first day of training.

In subsequent flights, I experienced variations of loops and rolls, such as the quarter clover, half Cuban, and Immelman. I learned about the unique takeoff and landing procedures of the Pitts S-2A. Spin recovery and the center of gravity effects on spins were an important part of my training. With my eyes closed and head down, Keoki put the airplane

in some different types of spins, then told me to open my eyes and recover. The recovery technique was always the same no matter what type of spin I was in. We then experimented with different recovery techniques, such as taking our hands off of the controls while the airplane was spinning, and noting the performance of the spin. The airplane was forgiving. The stick naturally went center and aft and was easily recovered once opposite rudder was applied. Keoki put the airplane in inverted spins and inverted accelerated flat spins. Just when I was beginning to like the view of the world rapidly spinning above me, our lesson time was up.

I am extremely grateful for the experience that I was given. Keoki Gray was a wonderful instructor who gave me both confidence and very unique experience that I will keep with me for the rest of my life. I now feel perfectly comfortable demonstrating spins to my students. I enjoy passing on the excellent knowledge that I have acquired thanks to the Yost family and IAC Chapter 78. 



*Editor's Note: Nathan Altmann is currently instructing at Thunderbird Aviation in Eden Prairie, Minnesota, and attending St. Cloud State University full time. After graduation he plans on flying for a regional airline. IAC Chapter 78 is accepting applications for the Douglas Yost Memorial Aerobatic Scholarship through June 1, 2007. The application form may be downloaded and printed from the Chapter 78 website, [www.IAC78.org](http://www.IAC78.org).*

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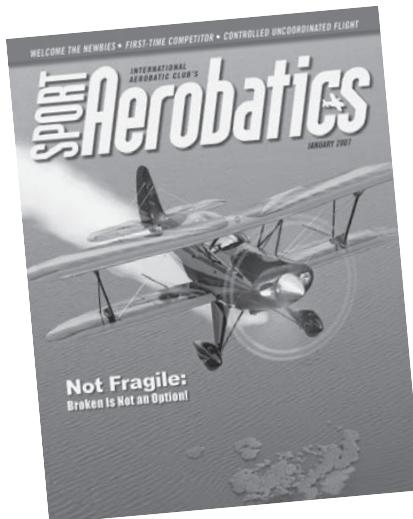
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# LETTERS to the EDITOR



## Aerobic egos get in the way

I enjoyed the recent *Sport Aerobatics* article "Bring on the Newbies!" by Budd Davisson (January 2007). It's fairly obvious on which side of the "gulf" he resides. His Pitts Special training is well-known throughout the world, which keeps him busy while flying for fun. His ability to deal with students on their level and not his own should be copied by all "wannabe" aerobatic flight instructors, whose aerobatic ego gets in the way of demonstrating and/or teaching basic aerobatic figures. Only recently, I had a conversation with a pilot to whom I had earlier given an introductory aerobatic ride in my S-2B. Some time after his ride with me, he became half-owner of an S-2B. He went on to tell me that he went to a one-day camp where a well-known aerobatic coach was giving ground-to-air coaching for a fee. On his first flight, he spent 45 minutes in the air

as the coach put him through various figures. The student felt like he had stayed in the air too long and was glad to get back on the ground. When he got out of the airplane, the coach came to him and said, "Now let me take you up and show you what this airplane can really do." The student was reluctant but went anyway and spent 45 minutes in the box as a passenger while the coach proceeded to fly many difficult figures. The student said he blacked out several times and nearly became sick more than once. I told him how sorry I was and that I was embarrassed for our sport. I heard recently that he is selling the S-2B.

Requiring aerobatic instructors to hold a CFI (certificated flight instructor) rating would not keep this kind of thing from happening, but would be a step in the right direction, and an aerobatic CFI certificate would be better. This proposal should not be confused with the present NAFI-sponsored Master Instructor - Aerobatics which is not practically reachable by many CFIs.

