

JUNE 2008

# SPORT *Aerobatics*

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

## THE SBACH 300

Lands in the United States

- Sun 'n Fun 2008
- Smooth Technique Tips
- Aviat's Stu Horn Speaks





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Oshkosh, 2008, July 28-August 3.

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Philipp Steinbach pilots the Sbach 300 over  
Sun 'n Fun 2008. Photo by Jim Koepnick.

# SPORT Aerobatics

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

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## Get Ready to Rumble: U.S. Nationals 2008 Update

Doug Bartlett, Contest Director

After a long winter in many areas of the country, competitions are finally underway. Even though there is still a long competition season ahead of us, planning for the 2008 U.S. National Aerobatic Championships is well underway. It is never too early to start thinking about joining friends and competitors again this year in Sherman, Texas. I would like to invite IAC pilots one and all to join us for this year's event from September 21 through 27, 2008. Although it's a championship event, first-time competitors are welcome.

Last year's championship event was a great contest, and this year is stacking up to be just as much fun. Most things will stay the same, but there are a few exciting changes planned. North Texas Regional Airport, the airport formerly known as Grayson County Airport, has a control tower this year. If you have never flown a contest with one, you are in for a treat. With the assistance of control tower personnel and protected airspace, there is an extra level of security that will enhance the safety of the contest.

This year's change to the Regional Series rules makes the U.S. Nationals even more important. As announced earlier, all competitors are automatically enrolled in the Regional Series (no entry fees)! The Regional Series champions will be picked from those pilots flying three or more contests in each region (with the exception being the Northwest region with two or more contests). Remember, the U.S. Nationals counts as a wild card and will be included as a contest in each and every region.

Would you like to judge at the U.S. Nationals? If you are a current

national judge and would like the opportunity to judge at Nationals, please contact Ann Salcedo ([AnnSalcedoRN@aol.com](mailto:AnnSalcedoRN@aol.com)) and let her know of your interest. This year's national judges will receive an automatic one-year extension on judges' school requirements.

All power and glider categories will be flown, and national champions will be selected in all but the primary category. This year is team selection for the U.S. Unlimited Aerobic Team. Along with the experienced Unlimited pilots of last year, this year will include a new crop of pilots moving up from Advanced. We expect exciting competition at all levels.

The entry and banquet fees will stay the same as last year. Our banquet will return to the Tanglewood Resort north of Denison and will be a wonderful event featuring friendship, good food, drinks, photos, and of course, many awards.

Not a pilot but want to join in on the fun? Come on down! Our wonderful volunteer coordinator, Ann Salcedo, will find a spot for you to help out. You will meet people from east to west, north to south—many of whom will end up being lifelong friends. This is the only contest in the country that has pilots from all regions in one place at one time. You cannot afford to miss this experience.

The website for this year's contest will go live on July 1. There will be a link from the IAC home page. Here you will find all the information needed to register and plan for a great time at the Nationals. Come one, come all, and have fun. I look forward to seeing you the last week in September.

**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 [lpopp@eaa.org](mailto:lpopp@eaa.org).**

## PRESIDENT'S PAGE

by Vicki Cruse • IAC 22968  
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Vicki Cruse

## IAC 2008:

The present, and a promising future

Once again I find myself writing the President's Page at 40,000 feet somewhere over the western United States on my way home from the spring board meetings (both IAC and EAA) in Oshkosh. As we look at our membership numbers, we still find ourselves hovering around the 4,500 mark and hanging steady, which is a very good thing. However, it did not go without notice that this year will likely be a tough one on all of us, whether you fly or not. With the economy not as strong as last year and the price of avgas rapidly rising, the board turned its attention to the possibility of a year in which many of you decide to save your membership dues. We hope we can provide enough benefits to make those dues worth paying.

Lisa Popp, IAC Executive Director, and Doug Bartlett, our treasurer, are running a very tight ship this year with the IAC finances. Doug and Lisa will continue to review the finances on a monthly basis to make sure we follow the trends of the current economy. We plan on making this a bit of a leaner year, and we'll be testing new ideas that hopefully will earn some additional revenue to make up for a year that may not be quite as "healthy" as previous years. Members of the board continue to travel to meetings at their own expense, and we have no plans to make any changes to this policy.

Oshkosh (known to some as EAA AirVenture Oshkosh) holds promise

for us this year, with an IAC forum schedule nearly filled. We always need volunteers to work in the IAC building and "talk aerobatics" to those wanting more information. If you are planning on attending and would like to volunteer a few hours of your time, please e-mail Lisa Popp ([lpopp@eaa.org](mailto:lpopp@eaa.org)). The annual membership meeting will be held on Friday night, August 1, where you'll hear the announcement of the incoming board members and can enjoy a meal sponsored by Northwest Insurance Group.

Speaking of insurance, participation in the new insurance program continues to grow. Ryan Birr of Northwest tells me he is happy with the progress so far, and I have received e-mails from members also indicating their happiness with the program, particularly customer service, with outstanding service provided by Ryan and Lori Richards in the Hillsboro, Oregon, office. Ryan will be in the IAC building at Oshkosh this year to answer questions and provide instant insurance quotes. He will also be giving a forum at the IAC building to help IAC members understand some of the myths surrounding insurance coverage.

*Sport Aerobatics* continues to get better, and by the next issue, the new editor will make his or her introduction. If you see any typos this month, it is my fault, as the interim editor. As always, articles are welcome, no matter your experience as a writer.

Contrary to popular belief, an editor doesn't rewrite pieces but helps them flow better or offers suggestions to help the author with the piece.

### Where Do We Go From Here?

It is still my continuing belief that the IAC, and its members, has a lot to offer the general aviation community, and we could do a much better job at getting that word out. The IAC should be the recognized authority on unusual attitude and aerobatics in the United States. We need to form strong relationships with aerobatic flight schools as they are in the best position to teach pilots about the benefits of aerobic training. Currently, we do very little in this area, and we hope to begin a major change soon.

All of you who have had unusual attitude and spin training know the confidence and understanding of flight this training creates, but we need to pass this on. Both the FAA and the AOPA continue to announce the unusually high number of "loss of control" accidents. The IAC needs to take an active role in this and promote unusual attitude training and the schools that provide it. In the coming months, we hope to put our efforts into improving our relationships with the flight schools. It is time to give back to the schools by helping them promote the "benefits of aerobic training" message in order to make the sky, and the pilots who fly in it, a safer place. ☺

# NEWSBRIEFS

## IAC Government Relations Reminder

In 2006, IAC created a committee to help IAC members when applying for or renewing aerobatic practice box waivers and to offer support to members having issues with existing boxes, such as noise. The committee was also created to assist both IAC members and flight standards district office (FSDO) personnel by providing expert industry assets who are available to provide

initial (and continuous) education for IAC/FSDO personnel unfamiliar with aerobatic practice box policies and procedures.

This partnership also encourages FAA FSDO and other flight standards personnel to contact the appropriate IAC Government Relations Committee member with any aerobatic practice box question, concern, initial/renewal box application issues, environmental issues (noise), etc.

This partnership between the IAC and the FAA has proven itself to be very successful. By expanding the knowledge of all parties involved in aerobatic practice box policies, procedures, and programs, the partnership has created a stronger interface that is able to address issues and concerns almost instantly. For more information, please visit [www.IAC.org](http://www.IAC.org).

## SIU Collegiate Aerobatic Program Canceled

The championship-winning collegiate team from Southern Illinois University (SIU) has had to call it quits due to increased insurance and funding requirements. The team started in 2001 and won the IAC Collegiate series six times. During its reign, SIU introduced 16 pilots to aerobatics through the program, and its results far exceeded all expectations. Ken Robinson, the program manager, said, "We will definitely miss the aerobatic program for the SIU Aviation Technology pilots. We will miss the pilots and their IAC involvement. Thanks again to IAC for their support to the collegiate program."

Tom Rybczyk and Jason Dusel both have an S-1 Pitts, and Dave Oliver and Andrew Bochnovic will be looking to fly one soon—somehow, some way. More students may follow as they find the money to invest in the sport. Andrew Bochnovic, last



2006 SIU Team. Left to right, Dr. Charley Rodriguez, Joshua Smart, Andrew Bochnovic, Lori Robinson, Ken Robinson, Jeremiah Brown, Gerald David Oliver.

year's team captain, graduates in mid-May and is looking for his first pilot job in the industry with several interviews scheduled. He looks to continue with the IAC when he does settle. Ken and Lori Robinson, independent aircraft sponsors for the SIU Team, said, "We thank the many, many donors to the group who have also helped to make it all possible for the students to participate in this program for the last six years."

## Aerobatic Instructor Designation Program Update

With the launch of the IAC/NAFI Aerobatic Instructor Designation, we now have 11 Master CFI-Aerobatic and one CFI-Aerobatic flight instructors designated through the

program. Two additional applications are in process. Administrator Rich Stowell says, "IAC is happy with the participation in this new program, and with time and pro-

gram recognition, we are hoping for even more applicants." For more information on the Aerobatic Instructor Designation program, please visit [www.IAC.org](http://www.IAC.org).

