

**SPORT**

FEBRUARY 2011

# **Aerobatics**

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

## **A BIPLANE OF OUR OWN**

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*"I always knew I'd build an airplane someday."*

Jim Doyle

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Jim Doyle with his  
Skybolt.

Photo by Brian  
Kaminski



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**REGGIE PAULK**  
COMMENTARY / EDITOR'S LOG

## I'm Back

LAST MONTH, IAC PRESIDENT Doug Bartlett had an important message regarding insurance, so I donated my usual space to allow him to bring his message to the membership.

I'd like to welcome Steve Johnson onboard as the new IAC Safety Committee chairman. He replaces Stan Burks, who I'd like to thank for providing insight into some of the particular safety issues our type of flying brings up. Steve makes his introduction in this issue, and you may look forward to reading his voice over the coming months.

## I'd like to welcome Steve Johnson onboard as the new IAC Safety Committee chairman.

Former IAC Hall of Fame inductee Bill Finagin contacted me with the idea of contributing memories from over the years, and he gave me a story along with a few photographs to share. He and I

hope you, too, will be stirred to share your own stories from the past, and I encourage you to submit them.

This winter has been particularly brutal in certain parts of the country. It's sometimes hard to believe we can actually walk comfortably wearing nothing more than a T-shirt and shorts, but the stories among these pages contain photographs with plenty of green to remind us of milder weather ahead.

Speaking of weather, the Acro Exploder is still an accurate barometer of nationwide weather trends. I opened my e-mail inbox to perhaps 20-30 posts one day. Even those commenting were discussing the fact that the weather must have been really poor across the nation to have that many pilots sitting around their computers, contributing to the colorful discussion.

We've heard from a few people who have signed up for In the Loop but have not received it when it comes out. If you want to make sure you're on the list, just navigate your way over to [www.EAA.org/intheloop](http://www.EAA.org/intheloop) and click on the large "Subscribe" button at the bottom of the page.

I didn't get a chance to wish you a happy and healthy new year in the January issue, so I'll take the opportunity to do so now. The year 2011 should prove to be interesting. **IAC**



**DOUG BARTLETT**  
COMMENTARY / PRESIDENT'S PAGE

## We Need Your Feedback

**I AM ASKING ALL** International Aerobatic Club members to provide input to their directors and officers on an important issue. A few months ago I wrote about the qualification requirements to win flight awards and qualify for national teams at the U.S. National Aerobatic Championships. The requirements are stated in our Policy & Procedures Manual, Section 503.2.C:

“U.S. National titles, trophies, awards and medals will only be awarded to pilots of U.S. citizenship. This does not preclude the creation and awarding of special trophies specifically for non-U.S. citizen competitors at the U.S. Nationals.”

At the 2010 U.S. Nationals, we had many IAC members participating who were not U.S. citizens, but who were living, working, and/or attending school within the country. Several of these IAC members flew well enough to place in the medal standings. They were not given awards due to the above stated policy. Several IAC members and a few of the IAC directors asked me to allow the flight awards to be presented to the non-U.S. citizens. I declined to do so because I had no authority to override the Policy & Procedures Manual.

After the U.S. Nationals, my next step was to determine if the IAC had any authority to change this policy. I contacted the National Aeronautic Association (NAA), who grants the IAC sanctioning rights for aerobatic contests within the United States. The president of

the NAA, Jonathan Gaffney, confirmed that the eligibility requirements for our aerobatic awards, including the U.S. National Aerobatic Championships, are set by the IAC leadership and can be modified as we see fit.

Mike Heuer, CIVA president and IAC historian, provided me with input to help understand the issue. The IAC put this policy in place in the early '90s when we first had visiting Russian pilots competing at the Nationals. Mike also gathered information on how other countries are addressing the issue. In short, some countries require their award winners to be citizens, while other countries allow legal aliens or residents to be eligible for flight awards.

Knowing that the IAC had the option to change the eligibility requirements, understanding why it was put in place to start, and having data on what other countries were doing, I felt it was an important issue to be discussed and placed it on the agenda at our past fall board meeting.