The EAA has had great success with their Eagles program. It seems the IAC could develop a similar and structured program for the aerobatic "newbies." Even though the IAC was started to foster competitive aerobatics, this program could allow the "newbie" to enter the sport and then decide which side of the "gulf" he would like to participate on.

— Paul Logue  
IAC 1247

Dear Paul,

Thanks for the kind words. While I'd like to think that any kind of formalization would help eliminate the kind of situation you described, as you already stated, it won't. Each individual will bring his own interpretation and talent, or lack thereof, to the role of instructor: no regulation or training program can stop a person from being a jerk. And giving instructors a CFI ticket only makes those who are already jerks "duly authorized jerks."

The CFI process has a drawback in that it automatically excludes some great instructors because they don't want to deal with the Feds or the red tape. At the same time, it has no quantitative screening process that does anything more than verify that an individual has met the bare minimums...and we don't want "bare minimums" as any kind of standard. We want people who instruct because they love it and are good at it. Also, I've never seen a situation of any kind where the addition of the FAA has made it better.

Incidentally, in 35 years of Pitts instruction, CFIs have never demonstrated to me that they are any better at basic stick and rudder aviating than anyone else. Your IAC "newbie" program, on the other hand, holds promise. Let's do it!

— Budd Davisson

**Editor's Note:** IAC and NAFI are currently developing a designation program specifically for aerobatic instructors. Patterned after the Master CFI-Aerobatic program, this voluntary program will have three tiers. Applicants for the first tier must hold at least a Commercial certificate; applicants for the other two tiers must be current CFIs. First-time applicants will also be required to submit letters of recommendation from at least three former students.

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# CALENDAR OF EVENTS

## Chuck Alley Cajun Aerobatic Contest (South Central)

Thursday, April 12 - Saturday, April 14, 2007

**Practice/Registration:** Wednesday, April 11 - Thursday, April 12

**Rain/Weather:** Sunday, April 15

**Power:** Primary through Unlimited

**Location:** Southland Field Airport (UXL): Sulphur, LA

**Contest Director:** Bubba Vidrine

**Tel:** 337.886.7822 or 337.278.7992 **E-Mail:** [bubba26m@earthlink.net](mailto:bubba26m@earthlink.net)

## Borrego Minifest (Southwest)

Saturday, April 14

**Practice/Registration:** Friday, April 13

**Power Categories:** Primary and Sportsman

**Location:** Borrego Valley (L08): Borrego Springs, CA

**Contest Director:** Joshua Muncie

**Tel:** 652.688.1466 or 949.852.8850 **E-Mail:** [jlmuncie@yahoo.com](mailto:jlmuncie@yahoo.com)

**Website:** [www.iac36.org](http://www.iac36.org)

## Sebring Contest (Southeast)

Thursday, May 3 - Saturday, May 5, 2007

**Practice/Registration:** Saturday, April 28 - Wednesday, May 2

**Power:** Primary through Unlimited

**Location:** Sebring Regional Airport (SEF): Sebring, FL, USA

**Contest Director:** Mike Mays

**Tel:** 561.734.1955 or 561.313.8503 **E-Mail:** [soaerobatics@adelphia.net](mailto:soaerobatics@adelphia.net)

## Okie Twinstaff (South Central)

Friday, May 4 - Saturday, May 5, 2007

**Practice/Registration:** Thursday, May 3

**Glider Categories:** Sportsman through Unlimited

**Power Categories:** Primary, Sportsman, Intermediate and Unlimited

**Location:** Claremore Municipal Airport (GCM): Claremore, OK

**Contest Director:** Tom Culver

**Tel:** 918.496.1579 or 918.519.2874 **E-Mail:** [tculver@pdr-usa.net](mailto:tculver@pdr-usa.net)

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## Los Angeles Gold Cup (Southwest)