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# THE SВЛСН 300

Budd Davison

**S**ou don't have to hang around the competition scene very long before you realize we're not going to see many new Unlimited category designs with flying wires and two sets of wings. Today it's new brains, with new ways of thinking, using new materials to solve an old problem (how to better defy gravity). And just when you think there's no way anyone can possibly come up with something that is both innovative and offers even more performance, someone does. Meet Philipp Steinbach and XtremeAir GmbH, of Germany.



## YET ANOTHER ACRO ERA DAWNS

Philipp Steinbach is very much “today,” right down to the way he spells his name (we believe it’s the second “p” that’s silent, but we’re not sure). From his long red ponytail to his excellent Euro-English to practically everything in his airplane, other than having a Lycoming up front, there’s not much old-timey acro tradition in evidence. And that’s a good thing.

Philipp came into aviation the way many Germans do, via gliders. He says, “I was 14 when I started flying gliders. Then, when I graduated from high school, I had to pick

a trade, and I selected repairing gliders.” But he wasn’t repairing just any gliders. Practically all he worked on were high-performance, composite sailplanes.

“I did over 500 repairs in five years in nearly every kind of composite material. This included carbon fiber, Kevlar, and all the honeycombs: Nomex, aluminum, foam, etc.

“When I was 23 I started flying powered aircraft and went to work for Extra. I was there for two years working on the 200 and 400 models, and I learned a lot about composite construction and design.”

Almost as soon as he left Extra in 1997, he formed his own company to build the Impulse, an all-composite light monoplane using a Rotax, Jabiru, etc. But he was always looking for more performance.

"At one point, we put an Allison 250 turbo prop in it because we wanted something that had good go-around capabilities on short, high strips. With this combination, we had 1,600 pounds of thrust and only 900 pounds of weight, so when you hit the 'go-around' button, it really went!"

Philipp had started doing aerobatics when he was flying gliders, but only a few years after getting his power rating, he started seriously competing.

"I flew my first competition in 2005 and came in third, Advanced category. Then, in 2006 I became German national unlimited champion flying our prototype Sbach 300."

In 2004 as Philipp was training, he says, "I was flying the Extra 300S, which is a terrific airplane, but I kept asking myself what I would like to see improved in it. I wanted to make the airplane better, so I started designing one that had all those points in mind."

#### A PLAN COMES TOGETHER

Philipp was using everything he'd learned from three important sources, each of which contributed its own ingredient for the new design: gliders showed him how to make it strong, but light. Working for Extra showed him standard aircraft construction as used on aerobatic airplanes, and being a competition pilot gave him a clear understanding of the handling and performance goals he was shooting for.

"Basically, besides overall performance improvements, I was really trying to develop the best slow-speed handling characteristics I could get. For instance, I wanted to be able to do a hesitation roll on the top of a loop and have the hesitations obvious enough to be easily judged. This is asking a lot, and it would take more than just 'make the surfaces bigger.' I was trying to optimize every-

thing. I started off using the CAP 232 as inspiration for the tail. The wing and control system has lots of Sukhoi in it, and the cockpit was influenced by the Extra. The control stick was designed with burly Russian bears in mind; it is very strong. By the time we were done with the development program and finalized the design, very little of the other airplanes still remained, but they provided good starting points.

"I was also designing the structure to make it very simple and easy to maintain. This included designing it in such a way that we didn't have to cut access holes in primary structure, which weakens it and adds weight. Where possible, we wanted everything to be very easy to get at."

An integral part of building an all-composite airplane is mold making. In fact, serious composites demand a lot of even more serious molds, and if you don't get the mold right, nothing else will work. Ideally, to do it in a state-of-the-art fashion, you program a gigantic computer numerical control (CNC) milling machine to carve a foam plug to the exact dimensions you've calculated, and make your female molds from that plug. The problem is that you don't find CNC milling machines capable of working something as large as an airplane fuselage in your local automotive machine shop. Actually, Philipp didn't find the milling machine. It found him.

"I met a machinist, Horst Streicher, and we were discussing the new airplane project and my need for mold-making assistance. He surprised me when he offered to machine the fuselage plug for free. I almost didn't know what to say, since at that point, it was going to be very expensive to hire someone to do it."

Early on, Philipp's project was noticed by Harro Moewes, who, among other things, owns a flight school and an electronics company. Always the entrepreneur, Harro had enough faith in Philipp and the Sbach 300 that he invested in it, which allowed Philipp to move on with the prototype.



Philipp Steinbach, the designer of the Sbach 300.



Jim Koepnick



Lawrence Wenger

The inlet is an innocuous looking hole that, once inside the cowling, smoothly widens into a plenum that slows and distributes the air over the oil cooler.

"It took six people four and a half months to build the first prototype. And it flew really well, but we still had to sort out some issues. Among other things, the elevator and aileron forces weren't right. The stick force gradient was too steep. We spent quite a bit of time fine-tuning the spades and other system factors to get them right, and we built two more aircraft before bringing number three to Sun 'n Fun this year," said Philipp.

Philipp, who is considered a flight test engineer by the German authorities, conducted an interesting, and exhaustive, in-flight analysis of the Sbach 300. All over the airplane, they attached strain gauges that were capable of giving instant readouts of how much stress/strain a given component is seeing at any time. Then Philipp flew a wide variety of hard-core aerobatic maneuvers, which created a database of what is actually happening to the structure while the maneuvers are in progress. This kind of investigation has seldom been done on aerobatic airplanes. They then fed that data into their Finite Element Investigation model to verify what they had calculated and to make modifications, where necessary. In addition, Philipp conducted an in-flight flutter test program to 270 knots.

By the time they built No. 3, they had a firm goal in mind: They were going to produce aircraft for the aerobatic market. And they were well on their way to becoming an aircraft manufacturer. They now have 22 employees and their own gigantic CNC machine capable of machining plugs as large as 40 feet long and 12 feet wide. Investor Harro Moewes was listening to people talk about their products and approved the expansion, and they are now producing molds not only for themselves, but also for other manufacturers.

Philipp says, "We can now produce up to 24 aircraft a year, and we have a new two-place aircraft almost ready to go."

In speaking about his first time at the Sun 'n Fun Fly-In at Lakeland, Florida, Philipp says, "We came over at the invitation of Vicki Cruse, whom we met at the world championship. When we arrived we had no idea what we were going to do or what to expect, but it turned out to be very much more than we could have dreamed."



Lawrence Wenger

The outlet is shaped to move air out of the cooler, with the reflexed lip (barely visible on the outside of the outlet) being critical to lowering the pressure and increasing air flow.

They had been on the grounds only a short time when Kevin Eldredge, who had his Nemesis NXT *Relentless* go-fast machine parked across the taxiway, and Philipp started exchanging notes on their two airplanes. What started as a casual conversation about construction techniques rapidly escalated into a business arrangement that had Kevin and his company, SLO Air Inc., acting as the U.S. completion and marketing arm for the XtremeAir products, in addition to purchasing the No. 3 airplane that Philipp had on display.

#### XTREME INNOVATION

The airplane they had at Sun 'n Fun attracted a lot of attention, but it had so many subtle and really innovative features, it's likely many who examined it skipped over some of them.

First, there are basically only two major parts to the airplane, the fuselage and the wing, and both are essentially single units. The wing is a single piece that comes in from the bottom of the fuselage and fits snugly into the spar tunnel. It fits so well that it leaves a barely paper-thin gap where the integral fairings join the outside of the fuselage. The spar tunnel has the expected large through-bolts that attach the wing to the fuselage, but there are also two smallish metal angles that bolt to the spar, which carry the longeron loads through the spar cutout.

The cockpit is a tour de force in ease of accessibility. When you first swing the canopy over, you're struck by the bathtub feeling of the cockpit because there's nothing in front of you: The entire instrument panel is part of the canopy structure and pivots up out of the way! When the panel and all its associated plumbing is out of the way (it runs through flexible conduits at the extreme right, front corner of the canopy), you're looking right at the brake cylinders and the rudder adjustment assembly, which works really slick. If you have to work on something up by the fuel tank, you just crawl in the cockpit and have at it.

One item every single person looking at the airplane is likely to miss, unless it's pointed out, is that the control surfaces have no conventional hinge bolts, which allow the hinge cutouts to be tiny. This means an absolute mini-

mum of high-pressure air is boiling through the cutouts and past the hinges to spoil the flow and reduce control effectiveness. Philipp accomplished this by having all control surfaces hinge on long steel pins that run the full length of the surface. If you look at the elevator tip, for instance, you'll see what appears to be a smooth stainless steel button with an Allen wrench hole in it (could be a Torx; we didn't have reading glasses on). That is the head of a specially machined steel hinge pin that runs the entire length of the aileron and fastens into a keeper at the far end of the aileron well. All of the control surfaces are hinged similarly. It's very clean, is easy to assemble and disassemble, and eliminates hinge misalignment and its attendant system friction.

One of our favorite details is the oil-cooler ducting. Rather than having the cooler in the engine compartment and trying to duct air past the conglomeration of stuff ahead of the firewall, Philipp gave the cooler its very own duct. It works very much like a P-51's radiator duct, but he did it one better. The radiator is mounted at the very edge on the left side of the firewall, with a partial cutout in the fuselage behind it for exiting air. A ram-air tube protrudes into the slipstream on the forward, left of the cowling. However, rather than being attached to a piece of scat hose that simply blows into an expansion box around the radiator, the round duct smoothly widens out to a sensu-al-looking internal plenum that slows and directs the air before it hits the cooler for better heat transfer. This could be expected, but wait—he's not finished.