At the meeting the discussion was lively but friendly as always. Many of the directors felt that the eligibility requirements should be extended to legal residents of the United States but differed on the length and status of the legal residents. All of the officers and directors felt strongly that this issue should receive the attention of all IAC members and that member input should be attained prior to any change in the policy. The issue was placed on the 2011 spring board meeting

I am asking all members to weigh in on the discussion of who should and should not be eligible for flight awards at the U.S. National Aerobatic Championships.

for continued discussion and resolution. The eligibility for the 2011 U.S. National Aerobatic Championships will be determined at this upcoming meeting.

Therefore I am asking all members to weigh in on the discussion of who should and should not be eligible for flight awards at the U.S. National Aerobatic Championships. The best place to respond is on Oshkosh365. This is where the officers and directors look for member comments because we can verify the responses are from IAC members. Additionally, you can write the officers and directors directly. The link for Oshkosh365 and contact information is available on the IAC website at [www.IAC.org](http://www.IAC.org). Please provide your input on this important subject.

As always, fly safely and remember that altitude is your friend! **IAC**



**STEVE JOHNSON, NEW CHAIR** of IAC Safety Committee— The IAC is happy to announce Steve Johnson as the new chairman of the Safety Committee. Steve will continue the work of Stan Burks, who stepped down after heading the committee for several years. We thank Stan for all of his great work, and we look forward to reading Steve's safety articles in *Sport Aerobatics* and *In the Loop*.

**2011 CIVA KNOWNS SELECTED** — At its plenary meeting in Oberhausen, Germany, the FAI Aerobatics Commission selected the Known (Q) compulsory sequences that will be used at all FAI Aerobatic Championships in 2011.

These sequences are for Advanced and Unlimited power categories, the World Yak 52 Aerobatic Championship, and Advanced and Unlimited glider competitions.

The document including all of these sequences is available for download in PDF format at [www.FAI.org/aerobatics/system/files/CIVA\\_Known\\_-\\_Q\\_Sequences\\_for\\_2011.pdf](http://www.FAI.org/aerobatics/system/files/CIVA_Known_-_Q_Sequences_for_2011.pdf).



**2011 IAC KNOWNS POSTED** — Members interested in viewing the 2011 Known sequences are encouraged to visit [www.IAC.org](http://www.IAC.org) and navigate their way over to the members-only section to check them out.

**LYNN BOWES JOINS IAC Board** — Please join the IAC board in congratulating Lynn Bowes for her recent appointment to the board.

**CORRECTIONS: KLEIN GILHOUSEN'S LAST** name was misspelled in the December issue of *Sport Aerobatics*. Our apologies, Klein!

Page 22 of the October issue shows the 1977 board of directors. The woman in the photo, seated next to Verne Jobst, is not his lovely wife, Shari, as indicated, but Trish Morris, who served as secretary under Verne and Carl Bury. She was (unelected) executive secretary to Steve Morris during his presidential term from 1990 to 1993.