Friday, May 18 - Saturday, May 19, 2007

**Practice/Registration:** Thursday, May 17

**Power:** Primary through Unlimited

**Location:** Apple Valley (APV): Apple Valley, CA

**Contest Director:** Dick Stonehouse

**Tel:** 949.466.6714 or 626.712.0533 **E-Mail:** [300aviator@sbcglobal.net](mailto:300aviator@sbcglobal.net)

## Ben Lowell Aerial Confrontation (South Central)

Saturday, May 19 - Sunday, May 20, 2007

**Practice/Registration:** Friday, May 18

**Power:** Primary through Unlimited

**Location:** Sterling Municipal (STX): Sterling, CO

**Contest Director:** Dick Bevington

**Tel:** 303.823.5305 or 303.776.6266 **E-Mail:** [dickbeving@earthlink.net](mailto:dickbeving@earthlink.net)

**Website:** [www.iac12.org](http://www.iac12.org)

## Heuer Classic (Mid-America)

Friday, June 8 - Sunday, June 10, 2007

**Practice/Registration:** Thursday, June 7 - Friday, June 8

**Power:** Primary through Unlimited

**Location:** Aurora Municipal Airport (ARR): Aurora, IL

**Contest Director:** Bob Hart

**Tel:** 815.363.8967 **E-Mail:** [hrlndfrm@aol.com](mailto:hrlndfrm@aol.com)

**Website:** [www.iacchapter1.com](http://www.iacchapter1.com)

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## Lone Star Aerobatic Contest (South Central)

Friday, June 8 - Saturday, June 9, 2007

**Practice/Registration:** Thursday, June 7

**Power:** Primary through Unlimited

**Location:** Grayson County (GYI): Sherman/Denison, Texas

**Contest Director:** Pat Clark

**Tel:** 817.845.6445 • Enterprise Rent-A-Car available on location

## Northern California Aerobatic Supremecyfest (Southwest)

Friday, June 8 - Saturday, June 9, 2007

**Practice/Registration:** Thursday, June 7

**Rain/Weather:** Sunday, June 10

**Power:** Primary through Unlimited

**Location:** Paso Robles Municipal (PRB): Paso Robles, CA

**Contest Director:** Tom Myers

**Tel:** 650.605.2343 or 650.328.2141

**E-Mail:** [tom.myers@stanfordalumni.org](mailto:tom.myers@stanfordalumni.org)

**Website:** [www.iac38.org](http://www.iac38.org)

## Ohio Aerobic Open (Mid-America)

Friday, June 22 - Saturday, June 23, 2007

**Practice/Registration:** Thursday, June 21

**Rain/Weather:** Sunday, June 24

**Power:** Primary through Unlimited

**Location:** Union County Airport (MRT): Marysville, OH

**Contest Director:** Gordon Penner

**Tel:** 513.520.6065 **E-Mail:** [gpenner@cinci.rr.com](mailto:gpenner@cinci.rr.com)

**Website:** [www.iac34.com](http://www.iac34.com)

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## Apple Cup (Northwest)

Friday, June 22 - Saturday, June 23, 2007

**Practice/Registration:** Thursday, June 21

**Rain/Weather:** Sunday, June 24

**Power:** Primary through Unlimited

**Location:** Ephrata, WA (EPH): Ephrata, WA

**Contest Director:** Ann Marie Ward

**Tel:** 206.579.6866 or 206.575.8827 **E-Mail:** [amward@relparts.com](mailto:amward@relparts.com)

**Website:** [iac67.org](http://iac67.org)

## Henry Haigh Challenge Michigan Aerobatic Open (Mid-America)

Friday, July 6 - Sunday, July 8, 2007

**Practice/Registration:** Friday, July 6

**Power:** Primary through Unlimited

**Location:** Reynolds Field (JXN): Jackson, MI

**Contest Director:** Dick McDonald

**Tel:** 810.632.7395 **E-Mail:** [rmac@cac.net](mailto:rmac@cac.net)

**Website:** [www.mywebpages.comcast.net/iac88/](http://www.mywebpages.comcast.net/iac88/)

## 9th Annual Okie Dust Devil (South Central)

Friday, July 13 - Saturday, July 14, 2007

**Practice/Registration:** Thursday, July 12 - Friday, July 13

**Power:** Primary through Unlimited

**Location:** Thomas P. Stafford-Weatherford (KOJA): Weatherford, OK

**Contest Director:** John Creswell

**Tel:** 580.774.1971 or 580.774.9176 **E-Mail:** [creswell@classicnet.net](mailto:creswell@classicnet.net)

## Salem Regional (Mid-America)

Saturday, July 14 - Sunday, July 15, 2007

**Practice/Registration:** Thursday, July 12 - Friday, July 13

**Power:** Primary through Unlimited

**Location:** Salem Leckrone Airport (SLO): Salem, IL

Be sure to check **[www.IAC.org](http://www.IAC.org)** for the most current contest listings.