On the back side of the radiator, the cut into the fuselage looks like a backward NACA duct and works the same way (sort of). It accelerates the air and actually pulls it through the cooler. Of particular interest is the tiny, reflexed lip on the outer edge of the scoop. Philipp says that reducing that by only 2 millimeters increases the oil temperature 50°F! Who'd a thunk?

The landing gear is steel and precisely machined to match the bending moments with the axle mount welded on the bottom.

The finished package is a 1,170-pound airplane that grosses 1,655 pounds (acro takeoff weight). So, to realize

the airplane's full aerobatic strength envelope of plus/minus 10g, 480 pounds is the useful load (the acro tank holds 17 gallons), making this a real big-guy aerobatic mount. In cross-country mode, the payload opens up to 705 pounds (+4.4g/-2g) and the two 27-gallon wing tanks can be used, so the airplane has serious cross-country legs at 200 knots. So what's not to love?

As would be expected, the performance is breathtaking, although "breathtaking" is not really a relative term; it's almost becoming the Unlimited aerobatic standard. Flat out at 3,000 feet, its dead-stock Lycoming AEIO-540 L1B5 (300 horses) will drag it along at 215 knots *indicated!* The important number, however, is that with a power loading of only 5.8 pounds/hp combined with a 5-to-1 aspect ratio on its 121-square-foot wing, you're looking at climb rates in the neighborhood of 3,800 fpm, which is a nice neighborhood.

As part of their engine program, by the way, they have a relationship with Lycoming, in which XtremeAir will be using only Thunderbolt 580 engines in production airplanes, so there will be additional performance increases (for more information, go to [www.Lycoming.Textron.com/index.jsp](http://www.Lycoming.Textron.com/index.jsp)).

The ailerons (hinged well back at 27 percent) not only give it a 380-degree/sec roll rate—which is respectable, but not astronomical—but also deliver the ultra-slow speed control that Philipp was after in the first place. He has contoured the aileron nose and actuation geometry to make the entire surface much more effective at speeds where many ailerons are struggling.

Although the airplane is quite new to the competition scene, in Europe it has already twice racked up German and French national wins, so Philipp has great expectations for it here in the United States. With Kevin Eldredge's company, SLO Air Inc. (see [www.SLOAir.com](http://www.SLOAir.com)), handling the sales chores on this side of the pond, the Sbach 300 may well make a major dent in the Unlimited scene in short order. In the meantime, the rest of us can, at the very least, study the airplane closely and steal what ideas we can. And there are plenty of good ones.

For more information, please see [www.XtremeAir.de](http://www.XtremeAir.de). 



Jim Koepnick



## XtremeAir and SLO Air Inc.: An Exclusive Distribution Arrangement

On the surface a partnership between XtremeAir Gmb H and SLO Air Inc. may seem odd. Kevin Eldredge's company, SLO Air Inc., in San Luis Obispo, California, has been manufacturing and selling what may be the sexiest and fastest kit aircraft in the sky for the past three years, the Nemesis NXT. The NXT is unique, but it really is a purpose-built aircraft designed for one purpose, and that is speed!

When asked to explain why he had interest in Philipp Steinbach's XtremeAir products, Kevin says he can sum it up in two words, "Wayne Handley!" "I have been flying for well over 20 years, everything from helicopters to jets, and until I met Mr. Handley and his version of fun, I thought air racing was the coolest thing you could do in an airplane. In just three days' working with Mr. Handley I learned more about flying than I have in years of exploring on my own. I am convinced that there is no one in aviation that enjoys teaching as much as he does.

"I am still committed to winning at Reno in my NXT, but my new-found passion for aerobatic flight and my knowledge of composite aircraft gained through the NXT project made me ripe for an aircraft like Philipp's. I believe that over the next few months, those who get the opportunity to fly the new Sbach 300 or 342 two-place will marvel at its insane and outstanding performance."

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# Sun 'n Fun

**New planes, tons of wood chips,  
and cell phone silence**

Story and photos by Vicki Cruse



Paint scheme designer Mirco Pecorari shows off one of his latest designs.

**S**un 'n Fun started off the 2008 fly-in season with something it hasn't seen in years—record rainfall just before opening day. Just more than 4 inches of rain fell one-third of a mile west of the Lakeland Linder control tower, which meant Sun 'n Fun became the country's largest consumer of wood chips and plywood in the course of a few hours. Setup day found Lisa Popp, Ann Salcedo, and Miriam Levin assembling the contents of the IAC tent with standing water outside and soaked carpet inside. The show must go on and that it did, but just a little slower than usual with rain-soaked aircraft parking areas.



The IAC's tent was inside the commercial area this year, near EAA's Member Village, and not in the Sun 'n Fun Aerobatic Center as it has been in years past. While the Aerobatic Center focused on airplanes, the IAC tent focused on education through magazines, flight school information, and the debut of the new IAC Aircraft Insurance Program. Early in the week, the IAC's neighbor, Mike Loehle of Loehle Aircraft, found himself without an airplane in front of his tent due to the owner staying home because of the rain. Not wanting to waste valuable frontage space, we placed Rob Holland's MX2 and Dan Salcedo's Pitts S-1-11 there.

The Sun 'n Fun Aerobatic Center, hosted by Jim and Jean Taylor along with Bunk and Diana Chase and Jane and Dale Cornelius, hosted several Pitts, a Velox, an RV-8, and two airplanes making their debut—the Xtreme 3000 from Germany and the MXS, the latest effort from Chris Meyer and his crew from MX Aircraft. Despite its appearance at the U.S. Nationals last year, this was really the public unveiling of the MXS.

***Sun 'n Fun provided opportunities to meet new people and new exhibitors who undoubtedly will play a part in the future of the IAC.***

Aerobatic aircraft manufacturers were also present with the likes of Aviat Aircraft and Bill Finagin (who really flies Advanced despite what the Regional Series standings in the April issue said), American Champion Aircraft and Greg Koontz, and Extra Aircraft represented by Kramer Upchurch and company who displayed Mike Goulian's Castrol Extra, despite Mike being in Abu Dhabi for the Red Bull Air Race season opener.



UPPER: Ann Salcedo and Miriam Levin work the IAC tent.

LOWER: Dan Salcedo (right) shows off his Pitts S-1-11.

Jim Kimball Enterprises staked claim to the coveted "best hangout location" once again this year, with a little help from neighbors MX Aircraft. The Kimball party on Saturday night was the highlight for many aerobatic enthusiasts and included the famous Italian paint scheme designer Mirco Pecorari and Jacob Hollander, the guy lucky enough to own the only Python Model 12 in the world, but this is about to change. Stay tuned.

Making their first trip to Sun 'n Fun were Ryan Birr, of Northwest Insurance Group, and Shel Huston, of Berkley Aviation, who debuted the new IAC Aircraft Insurance Program. Ryan was available in the IAC tent providing instant quotes to aerobatic aircraft owners. Ryan, the technology, and the new program were a hit. Despite the heat and humidity rarely experienced by Ryan and Shel, except on tropical vacations, these two survived and did a wonderful job introducing the new program to IAkers, all of whom were shocked at the ability to get a quote in an instant. Northwest Insurance Group and Berkley Aviation hosted the member dinner on Thursday night that brought out Martin Albrecht and Gerd Muhlbauer from MT-Propeller.

While Sun 'n Fun 2008 brought IAC a new location, the debut of a new aircraft insurance program, and feedback from members and nonmembers, it also brought the inability for anyone to communicate verbally on a cell phone during the Thunderbirds performance. The available capacity of the cell phone towers in Lakeland spiked for those 20 minutes each day. Most of all, Sun 'n Fun provided opportunities to meet new people and new exhibitors who undoubtedly will play a part in the future of the IAC.

Many thanks to Lisa, Ann, and Miriam, without whom our presence at Sun 'n Fun would have been impossible. Thank you to Dan Salcedo and Rob Holland for allowing hundreds of people to drool over their airplanes. Thanks to John Burton and Bonnie Perkins of Sun 'n Fun for finding a new location for us this year and letting us fill a space with two attention-getting aircraft. Lastly, thanks to all the IAC members who stopped by to say hello, get a hug and a "Hi, Dah-lin" from Ann, and offer their support and feedback. None of this would be possible without you. 



**LEFT:** Ann Salcedo, volunteer extraordinaire, and Vicki Cruse, IAC president

**UPPER:** The IAC tent featuring Rob Holland's MX2.

**LOWER:** The U.S.A.F. Thunderbirds wowed the crowds.



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Rich Stowell, MCFI-A

We're halfway through the list of maneuvers required for the Primary Smooth Achievement Award. We'll continue to work on precision and discipline here, as well as the concept of not automatically correcting errors made during the various maneuvers. With aerobatic turns and one-turn spins comfortably under our belt ("Primary Smooth Award: Turn & Spin," in the April issue), let's now add in the full loop and the slow roll.

## THE FULL LOOP

Although the overall size of the loop is immaterial, the rules require not only a round shape, but also a smooth and continuous arc. We need to compensate for the effects of head wind and tail wind components to accomplish this. Furthermore, the loop must begin and end in level flight and at the same altitude, and the wings must remain level throughout. The loop cannot have any visible crab angle, either.