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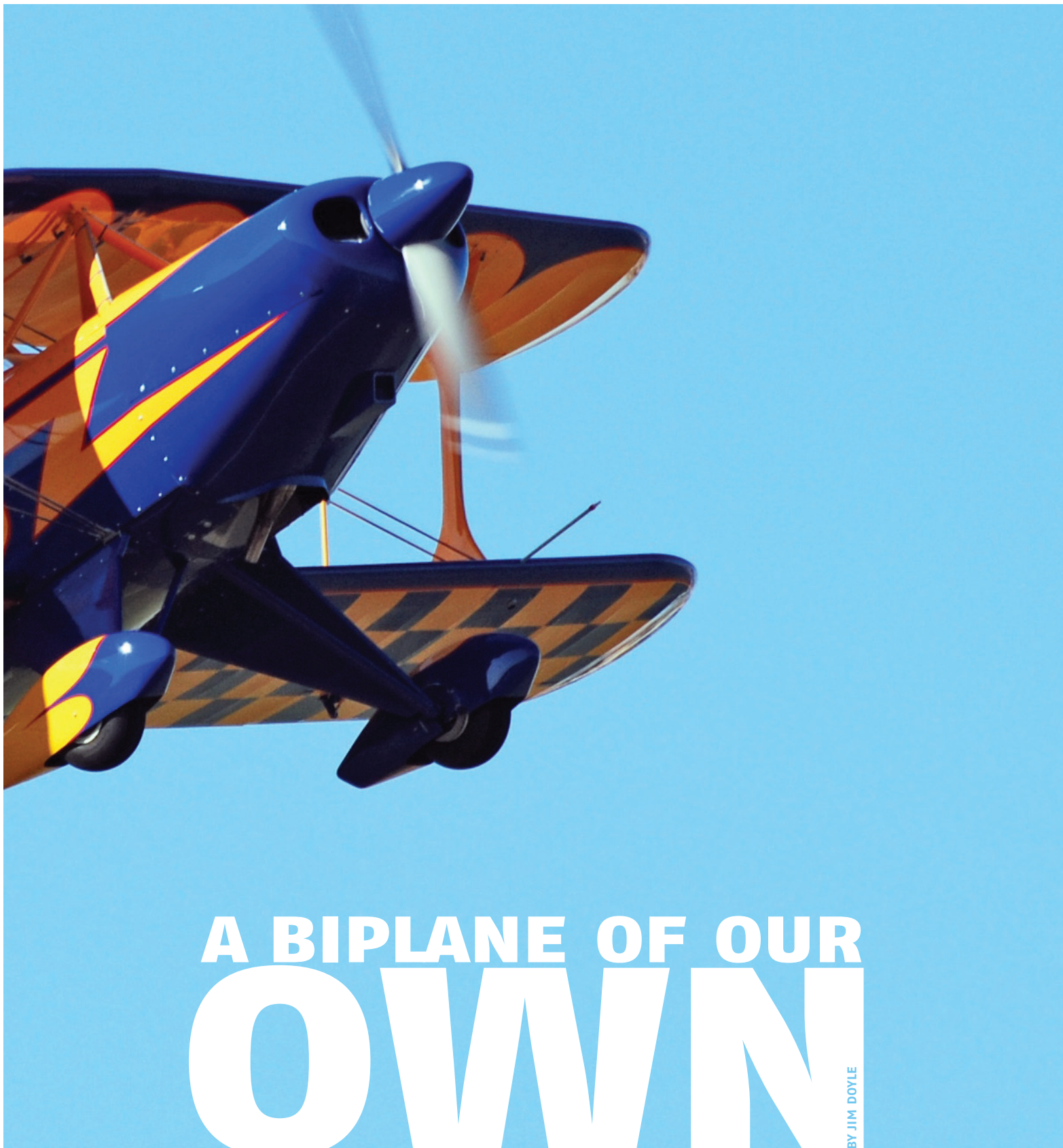
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# A BIPLANE OF OUR OWN

BY JIM DOYLE

We both had much to learn about flying, and a two-place aerobatic biplane is pretty hard to beat for a classroom . . .

A BIPLANE OF OUR  
**OWN**



**B**ack in 1996, my wife, Pam, and I were living in Long Beach, California, and working for McDonnell Douglas. We were newly married, and airplanes had been part of our courtship. We'd rented a J-3 back in Texas, and I proposed under its wing. Pam was working on the pilot certificate she started in the delightfully uncrowded skies of Tennessee.

Walking in to work one day we spied a Great Lakes biplane shooting touch-and-goes out of Long Beach Airport. Hart Air rented the 150-hp Great Lakes for \$65 an hour wet and would allow solo flight after a thorough checkout. I couldn't get there quick enough!

Hart Air also rented Robin 2160s for the same rate, and Don Hart convinced Pam and me that a few hours of aerobatic training was a good investment. He was right! We both learned about precision spins, loops, and hammerheads, and loved every minute we spent in the sporty little Robin. After 15 hours of dual they finally decided I

was safe to solo the Great Lakes, and we got to enjoy some wonderful open-cockpit flights along the California coast before I found a job back in Waco, Texas.

#### IF YOU BUILD IT

I always knew I'd build an airplane someday. My dad finished his S-1C Pitts about the time I turned 6. He based the Pitts at Oak Grove Airport in Fort Worth, Texas. Oak Grove was a hotbed of aerobatic activity in the '70s. I remember Charlie Hillard, Pappy Spinks, and even Leo Loudenslager with his then blue and gold Laser at the Nationals.