**Contest Director:** William Perman  
**Tel:** 636.236.8691 **E-Mail:** [perman@slu.edu](mailto:perman@slu.edu)

**Canadian Open Aerobatic Contest (Northwest)**

**Friday, July 20 - Saturday, July 21, 2007**

**Practice/Registration:** Thursday, July 19

**Power:** Primary through Unlimited

**Location:** Abbotsford International Airport (CYXX): Abbotsford, BC Canada

**Contest Director:** Royden Heays

**Tel:** 604.646.4860 or 604.619.0653 **E-Mail:** [heaysr@telus.net](mailto:heaysr@telus.net)

**Website:** [www.aerobaticscanada.ca](http://www.aerobaticscanada.ca) then click link to Chapter 8

**Hill Country Hammerfest (South Central)**

**Friday, August 3 - Saturday, August 4, 2007**

**Practice/Registration:** Thursday, August 2

**Power:** Primary through Unlimited

**Location:** Llano Municipal (AQO): Llano, TX

**Contest Director:** Jeffery Poehlmann

**Tel:** 512.423.5333 **E-Mail:** [jeffery@texas.net](mailto:jeffery@texas.net)

**Doug Yost Challenge (Mid-America)**

**Saturday, August 4 - Sunday, August 5, 2007**

**Practice/Registration:** Friday, August 3

**Power:** Primary through Unlimited

**Location:** Cumberland Municipal Airport (KUBE): Cumberland, WI

**Contest Director:** Mike Niccum

**Tel:** 952.652.2245 **E-Mail:** [PGNic@AOL.com](mailto:PGNic@AOL.com)

**Website:** [www.iac78.org](http://www.iac78.org)

**Beaver State Championship (Northwest)**

**Friday, August 10 - Saturday, August 11, 2007**

**Practice/Registration:** Thursday, August 9

**Rain/Weather:** Sunday, August 12

**Power:** Primary through Unlimited

**Location:** Eastern Oregon Regional at Pendleton (PDT): Pendleton, OR

**Contest Director:** Robert Toppel and Bob Harris

**Tel:** 503.292.6630 or 503.757.1247 **E-Mail:** [rboydt@comcast.net](mailto:rboydt@comcast.net)

**Website:** [www.iac77.org](http://www.iac77.org)

**Kathy Jaffe Challenge (Northeast)**

**Friday, August 24 - Sunday, August 26, 2007**

**Practice/Registration:** Thursday, August 23

**Power:** Primary through Unlimited

**Location:** Flying W Airport (N14): Lumberton, NJ

**Contest Director:** Ron Chadwick

**Tel:** 732.671.6089 **E-Mail:** [bubbaron@comcast.net](mailto:bubbaron@comcast.net)

**Website:** [www.iac52.org](http://www.iac52.org)

**Illinois State Open (Mid-America)**

**Friday, September 7 - Sunday, September 9, 2007**

**Practice/Registration:** Friday, September 7

**Power Categories:** Primary, Intermediate and Unlimited

**Location:** Illinois Valley Regional Airport (VYS): Peru, IL

**Contest Director:** Bob Hart

**Tel:** 815.363.8967 **E-Mail:** [hrtlnfrm@aol.com](mailto:hrtlnfrm@aol.com)

**Website:** [www.iacchapter1.com](http://www.iacchapter1.com)

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**East Coast Aerobatic Contest (Northeast)**