We detailed the elements of the loop in the August 2007 issue ("Flying the Classic Loop"). If you've been practicing loops accordingly, you're already well on your way to earning a qualifying score. Even so, let's review the key points.

### Power Management

This is easy for those who fly airplanes with constant-speed propellers: set the rpm and manifold pressure, and then leave the power controls alone! In most cases, something like 24- or 25-squared should do.

Those of you flying airplanes with fixed-pitch propellers, on the other hand, will have to coordinate throttle changes with your loop inputs. In essence, your throttle hand becomes the constant-speed prop controller. With the airplane stabilized in level flight at 2500 rpm, it should be apparent that when the nose of the airplane points skyward upon entering the loop, it's appropriate to increase power. When the nose points earthward later in the loop, it's necessary to reduce power.

### Entry

Trim the airplane for level flight. Clear the area and choose prominent ground references that will define your heading. Dive for the recommended loop entry speed if necessary (maintain 2500 rpm if you have a fixed-pitch prop!), return to level flight, and pause for a beat.

Now pull straight back on the elevator control. Some airplanes may require a dash of rudder to counteract gyroscopic precession during the pull-up (e.g., a touch of left rudder in a Pitts); others won't need any rudder whatsoever (e.g., an Aerobat). The pull should be smooth but firm, without being abrupt. We need to generate +3.5g at the start of the maneuver. Upon hitting the target g-load, freeze the stick/yoke where it is. Allow the airplane to carve out the remainder of the front side of the loop on its own. Remember, however, that as speed changes, you will have to vary the force being applied to the stick/yoke to keep it locked in place. If the stick/yoke position drifts from this spot, the shape of the maneuver will visibly change. Remember to sight down the left wing as you pull into the loop as well, and watch the wing pivot continuously around a point on the horizon.

### Apex

A loop that feels round actually looks pinched to someone observing from the ground. Consequently, we must stretch out the top portion of the loop to achieve the required roundness. When the chord line of the left wing appears to be 20 degrees or so from level inverted flight, it's time to push across the top of the maneuver. Look back over the nose and steadily slide the stick/yoke forward far enough to feel light in your seat. The

objective is to retard the pitch rate without causing it to stop altogether. You'll need to stretch out this part of the maneuver a bit more when encountering a head wind across the top, less so with a tail wind. Continue feeding in forward elevator until you reach the high point of the maneuver, then slowly back away from the push. You may sometimes need a small amount of rudder to cancel slow-flight engine effects as you traverse the apex, thus preserving your heading (e.g., perhaps a pinch of right rudder in a Decathlon).

### Exit

We're backing away from the forward elevator, allowing gravity to pitch the nose earthward. As soon as the nose touches the horizon, however, it's time to bend the flight path back around to level flight. Don't pull too tightly too suddenly here. Slide the stick/yoke aft until you reach the same spot held during the front side of the loop. Apply whatever force is necessary now to hold the stick/yoke stationary until the nose swings up to the level flight attitude. The very last part of the loop typically requires some rudder to stay on heading (e.g., a smidge of left rudder in a Zlin 242L). Instantly unload the aft elevator and fly away in level flight.

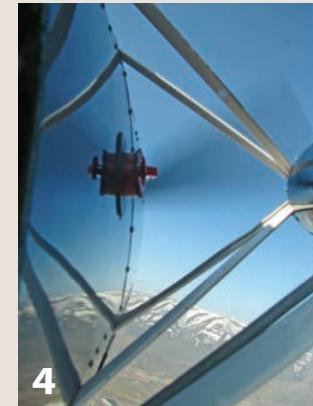
Common problems to be aware of: crooked pulls and pushes on the stick/yoke; insufficient g at the outset; transitioning to forward elevator too soon across the apex; fiddling with ailerons; pulling too tightly during the exit (judge's parlance: "out high, e-shaped"); and insufficient rudder to maintain heading during the exit.

## THE SLOW ROLL

Our slow roll must begin and end in level flight, and pitching the nose up first is not permitted. The rules also require a constant heading and constant altitude. And the bank must change exactly 360 degrees without any hesitations or variations in roll rate. The maneuver should end by crisply stopping the roll rate.

Many of the elements described in "Mastering the Aileron Roll" (June 2007) apply to the slow roll. What really distinguishes the two maneuvers from each other, though, are the initial inputs: For an aileron roll, we start by pitching the nose well above the horizon with the elevator; for a slow roll, we yaw the nose upward with the rudder as we roll. Ultimately, the nose traces the letter "D" around our reference point during an aileron roll, whereas it should trace a perfect circle during a slow roll.

The classic description of a slow roll advocates applying aileron and same-side rudder before quickly transitioning to opposite rudder (e.g., simultaneous left aileron and left rudder, then right rudder). This sequencing of rudder is necessary in airplanes that have not only sluggish roll rates, but also significant adverse yaw (e.g., Citabria 7ECA or stock J-3 Cub). Without same-side rudder at the outset, the adverse yaw in such airplanes could be sufficient to spoil the roll altogether. It may also be beneficial in such airplanes to sneak in a small amount of aft elevator to help raise the nose as the ailerons are applied. But if you do this, it's important to mask the elevator input by subtly blending it in with the aileron input. Otherwise, a judge might see the nose pitching up and downgrade your score.

**1****2****3****4**

By contrast, same-side rudder isn't really necessary in airplanes that roll faster with less adverse yaw (e.g., Decathlon, RV-7, or Pitts). We can actually take advantage of adverse yaw in these airplanes to get the nose moving upward right away. To see this, establish level flight and put your feet flat on the floor. Smoothly drive in left aileron, rolling to about 60 degrees of bank. Watch how the nose instantly carves out a counterclockwise arc toward the sky. The faster and fuller you make the aileron input, the more distinct the arc. You're witnessing the beginnings of Eric Müller's sacred circle! This certainly simplifies the start of a slow roll in these particular airplanes. The discussion that follows assumes that we won't need same-side rudder when initiating the maneuver.

Stabilize the airplane in level cruise flight. Clear the area. Select a reference point on the horizon over the nose—this is the center of the sacred circle. We're now going to cause the nose of the airplane to circumnavigate this point during a slow roll to the left (for a slow roll to the right, reverse the aileron and rudder actions described below).

#### **Entry (First Quarter)**

Start with a positive and full left aileron input. Give that yoke a healthy twist or drive that stick straight to the side. Don't let anything prevent you from pressing the control against its stop. Adverse yaw instantly sweeps the nose upward and to the right of your reference point.

We must smoothly press in right rudder next (slow roll parlance: "top rudder," meaning *rudder to the sky*). Full deflection of the left aileron occurs rather rapidly; even so, the top rudder input should lag slightly behind the aileron action. And don't overdo the rudder, either. We only want to augment the adverse yaw to keep the nose rising above the horizon.

#### **To Inverted (Second Quarter)**

Pushing the elevator control forward once the wings roll past 90 degrees of bank will push the nose up to the top of the sacred circle. Practically speaking, the airplane is usually well on its way to inverted by the time the ailerons reach full deflection. It helps, therefore, to visualize the control movements as though you are shifting a manual transmission into gear: move the shift lever over, then forward. In the airplane, separate the aileron and elevator actions by applying the aileron fully before commencing the push. Be sure to push the stick/yoke forward and toward your left knee, not toward the center of the cock-

pit (the mechanics of rolling with a yoke are somewhat easier in this regard).

It's also not uncommon for pilots to jab the elevator control forward all at once. The push should be a smooth input. Time this movement to be completed as the wings hit the level inverted attitude. Similar to the aileron roll, start pushing sooner than you think during the slow roll. The difference here, however, is that the stick/yoke must be displaced farther forward. We must transition from +1.0g at the start of the slow roll to -1.0g by 180 degrees of bank; the airplane will descend otherwise.

#### **From Inverted (Third Quarter)**

Once the airplane passes through inverted, it's time to release both the forward elevator and whatever right rudder is still being held from the entry. "Release" is the operative word, especially regarding the forward elevator; physically pulling back will cause the nose to drop rapidly and the heading to change. Just release the push and ease off the right rudder. But keep those ailerons deflected!

#### **Exit (Fourth Quarter)**

The last quarter of a slow roll is similar to the entry in that top rudder is required—left rudder now. Smoothly, but continuously, depress the left rudder pedal until either you run out of rudder or you reach wings-level flight. Avoid the temptation to pull the stick/yoke aft when adding the rudder. If the roll rate suddenly dwindles, you're inadvertently releasing the aileron input as you step on the top rudder. On the other hand, if you consistently sense an increase in roll rate when adding the rudder, reduce the amount of aileron a little to keep the roll rate constant.

Dragging the elevator aft during the last half of a slow roll is the dominant error. We must work hard to avoid this tendency. That said, a certain amount of pull is required to exit the slow roll in a level flight attitude. The aft elevator, however, should be a relatively minor pitch adjustment; moreover, it should be applied late in the roll, perhaps only in the last 20 to 30 degrees of bank. Pulling any sooner than this will pull the nose off heading (judge's parlance: "dished out"). The instant the wings reach level flight, briskly neutralize the controls.