My dad built several original-design ultralight vehicles (back when ultralights were N-numbered) and had a fascination with early planes as well. We spent a sublime weekend at the Old Rhinebeck Aerodrome in the summer of 1974. Father and son talked about design features and history while watching World War I airplanes and barnstormers chase each other around in lazy circles. Antique airplanes have fascinated me ever since.

Pam and I discussed potential projects often. There were the RV airplanes to consider, but a trip to the National Biplane Fly-In in Bartlesville, Oklahoma, confirmed what we wanted—it had to be a two-place biplane. There was a Waco look-alike that was high on the list, but three things confirmed our decision to build the Skybolt: It could be built from plans, it had symmetrical airfoils, and it had excellent flying qualities.

We both had much to learn about flying, and a two-place aerobatic biplane is pretty hard to beat for a classroom. Because it was a plans-built project, I could change things to my liking, and acquire materials, tools, and components as our budget

allowed. I told Pam that it would take about four years. I should have multiplied this and all other estimates by Pi. Over the years, job changes, parenthood, and graduate school all contributed to a prolonged finish. It mattered little. Once I started there was never any doubt that we would have a biplane of our own.

Once we moved back to Texas I started the wing ribs and completed them within a couple of months. I bought a TIG welder at Oshkosh and proceeded to tack weld all of my wing fittings together after a lesson with my dad. I'd weld scraps together and bring them to him for constructive criticism. He'd say things like, "Well, you were moving along nicely there, but it looks like you cooked the metal right here, and that's a cold weld on the corner." After some practice I'd get, "Pretty good," and, "I'd fly that." Tube-and-fabric airplanes require many different skills to build. None of these skills are particularly difficult to acquire, and all are rewarding.

There were dead-end roads as well. For a while I seriously considered modifying the Skybolt to



*Jim Doyle wore many hats in his workshop; welding the frame, forming the instrument panel, and painting the wings.*





## Just because the airplane didn't have a round engine didn't mean I couldn't capture the feel of the '30s

take an M14P engine. The Culp Special was so beautiful, and the Curtis Pitts Model 12 further fanned the flame for a vein-busting, round-engine biplane. I got the drawings for the 12, and after some calculations and a trip to see the Kimballs, I decided my project was too far along to incorporate the modifications necessary for the big engine.

With less than a hundred hours of tailwheel time, I'm sure I doubted my ability to fly such a monster as well. After the trip to Florida the decision was made to build a very light 180-hp version instead. I reasoned that the lower-powered version would be a more pleasant open-cockpit airplane and be far more affordable to complete and fly. Two years into the project our mission was clear—build a light 180-hp open-cockpit Skybolt and style it like a biplane from the '30s.

### INFLUENCES

Along the way my friend Shelton Stewart, an experienced Pitts builder and flier, urged me to compare some of the design features of the Pitts designs to those of the Bolt. It seemed the Pitts details were always lighter at the cost of some complexity. Based on this, I chose to incorporate similar features wherever possible.

For example, the Skybolt has both mass and aerodynamic balances on the elevator, whereas the Pitts has neither. I'd never heard of anybody complaining about high elevator pressures on the Pitts, so I redesigned the Skybolt stab and elevator and saved about 8 pounds. And so it went. I aggressively pulled weight out of the airframe by drawing on my professional experience as an airframe stress engineer and the brilliant solutions of Curtis Pitts.

In the same way, Steve Culp's styling served as aesthetic inspiration. Just because the airplane didn't have a round engine didn't mean I couldn't capture the feel of the '30s. I loved the way Steve shaped the turtledeck on the Culp Special but decided to do it with formed plywood instead of stringers.

I styled the windshields after a Laird biplane we saw at Bartlesville. Styling and customizing

was so much fun. The shape of the vertical tail, fuselage truss, and long engine mount of the stock Skybolt were changed at the cost of hours of CAD work and speculative weight and balance calculations.

All of these changes added time and, to some degree, risk to the project. Some ideas were drawn and never made, and some were fabricated and discarded. Sometimes I just screwed up and started over. I have a couple of different horizontal stab structures and a multitude of unused and substandard fittings. Personal projects don't have to meet a schedule, but the desire to change and personalize must be balanced with the need to finish.