**Saturday, September 8 - Sunday, September 9, 2007**

**Practice/Registration:** Friday, September 7

**Power:** Primary through Unlimited

**Location:** Warrenton-Fauquier (W66): Warrenton, VA

**Contest Director:** Scott Francis

**Tel:** 703.618.4132 **E-Mail:** [s.francis@ieee.org](mailto:s.francis@ieee.org)

**Rocky Mountain Invitational (South Central)**

**Saturday, October 6 - Sunday, October 7, 2007**

**Glider Categories:** Sportsman through Unlimited

**Power:** Primary through Unlimited

**Location:** Lamar Municipal Airport (LAA): Lamar, CO

**Contest Director:** Jamie Treat

**Tel:** 303.648.0130 **E-Mail:** [jamietreat@hughes.net](mailto:jamietreat@hughes.net)

**Website:** [www.iac5.org](http://www.iac5.org)

**Mason-Dixon Clash (Northeast)**

**Friday, October 19 - Sunday, October 21, 2007**

**Power:** Primary through Unlimited

**Location:** Farmville Regional (FVX): Farmville, VA

**Contest Director:** Jim Walker

**Tel:** 919.349.0057 **E-Mail:** [jwslim1@aol.com](mailto:jwslim1@aol.com)

**Website:** [www.iac19.org](http://www.iac19.org)

**Borrego Akrofest (Southwest)**

**Friday, October 19 - Saturday, October 20, 2007**

**Power:** Primary through Unlimited

**Location:** Borrego Valley (L08): Borrego Springs, CA

**Contest Director:** Ron Rapp

**Tel:** 714.743.0360 or 949.852.8850 **E-Mail:** [ron@rapp.org](mailto:ron@rapp.org)

**Website:** [www.iac36.org](http://www.iac36.org)

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Allen Silver

By Allen Silver

**Q**: The elastic keepers on my parachute's chest and leg straps are missing. Are they important?

**A**: Those elastic keepers may seem insignificant, but they play an important role in a successful exit. If you have to bail out, your day is already not going well, and not having the elastic keepers could make it worse.

Imagine you've just had an emergency and need to leave the airplane. You remembered to jettison your aircraft's canopy or door first. You also remembered that the next step is to unfasten your seat belts. So far you're doing great! You claw your way out of your disabled aircraft, and just as you go over the side, you come to a sudden stop and are pinned against the side of the ship. That free end of your leg strap was flailing around and snagged on the cockpit sill as you climbed out. There you are hanging by a leg strap because you or your parachute rigger did not replace those worn or missing elastic keepers.

They serve an important role in keeping the loose ends of webbing tucked neatly away so the possibility of becoming entangled with an out-of-control aircraft is unlikely to occur. Insist that your parachute rigger do a complete and thorough job when servicing your parachute. Most parachute riggers will keep a supply of elastic keepers, and many riggers even manufacture their own to keep on hand.

Servicing your parachute means more than just repacking it. If, while preflighting your parachute, you

## Ask Allen

A master rigger answers your questions about parachutes ... and seat belts

find an elastic keeper is missing, a couple of rubber bands will work just fine until you can get a replacement keeper. Do not use tape. Although it may seem like a clever fix, the adhesive on tape will weaken and deteriorate nylon.

**Q**: Is it true I need a large military style parachute like a 28-foot C-9 canopy if I fly a fast aircraft like a warbird?

**A**: Under some conditions that may be a practical option. For instance, if you weigh 220-plus pounds and are flying at high field or density altitude elevations, or if you have an ejection seat. However, there are many parachutes out there that are smaller and lighter but will still support your weight just fine and have a slow rate of descent.

It pays to shop around and ask questions when purchasing a new or replacement parachute. When you are armed with information, you will make a better decision. Remember that bigger is not always better. During an emergency, you may be experiencing high g-loads. Your big, bulky, 25- to 30-pound military parachute may now weigh well more than 100 pounds and will make it difficult to get out of your tumbling, out-of-control aircraft.