During the maneuver, you're continuously switching between rudder and elevator inputs to draw the sacred circle, which in turn preserves altitude. Be sure to practice slow rolls in both directions, too. If you encounter any persistent problems, try slowing the roll down a few

times. This will require you to exaggerate rudder and elevator actions and will pinpoint where faults are occurring. Breaking the maneuver down into half slow rolls can also help with troubleshooting.

Common problems with the slow roll include a timid aileron input and too much top rudder too soon at the start; pushing the stick/yoke forward too hard and too late; not pushing the elevator control far enough forward; releasing the aileron input when pushing to inverted; pulling the elevator control aft as the airplane rolls past inverted; insufficient top rudder; and pulling the nose off heading near the end of the roll.

As usual, take some dual and always give yourself

plenty of altitude. Visualize the steps in each maneuver beforehand. Make notes on a sequence card if necessary. Clear the area and choose your reference points. And concentrate your efforts on the primary control movement needed at each stage of each maneuver: elevator when turning/looping, rudder when spinning, and aileron when banking/rolling.

Practice up—judgment day is next! 

Rich Stowell is a Master Instructor-Aerobatics and author of *The Light Airplane Pilot's Guide to Stall/Spin Awareness*. E-mail your thoughts and ideas to [rich@richstowell.com](mailto:rich@richstowell.com).

## P R I M A R Y S M O O T H L O O P & S L O W R O L L

**PRIMARY SMOOTH LOOP** With area clear, reference line chosen, rudder inputs as required for heading, and throttle changes as required:

**Entry** Elevator—Firmly pull to 3.5g and hold that spot • Look—Sight down the left wing; watch it pivot on the horizon

**Apex** Look—When 20 degrees from level inverted, sight back over the nose • Elevator—Smoothly push the stick/yoke forward to float across the top, then back away and allow the nose to fall

**Exit** Elevator—As the nose touches the horizon, smoothly pull the stick/yoke aft to the same spot held during the entry  
Stop—Neutralize the elevator in level flight

**PRIMARY SMOOTH SLOW ROLL** With the area clear and reference point chosen:

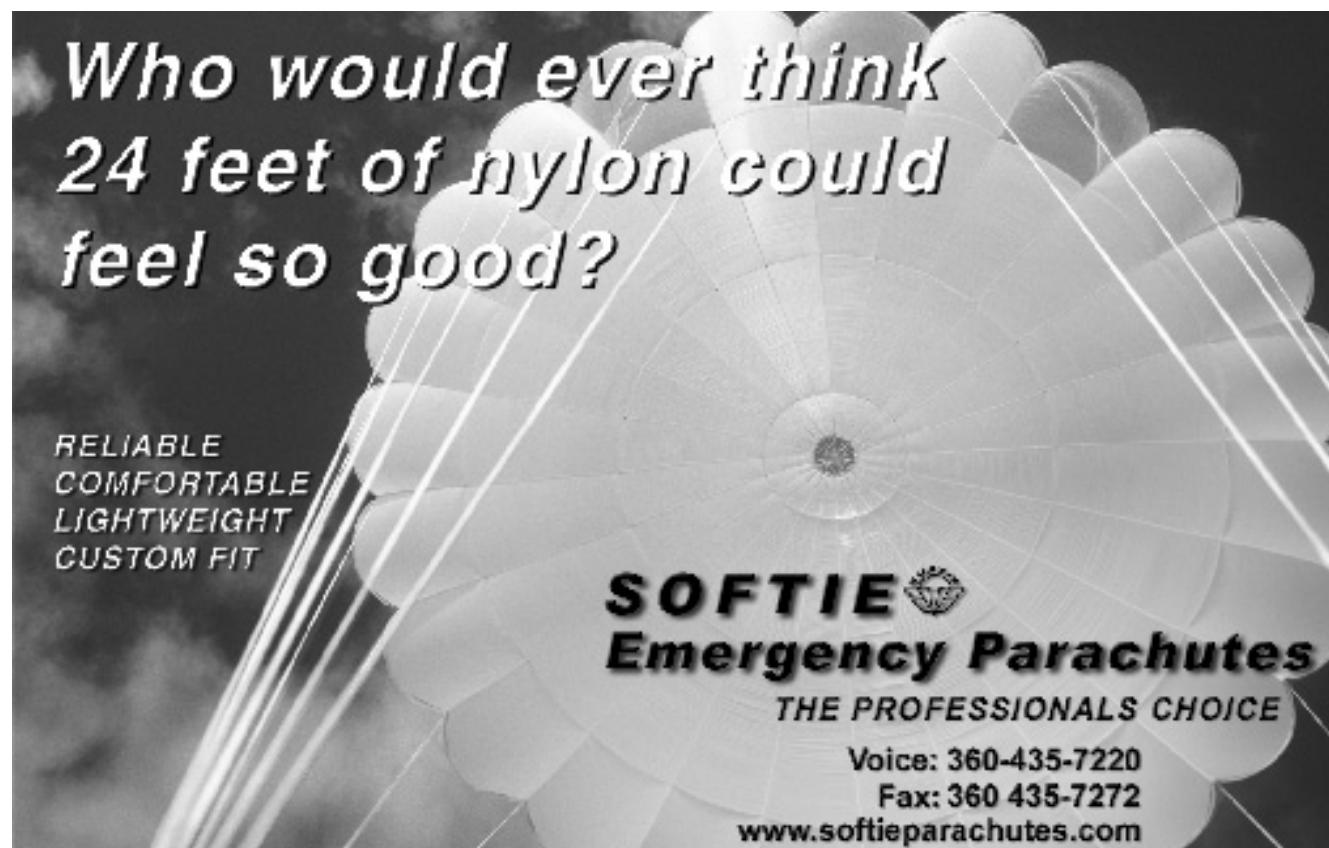


**Entry** Aileron—Positive and full deflection • Rudder—Feed in top rudder

**To Inverted** Aileron—Maintain deflection • Elevator—Smoothly push forward and feel -1.0g by the top of the sacred circle

**From Inverted** Aileron—Maintain deflection • Rudder & Elevator—Release these inputs

**Exit** Rudder—Feed in top rudder • Aileron—Adjust as needed for constant roll rate • Elevator—When practically wings level, subtle pull to the level pitch attitude • Stop—Briskly neutralize the controls



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# What Issues Keep Stu Horn

**What would make a successful real estate developer, who did not possess a pilot certificate, take his hard-earned investments and purchase an aircraft manufacturing company that specializes in aerobatic and bush-flying tailwheel aircraft? Perhaps the answer to that question is the same as the answer to the question of why seemingly normal and successful individuals have a desire—no, make that a need—to fly competition aerobatics. Both involve a passion for what is the best in aviation, and both are extreme personal and financial challenges.**

**Mark Mattioli, Esquire**

**Y**et, this is exactly what Stuart Horn, the president of Aviat Aircraft, did. Stu, a New Yorker, became dissatisfied with the ups and downs of real estate development. Having conquered that discipline, he turned his sight toward aviation. In this day and age of hard economic times for many aircraft manufacturers and airlines, we can only thank him for doing what he has done.

Recently, while he was back home in New York, Stu agreed to sit down with me to discuss Aviat, issues he faces, industry trends, concerns regarding liability risks, and things we, as pilots, need to do to spread the gospel of aviation.

#### **A BAPTISM BY FIRE**

Stu took the helm of Aviat in 1996. He candidly admits that he did not know what he was getting into but knew he was a quick study. More importantly, he always had a passion for aircraft and aviation. At the time, he did not possess a private pilot certificate and figured, partially

# Up at Night?

How can we as pilots help him and other CEOs sleep better?

incorrectly, that there was no better inducement to obtain the coveted certificate than owing an aircraft company. Most people who have even a passing familiarity with general aviation aircraft associate Aviat with the venerable Husky line of aircraft and the legendary Pitts Special, including its first cousin, the Christen Eagle II. These are not your typical "trainers."

Given the choice between learning in an aerobatic powerhouse like the Pitts or the more gentle Husky, most would have chosen the Husky. Stu's choice of the Pitts tells us something about the character of Aviat's leader. Although no statistics are readily kept, I would venture to guess that the number of checkrides given today in tailwheel aircraft represent a small minority of such rides. Indeed, a simple survey at your home airport will probably reveal that no more than 20 percent of the pilots have a tailwheel endorsement.

Unfortunately for Stu, owning a certified aircraft manufacturer did not allow him the ability to devote

***DISCLAIMER:** The opinions contained in this article are general, do not constitute legal advice, and cannot be relied upon regarding any specific legal issue that may be faced by a reader. In such cases, the reader is directed to seek appropriate legal advice.*



the time he desired to pursue his private pilot certificate. Nevertheless, after a few years, his staff was able to pull him out of meetings and convince him that the work would still be there after he landed, and that enabled him to obtain his certificate.

#### GROWTH OF AN INDUSTRY

Aviat is one of an elite number of manufacturers that produce certified aerobatic aircraft. The differences between a Part 23 certified aircraft and experimental aircraft are numerous. As a certified manufacturer, Aviat is subject to additional layers of bureaucracy that other makers of noncertified aerobatic aircraft simply do not have to deal with. For example, a cursory look at the requirements for a Part 21 manufacturer reveals that such aircraft must meet numerous standards for the issuance of a type certificate. This is certainly not to say that the noncertified aircraft are unsafe. However, to the Federal Aviation Administration (FAA), and even to some finance companies and underwriters, the benefits of certification warrant the extra effort.