Also, if you do not have an ejection seat, it does not make much sense to have a parachute rated at 250 knots. I have done high-speed exits from sky-diving aircraft, and I believe that much above 180 mph you will find it difficult, if not impossible, to get out of any aircraft. Remember, the rating of a parachute is deployment speed,

*Assuming you do manage to get clear of your aircraft and survive a 200-knot bailout with all of your body parts still attached, you will slow down to a safe opening speed within a matter of a few seconds.*

not bailout speed. Assuming you do manage to get clear of your aircraft and survive a 200-knot bailout with all of your body parts still attached, you will slow down to a safe opening speed within a matter of a few seconds. Typically you'll slow 20-30 knots within the first second. In the time it takes you to look, find, reach for, and pull your ripcord, you will more than likely be within the speed limits of your parachute. So even if you fly a high-speed aircraft, a parachute with a lower speed and weight rating may be just fine for you.

Planning for an emergency begins with the proper equipment and an escape plan. Make decisions early! Have fun flying and keep your questions coming.

*Allen Silver is the owner of Silver Parachute Sales and is always available to answer your questions about parachutes. Send your questions to [Allen@SilverParachutes.com](mailto:Allen@SilverParachutes.com).*

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# meet a member

By Scott Westover

**Name:** Larry Macon, IAC Chapter 19 President

**City, State:** Salisbury, North Carolina

**Occupation:** Marketing Manager with INVISTA

**Family:** Pat (wife), Meredith & Darren (children), Allison and Jason (grandchildren)

**Pilot certificate:** Commercial, Instrument, CFI

**What aircraft have you flown?** Cessna 152, 172, 172RG, 182, 182RG, 177; Piper Tri-Pacer, Cherokee, J-3 Cub; Citabria; Mooney; Bonanza; and SN2. Aerobatics in Aerobat; 8KCAB; Extra 300; and Pitts S-2A, S-2B, S-2C.

**What drew you to flying?** I have been fascinated with flying and airplanes since I was a kid watching the Carolina Aero Club have their fly-ins at a grass strip just a few miles from home. My dad arranged for my first flight in a C-172 from this same grass strip when I was 12. I knew immediately that I had to fly when I became old enough and had enough money.

**What was your first experience with aerobatics?** In September of 1980 in a Pitts S-2A with Lindsey Hess, a local air show performer and FBO manager. I received some training from him and then rode through many of his air show maneuvers. I could not believe the performance of the Pitts!

**Tell us about your airplane.** I have owned a 1996 Pitts S-2B, The Ride, since July 2002. If you wonder why I call it "The Ride," you haven't flown in a Pitts. It is a kick in the pants to fly! A beautiful airplane and great fun!

**How did you obtain this airplane?** Prior to owning the Pitts, I owned a 1998 Super Decathlon for three years. I really enjoyed this airplane but wanted something with more performance. I called Bill Finagin for his assistance. A red and white Pitts S-2B had just come on the market in Annapolis, Maryland, so I flew up for a look. It was love at first sight!

**What is your most memorable contest moment?** My second contest



**Larry Macon is the president of IAC Chapter 19.**

when I won my first trophy, second place in Sportsman in the Super Decathlon. I was in first place after the first flight, but Dave Watson out flew me in a battle of the Super D's. Super Decathlons placed first and second ahead of the higher-performance planes.

**Tell us about a person in the sport you admire.** I have met so many great folks in this sport, however, I would pick Bill Finagin for his wealth of knowledge about aerobatics, the IAC, and the Pitts. Bill has been very helpful with information about the Pitts, spin training and, of course, introducing me to *The Ride*.

**How does your family feel about your aerobatics?** My wife is generally underwhelmed by the idea of aerobatics but is supportive. Jason, my grandson, really likes flying and *The Ride*, so hopefully, when he is older, he will join the fun. Allison, my granddaughter, thinks it is cool.

**Where would you like to see yourself going in the sport?** I fly aerobatics for the pure joy and freedom of flight on all axes. Helping others experience aerobatics for the first time also gives me great pleasure. I am currently working with a great group of aerobatic pilots in IAC Chapter 19, and I am looking forward to helping make our chapter one of the best in the country.

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### miscellaneous

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