Given the relatively small number of aircraft Aviat can produce each year, unlike some of the general aviation giants, Aviat does not get from engine manufacturers the discounts that may benefit a Cessna or a Beechcraft. It is the nature of the product. When manufacturing a high-



quality, specialized aircraft like the Pitts, it is the quality, not the quantity, that counts.

This of course raises another issue from a manufacturing standpoint. Aircraft, unlike other products such as automobiles, are designed to have an almost infinite life span. If you were to look at *Trade-A-Plane* or *Barnstormers.com* today, you could easily find a deal on a high-quality aircraft from the 1950s. Unless it has been restored, I would challenge you to find a 1950s automobile that you could use for daily transportation. If we look at shipment data from the General Aviation Manufacturers Association Statistical Databook, from 1998 through 2006, sales of the S-2C were at an all-time high of 16 and 17 units in the first two years. Deliveries of new S-2Cs began to decline after 2000. While much of this drop can be attributed to the events following 9/11 and general economic trends, the figures also show that the availability of S-2Cs

on the used market may cut into new sales.

Thus, there is a dilemma for a manufacturer like Aviat. They are competing not only with other manufacturers, like American Champion, Extra, and the string of manufacturers of experimental aircraft, but in addition, they are competing with their own product in the used market. To make matters worse, the universe of Aviat product buyers is limited. If fewer than 20 percent of the pilots in the general aviation population have tailwheel endorsements, then there is a very small target audience. It is for this reason that Aviat focuses on the quality of its products and, in addition, is actively involved in restoring Pitts, Eagle, and Husky aircraft.

#### WHAT KEEPS MR. HORN AWAKE AT NIGHT?

Like any businessperson, it is a variety of things. For example, overall economic issues, including cost of health insurance and worker's compensation insurance, are factors for any manufacturing business. Aviat is no exception. Stu did discuss some specific issues as well.

#### ODAs and the Certification Process

One of Aviat's concerns is with the growing trend by the FAA to delegate certification functions to aircraft manufacturers. This push is nothing new, but does present a trend toward self-certification. Why would this concern a manufacturer? The reason is that a potential plaintiff can use this self-certification process against the manufacturer.

Let's step back and take a look at the way this works. The primary legal theories against a manufacturer are that the aircraft was improperly designed (design defect) or that it was improperly manufactured (manufacturing defect). In most states, there is strict liability for manufacturing defects. That is, if the product has any defect when it comes off the assembly line, and that defect causes an injury, the manufacturer is strictly liable for the injury. It is irrelevant whether the manufacturer used the utmost care in the construction of the product. Under a strict liability theory, if it is defective, the manufacturer pays for the injury. The strict liability theory is more a form of risk shifting. The theory is that the manufacturer is in a better position to bear the risk for the manufacturing defect and has more control over the process than a consumer who is not involved in the manufacturing process.

The theory makes some degree of sense when it comes to manufacturing defects. However, its application to design-defect cases is more problematic. For example, we cannot reasonably argue that a design is defective merely

**The issue of a shrinking pilot population is a major concern for any manufacturer.**

because someone was injured. There is no "prototype design" as in a manufacturing defect case, where we can compare the design to an appropriate sample. This is especially true in aviation, where each design change is a trade-off. Increasing roll rate may affect some other handling characteristic. In most states, the courts will balance the utility of the design against its risks. By operation of this standard, the reasonableness of the design process is examined. Hence, strict liability, in a pure sense, does not exist for design-defect claims.

The certification process is governed by the Federal Aviation Act. This requires obtaining approval before manufacturing a standard category aircraft such as the Pitts or Husky. Accordingly, the Federal Aviation Regulations (FAR) set forth the standards for certification in Part 23 for standard, utility, commuter, and aerobatic aircraft. These standards are considered the "floor" for aircraft design. Simply meeting these standards does not necessarily mean that the aircraft is appropriately designed. Indeed, some manufacturers have argued that the FARs should pre-empt state law tort claims. The argument is that allowing aircraft safety to be determined by individual plaintiffs in individual situations ignores the complexity of aircraft systems. The purported change advocated by a plaintiff in a products liability suit may result in unforeseen changes in another area, and give rise to another incident. In fact, some courts have commented that this ad-hoc system of design leads to the courts having to become involved in product design, and



supplants the courtroom for the drawing table, and the judge for the engineer.

These efforts to utilize the FARs as a pre-emption defense have been largely rejected by the courts in the aviation sector. Nevertheless, compliance with the FARs may be used in some jurisdictions as evidence that the design was not defective. The current effort toward more self-certification removes this potential argument from the manufacturer's arsenal. In fact, to the extent that the product used a self-certification mechanism, such as the Organization Delegation Authorization (ODA), counsel for a plaintiff may attempt to use this fact to establish that the design was defective. While there are certain advantages to the ODA process, it does come with some degree of risk.

One may ask, does the General Aviation Revitalization

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Act (GARA) provide some level of immunity? The answer is that while it provides some degree of protection, the statute of repose extends for 18 years. Thus, an aircraft manufactured within the 18-year time period is not entitled to protection under GARA. Moreover, GARA has a number of exceptions that may further prevent its operation. Thus, for a manufacturer, while the 18-year statute of repose provides some level of protection, it may not provide enough protection.

One of Stu's strengths has been to recognize business trends and prepare to meet them head-on. This is the case with regard to the ODA process.

### Growing Aviation: If We Build It, They May Come

Certainly, the issue of a shrinking pilot population is a major concern for any manufacturer or, indeed, any individual with a passion for aviation. In this world of instant gratification, the idea of obtaining a pilot certificate just does not seem to appeal to today's youth. Why should it when you can put a video game in the console and instantly become an ace or NASCAR champion? If things are not moving along fast enough, simply set the difficulty setting to "easy" and you can win the championship by bedtime.

The issue of growing the pilot population is perhaps one of Stu's greatest challenges. In fact, it is the most important problem for which no one has a good solution. While Stu does not profess to have the magic-bullet answer, he believes that what the current aviation community is currently

doing is not working. A change in thought process is in order, and a different methodology for targeting new pilots needs to be employed.

Stu puts it this way. Think about your typical general aviation airport. Is it a place where you want to bring your family and friends?

Moreover, is it the type of place where your family and friends want to come to just hang out?

In most cases, a general aviation airport is a small, unfriendly environment oftentimes devoid of basic facilities such as bathrooms. Most hangars are typically a bit old and dirty. Not the type of place where a non-flying spouse wants to spend the day. Moreover, most are in remote locations, far from restaurants (except the local airport restaurant if it is still open).

We need to find ways to make the airport environment more attractive to non-fliers. For example, he believes that having services nearby may go far to induce those people "on the fence" to at least try flying. Indeed, in a very unscientific survey, I can think of a few successful general aviation airports that are located in areas where services are readily available. My home airport, the Flying W in Lumberton, does offer multiple facilities, including an affiliated golf course, a hotel on field, and a pool club that is used by pilots and non-pilots alike. Several airports that are not doing so well in my home state of New Jersey are more remotely located and do not have many services in the area.

Of course, there is a Catch-22 at play. Airport owners are less likely to develop such services if it will not result in increased use. Stu argues that the use will come if the services are in place. You cannot

have the increase in use without the services. Given that Aviat is on a firm financial footing—certainly no small feat in today's aviation environment—his advice should carry considerable weight.

#### A Pitts Is a Pitts Is a Pitts

The Pitts name is both a blessing and a curse for Aviat. Certainly, it is one of the longest-standing and historically most respected names in aerobatic circles, if not in general aviation circles. The venerable little biplane can be almost instantly recognized by any person who has ever attended an air show. No design has had such longevity and fierce loyalty as the Pitts.

Nevertheless, not all aircraft with the moniker "Pitts" are a product of Aviat or its predecessors. In this regard, the moniker "Pitts" is on hundreds of homebuilt aircraft that have never seen the inside of a facility in Afton, Wyoming. Moreover, aerobatic pilots and especially those on the air show circuit are always looking for ways to enhance the performance of their aircraft. As a result, oftentimes, owners make modifications to these aircraft to the point that they no longer resemble the aircraft that came off the factory floor.

Nevertheless, if any aircraft with the "Pitts" moniker is involved in an incident, Aviat is called to answer. Even if the incident was not the result of anything that Aviat did, or did not do, it is nevertheless called to respond to the FAA. If Stu could be assured that the inquiries would stop at the FAA, he may be able to rest a little easier. However, in our system of sue first and figure it out later, Aviat is a prime target.

In any products-liability action, it is not atypical for the plaintiff's counsel to name any company that had any connection to the aircraft, including the manufacturer, designer, parts supplier, etc. This results in the naming of a number of big

targets, including Aviat. The philosophy with regard to aviation products-liability cases is often to sue first and let the defendants figure out who is responsible. Responsible plaintiff's counsel will dismiss those who have no real involvement. This reality of the litigation process is only cold comfort to manufacturers that have no involvement with regard to an aircraft that was the subject of the incident.

This, of course, raises an additional issue. Under the American judicial system, each party pays its own legal expenses. For a plaintiff, this is usually done on a contingency basis, where the plaintiff's counsel takes a percentage of the award. If there is no award, the plaintiff usually does not have to pay. Nevertheless, for most defendants, even if they win at trial, there is no ability to recover attorneys' fees. Thus, there is an incentive to settle cases even when there is a strong defense. This results in the plaintiff having no real equity in the case. That is, the plaintiff has nothing to lose by instituting suit. For the defendant, being involved in a lawsuit is always an economic drain. This is true even if the manufacturer can afford products-liability insurance, which is expensive in its own right. In these cases, a large claim will likely result in a premium increase. Moreover, insurers may be willing to settle a case if the settlement will be less than the amount it will cost to bring a case to trial. Thus, the manufacturer will eventually pay through an increased premium.

As a result, many manufacturers have suggested adoption of the "English" system, whereby the non-prevailing party pays the costs and



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# "We need to find ways to make the airport environment more attractive to non-fliers."

attorneys' fees of the prevailing party. While Stu is certainly realistic in his belief that the political climate will not adopt such a system, he does believe that there needs to be a way to force plaintiffs to have some level of risk when they bring weak cases.

## LIGHT-SPORT AIRCRAFT

Anyone who has followed general aviation on even a cursory level knows that light-sport aircraft (LSA) have virtually dominated new aircraft introductions. Wandering the rows at EAA AirVenture Oshkosh or Sun 'n Fun Fly-In at Lakeland, Florida, reveals a dizzying assortment of such aircraft. Given the reintroduction of the Champ and various Cub look-alikes, the question as to when Aviat will jump on the bandwagon is only natural.

The answer to the question was surprising. Stu said the issue of developing an LSA has been extensively discussed at Aviat. Stu, however, said he has not been keen to introduce an LSA, because he is not convinced that's the direction he wants to take his company.

## WHAT CAN WE DO TO REVERSE THE TREND?

I asked Stu, if he could snap his fingers and magically fix one problem, what would he do? When I asked this question I suspected the typical answers, like enact tort reform, extend GARA, or make some change to the FARs. The surprising answer was to have pilots obtain more training. This would be the single most important thing that pilots can do to help the general aviation industry as a whole. Stu would put this above tort reform, and any other issue.

Unfortunately, in his job as president of Aviat, he is forced to see the consequences of many mistakes that may have been prevented by better pilot training. We all know people who were killed in accidents that should not have happened. While the number of potentially saved lives cannot be quantified, there is no doubt a large number of accidents that could have been prevented.

Accidents have an effect on all general aviation pilots through increased insurance costs and may often be a black eye for the general aviation community. I suspect every reader of this article has a friend, family member, or colleague who believes that small general aviation aircraft are nothing more than dangerous nuisances. Every preventable accident only further enhances that negative perception. Whether we want to believe it or not, we are all each other's keepers and need to be vigilant in terms of safety. There can be no exceptions.

This is something where the International Aerobatic Club (IAC) can help. We in the IAC need to actively promote safety training for our own ranks and for the gen-

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eral aviation pilot community. I remain convinced that the IAC has some of the best pilots and instructors in its ranks. This knowledge and experience needs to be shared. While there may be current insurance issues that prevent chapters from actively providing training, we must find a work-around. If we do not help promote such training, it does not seem as if any other group will be willing to step up to the plate.

In this regard, I also asked Stu about the prior Aviat policy to have an Aviat representative at contests. Stu confided that he started this program because he realized that some of the mechanics working on Aviat-family aircraft did not have the proper experience or knowledge. He related one situation where he was looking at an older Pitts and noticed that none of the inspection holes had been cut. The pilot had proudly advised him that the airplane just came out of its annual inspection. Stu, who is not one to mince words, advised that the mechanic was really not doing right by this pilot. He attributed this to simple lack of knowledge by the airframe and powerplant mechanic.

He advised that he was forced to end the program of sending an Aviat representative to each contest, because it was just too costly and he was not sure if it was really achieving the intended results. Nevertheless, he seemed willing to consider sending someone out to discuss maintenance issues on the Pitts on a case-by-case basis. I promptly accepted his offer on behalf of my chapter, and we are working on a forum. This is certainly something where multiple chapters can collaborate.

#### **WOULD HE DO IT AGAIN?**

Finally, I posed the question of whether, knowing everything he knows today, he would have made the same decision to purchase Aviat. Stu reflected a bit and could not give me the firm yes I was looking for. He notes that he is now more than 10 years older than when he first purchased Aviat, and there are certainly issues, such as the 9/11 downturn no one could have anticipated. Deep down inside, however, I suspect the answer is a resounding yes; he just may not be willing to admit this in front of his family. **SA**



Laurie Zaleski, Art-Z Graphics

*Mark Mattioli is a business and commercial litigation attorney with Post & Schell P.C. in Philadelphia, Pennsylvania. When not practicing law, he flies a Christen Eagle II based in Lumberton, New Jersey. By secret vote while he was otherwise indisposed and unable to object, he was appointed president of IAC Chapter 52. He can be reached at 215-587-1087 or at mmattioli@postschell.com.*

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*Allen Silver*

By Allen Silver, IAC 431160

## Ask Allen

A master rigger answers your questions about parachutes.

**Q :** What's going on with the NPRM regarding the 180-day repack cycle?

**A :** I'm constantly being asked the status of this important issue. The simple answer is I don't know. The public comment period for the notice of proposed rulemaking (NPRM) closed in August of 2007. Once it goes behind the closed doors of the FAA, employees cannot discuss it. However, the clock is ticking for the FAA. The administration has 18 months from the closing date of the comment period to either reject the proposal or turn it into a law that we can print out and read. That means we may have to wait until February 2009 for the official word. Even if the FAA was to say today that it's a done deal, we could not arbitrarily extend the current repack by 60 days. The new rule has to be in writing before we sing hallelujah and praise the FAA. Then, and only then, can you take your expensive cushion in for a repack, lube, and oil change every 180 days.

**Q :** Should I ship my parachute to my rigger in its carry bag?

**A :** A carry bag is the ideal first line of protection against anything entering the shipping box. The added weight of the carry bag does not add much to the shipping cost. Now is not the time to scrimp on protecting your parachute. This past winter I received two parachutes in boxes that had gotten wet in transit. One of the parachutes was not in a carry bag, and the harness/container as well as the parachute canopy were damp. The second parachute was in a box that was soaked, but the parachute was dry because it was inside its protective carry bag. If your carry bag is made out of Cordura, it offers a great deal of protection from mois-

ture. In the absence of a carry bag, put your parachute in a plastic garbage bag before placing it in your shipping box. It's not a bad idea to place it in a plastic bag even if you already have your parachute in its carry bag. A little extra protection can go along way.

**Q :** What's a "hard deck"?

**A :** It has nothing to do with poker, but everything to do with gambling with your life. A hard deck is the altitude where you stop trying to fix a serious problem, bail out, and let the insurance company become the new owner of your airplane. Of course, the ultimate hard deck is the ground! The important thing to understand when determining your hard deck is how much time your parachute needs to fully deploy.

Even though your parachute opens very quickly, I suggest a minimum of 2,000 feet above ground level, but that's up to you. Remember: Altitude above, like runway behind, does you no good if you're running out of time. An out-of-control aircraft can easily lose a thousand feet every three to five seconds. Does your hard deck leave you enough time to execute your escape plan and still have time to deploy your parachute? How long does your parachute take to open, and how much loss of altitude can you expect? This is your homework assignment. For help, go to [www.SilverParachutes.com](http://www.SilverParachutes.com) and read (or reread) my three-part article "Practice, Practice, Practice" for the answer.

### A COMMON PARACHUTE MYTH DEBUNKED

Many pilots think they have a ram-air (rectangular) parachute like the ones sky divers use. Chances are 99 percent or greater that you do not. The remaining 1 percent of pilots who have ram-air parachutes know they do because they have received the appropriate training in the use of their ram-air parachute. The rest of you have round parachutes that resemble an umbrella when open. So what's the difference? A ram-air parachute should be flared when landing because it is a non-rigid wing. All ram-air para-

chutes have steering handles, but not all round parachutes have them (although most do). Make sure you become familiar with what your parachute has or does not have in the way of steering handles because this is how you guide your parachute to a safe landing area. The number one purpose of those steering handles is to steer clear of life-threatening obstacles (like roads that have power lines running alongside them). The second purpose of those handles is to face into the wind when landing. Unless you're in that 1 percent who have been trained on a ram-air parachute, **do not** ever pull both steering handles down at the same time on your **round** parachute. You've seen sky divers do it in the movies or at your local parachute center, but you'll significantly increase the rate of descent on a round parachute. Remember: Miss obstacles first, and then try to face into the wind to land (if you have time). It does you no good to face into the wind and land gently in the power lines.

Here is a simple rule-of-thumb to get a rough idea where you and your parachute are going to land. Most steerable parachutes have about a 5 mph forward speed that cannot be shut off. It's rare that you will be coming straight down (you would need a steady 5 mph head

wind). If you notice the landscape moving below you, then you are drifting somewhere. When you're drifting (either forward or backward) you will land somewhere between 45 and 60 degrees in front or in back of you (for reference, 90 degrees is straight down). If you don't like what's in that sight picture, steer to a safer landing area. If this is a bit confusing, your parachute rigger should be able to help you understand it. Another option is to schedule a bailout seminar for your flying group. I travel all over and would love to teach you and your group the proper techniques needed to make a safe bailout. I recently returned from Sun 'n Fun where I gave bailout

seminars for the IAC. I'll be giving two presentations at Oshkosh. Maybe I'll see you there or somewhere in between. All it takes is a call to set up a seminar. Check my website for a seminar near you.

Keep the questions coming.

**Allen Siver** 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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# CALENDAR

## **BEAVER STATE REGIONAL CHAMPIONSHIP** (Northwest)

Friday, June 20 - Saturday, June 21, 2008

Practice/Registration: Thursday, June 19

Rain/Weather: Sunday, June 22

Power: Primary through Unlimited

Site: Eastern Oregon Reg. Airport at Pendleton (PDT): Pendleton, OR

Contest Director: Robert Toppel and Robert Harris

Phone: 503-292-6630; E-mail: [rboydt@comcast.net](mailto:rboydt@comcast.net)

Website: [www.IAC77.org](http://www.IAC77.org)

## **OHIO AEROBATIC OPEN** (Mid-America)

Friday, June 20 - Saturday, June 21, 2008

Practice/Registration: Thursday, June 19

Rain/Weather: Sunday, June 22

Power: Primary through Unlimited

Site: Union County Airport (MRT): Marysville, OH

Contest Director: Lorrie Penner

Phone: 513-284-5076; E-mail: [Penn.Lorr@yahoo.com](mailto:Penn.Lorr@yahoo.com)

Website: [www.IAC34.com](http://www.IAC34.com)

## **WILDWOODS ACROBLAST** (South Central)

Friday, June 27 - Sunday, June 29, 2008

Practice/Registration: Thursday, June 26 - Friday, June 27

Power: Primary through Unlimited

Site: Cape May County Airport (WWD): Cape May, NJ

Contest Director: Craig Wisman

Phone: 717-877-8933; E-mail: [cwisman@comcast.net](mailto:cwisman@comcast.net)

## **MIDWEST AEROBATIC CLUB CHALLENGE** (South Central)

Saturday, June 28 - Sunday, June 29, 2008

Practice/Registration: Friday, June 27

Power: Primary through Unlimited

Location: Seward Municipal Airport (SWT): Seward, NE

Contest Director: Chandy Clanton

Phone: 402-430-0219; E-mail: [cclanton@hotmail.com](mailto:cclanton@hotmail.com)

## **10TH ANNUAL OKIE DUST DEVIL** (South Central)

Friday, July 11 - Saturday, July 12, 2008

Practice/Registration: Thursday, July 10 - Friday, July 11

Rain/Weather: Sunday, July 13

Power: Primary through Unlimited

Location: Thomas P. Stafford Airport (OJA): Weatherford, OK

Contest Director: John Creswell

Phone: 580-774-9176; E-mail: [creswell@classicnet.net](mailto:creswell@classicnet.net)

Website: [www.G-Loc.com/iac\\_59/index.htm](http://www.G-Loc.com/iac_59/index.htm)

## **GREEN MOUNTAIN AEROBATIC CONTEST** (Northeast)

Friday, July 11 - Sunday, July 13, 2008

Practice/Registration: Thursday, July 10 - Friday, July 11

Power: Primary, Sportsman, Intermediate, Advanced

Location: Harness State Airport (VSF): Springfield, VT

Contest Directors: Wes Liu and Bill Gordon

Phone: 603-673-6538; E-mail: [weston.liu@charter.net](mailto:weston.liu@charter.net)

Website: <http://IAC35.AerobaticsWeb.org>

## **CANAM AEROBATIC CHAMPIONSHIP** (Mid-America)

Saturday, July 12 - Sunday, July 13, 2008

Practice/Registration: Thursday, July 10 - Friday, July 11

Power: Primary through Unlimited

Location: Jackson Co. Airport - Reynolds Field (JXN): Jackson, MI

Contest Director: Robb Butts

Phone: 734-255-2263; E-mail: [rbutts@live.com](mailto:rbutts@live.com)

## **SALEM REGIONAL AEROBATIC CONTEST** (Mid-America)

Saturday, July 26 - Sunday, July 27, 2008

Practice/Registration: Friday, July 25

Power: Primary through Unlimited

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

Contest Director: Bruce Ballew

Phone: 314-369-3723;

E-mail: [bruceballew@earthlink.net](mailto:bruceballew@earthlink.net)

## **DOUG YOST CHALLENGE** (Mid-America)

Saturday, August 23 - Sunday, August 24, 2008

Practice/Registration: Friday, August 22

Power: Primary through Unlimited

Location: Albert Lea Municipal Airport (AEL): Albert Lea, MN

Contest Director: Mike Niccum

Phone: 952-239-7114; E-mail: [pgnic@aol.com](mailto:pgnic@aol.com)

Website: [www.IAC78.org](http://www.IAC78.org)

## **HAPPINESS IS DELANO** (Southwest)

Saturday, August 30 - Sunday, August 31, 2008

Practice/Registration: Friday, August 29

Power: Primary through Unlimited

Location: Delano Municipal Airport (DLO): Delano, CA

Contest Director: Tim Just

Phone: 760-953-8250;

E-mail: [upsidwn2000@yahoo.com](mailto:upsidwn2000@yahoo.com)

## **HAROLD NEUMANN BARNSTORMER** (South Central)

Friday, September 5 - Saturday, September 6, 2008

Practice/Registration: Thursday, September 4

Rain/Weather: Sunday, September 7

Power: Primary through Unlimited

Location: New Century AirCenter Airport (IXD): Olathe, KS

Contest Director: Paul Thomson

Phone: 913-638-6221;

E-Mail: [info@iac15.org](mailto:info@iac15.org)

Website: [www.IAC15.org](http://www.IAC15.org)

## **EAST COAST AEROBATIC CONTEST** (Northeast)

Friday, September 5 - Sunday, September 7, 2008

Practice/Registration: Friday, September 5

Power: Primary through Unlimited

Location: Warrenton-Fauquier Airport (HWY): Warrenton, VA

Contest Director: Scott Francis

Phone: 703-618-4132;

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

**ILLINOIS STATE AEROBATIC CHAMPIONSHIP** (Mid-America)

Saturday, September 6 - Sunday, September 7, 2008  
Practice/Registration: Friday, September 5  
Power: Primary through Unlimited  
Location: Illinois Valley Regional Airport (VYS): Peru, IL  
Contest Director: Doug Bartlett  
Phone: 847-875-3339; E-Mail: [dbartlett@bartlettmfg.com](mailto:dbartlett@bartlettmfg.com)  
Website: [www.IACChapter1.com](http://www.IACChapter1.com)

**U.S. NATIONAL AEROBATIC CHAMPIONSHIPS** (US Nationals)

Sunday, September 21 - Friday, September 26, 2008  
Practice/Registration: Saturday, Sept. 20 - Sunday, Sept. 21  
Rain/Weather: Saturday, September 27  
Glider: Sportsman through Unlimited  
Power: Primary through Unlimited  
Location: Grayson County Airport (GYI): Sherman, Texas  
Contest Directors: Doug Bartlett and Erica Hoagland  
E-Mail: [iac@eaa.org](mailto:iac@eaa.org)

**ROCKY MOUNTAIN INVITATIONAL** (South Central)

Saturday, October 4 - Sunday, October 5, 2008  
Practice/Registration: Friday, October 3  
Gliders: Sportsman and Intermediate  
Power: Primary through Unlimited  
Location: Lamar Municipal Airport (LAA): Lamar, CO  
Contest Director: Jamie S. Treat  
Phone: 303-648-0130; E-Mail: [JamieTreat@q.com](mailto:JamieTreat@q.com)  
Website: [www.IAC5.org](http://www.IAC5.org)

**2008 MASON-DIXON CLASH** (Northeast)

Friday, October 17 - Sunday, October 19, 2008  
Practice/Registration: Thursday, October 16 - Friday, October 17  
Power: Primary through Unlimited  
Location: Farmville Regional Airport (FVX): Farmville, VA  
Contest Director: Chris Rudd  
Phone: 850-766-3756;  
E-Mail: [akrudd@gmail.com](mailto:akrudd@gmail.com)  
Website: [www.IAC19.org](http://www.IAC19.org)

**REBEL REGIONAL AEROBATIC CONTEST** (Southeast)

Saturday, October 11 - Sunday, October 12, 2008  
Practice/Registration: Friday, October 10  
Rain/Weather: Monday, October 13  
Power: Primary through Unlimited  
Location: Everett-Stewart Regional (KUCY): Union City, TN  
Contest Director: Mike Rinker  
Phone: 731-885-3701 or 731-796-0849

**BORREGO AKROFEST** (Southwest)

Friday, October 17 - Saturday, October 18, 2008  
Practice/Registration: Thursday, October 16  
Rain/Weather: Sunday, October 19  
Power: Primary through Unlimited  
Location: Borrego Springs (L08): Borrego Springs, CA USA  
Contest Director: Joshua Muncie  
Phone: 562-688-1466; E-Mail: [jlmuncie@yahoo.com](mailto:jlmuncie@yahoo.com)  
Website: [www.iac36.org](http://www.iac36.org)

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