#### GETTING READY

Every time I reached a major milestone I'd fool myself into thinking that I was "almost there." I'd say something like, "Now that it's on the gear, it shouldn't take more than another six months



Customized details like the contoured windshield and embroidered upholstery help give the Skybolt its 1930's charm.

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*...I had to dead stick my Pitts in and an old timer said "Nice save. Someone taught you well." Yes they did! Thanks, Budd.* -Craig H.

*My insurance company covered me, a low-time, low-tailwheel-time pilot in a single-hole Pitts largely because I went to Budd for my training.* -Tom P

*... the engine failed at low altitude and the accident investigators said that my fundamentals saved me. Thanks my friend.* -Maynard H.

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*Jim lifts off on his first flight.*

to get it ready for cover.” More experienced builders would have to hold back their laughter. I’ll admit to being an exceedingly slow builder, but there’s no shame if you finish.

About 10 years into the project I realized that I’d need to get current and proficient if I was going to test my airplane. My dad wanted to get current as well, so we found a good deal on a Luscombe 8A and split the cost. The Luscombe really taught me how to fly. It was sporty and economical and demanded competent tailwheel skills.

My daughter, Darcy, got her first flight in the Luscombe, and we enjoyed the privileges of airplane ownership. Within a year I competed for the first time and won the Primary division at an IAC “Two Design” contest flying a Decathlon. It had been years since I’d flown aerobatics, so I have to thank the Luscombe.

Our Skybolt is powered by a Lycoming IO-360-B4A that was bought factory-new back in 1978, but sat for almost three decades on its factory pallet without any additional lubrication. I heard everything from “It’s a boat anchor” to “Fill it with oil and fly it.” I decided to completely disassemble it to see what I had.

I spent the better part of a year cleaning it and incorporating the various airworthiness directives under the eye of A&P/IA “Lucky” Louque of Air Salvage, Dallas. The Cosmoline had turned to plastic, and cleaning it out of the journals was pure torture. In the end the engine was reassembled and run on a test cell, thereby eliminating all doubts about its airworthiness.

Covering and painting took 16 months to complete. The stitching was easy, the finish tapes were fun, and the painting was onerous. (There are projects within projects in airplane building, such as constructing a paint booth with fresh-air ventilation. It worked beautifully.) Masking is just one of those things you put your head down and do without thinking about it too much. The payoff comes when you pull the tapes. Few things go from looking so ugly to looking so beautiful in such a dramatic way.

Finishing the Skybolt required electrical wiring, engine plumbing, baffling, and final assembly work. It took about 10 months. It seemed that I was forever one connector shy or a few grip lengths off. Like everything else, it got done with a little fortitude.



*LEFT TO RIGHT: Shelton Stewart, Bernie Olson, the author, and Rich Wolf. All of them have built and tested at least one experimental biplane. "I was lucky to have their support," said Jim.*

*LEFT: Jim with his daughter, Darcy, and wife, Pam.*

Moving the plane from the shop to the airport required the selfless help of a dozen friends. Miraculously, we did it without breaking anything.

I like to say I built every bit of this airplane, but I honestly couldn't have done it without the help and support of many people—especially my wife, Pam; my daughter, Darcy; my dad; and many friends, including Shelton Stewart, Bernie Olson, Rich Wolf, and Craig Dobesh.

### Test Flight

As the test flight loomed I decided to get some time in a two-place Pitts. First I flew five hours with Budd Davisson in his beautiful S-2A, and later I flew at Four Winds Aviation in its S-2B to satisfy insurance requirements. I liked that Budd started me in the back seat. It was a confidence builder and I liked his oblique approach pattern. You best not have thin skin if you fly with Budd—his mission ain't strokin' egos. He knows what he needs to teach you and doesn't really have time for artistic license. The hour in the front seat of the S-2B was a blast at Four Winds. I think both experiences made the test flight successful.

I tested the airplane out of a towered airport under the Class Bravo airspace around DFW. This meant staying less than 2,000 feet above ground level, so it was a less-than-ideal situation. Lots of

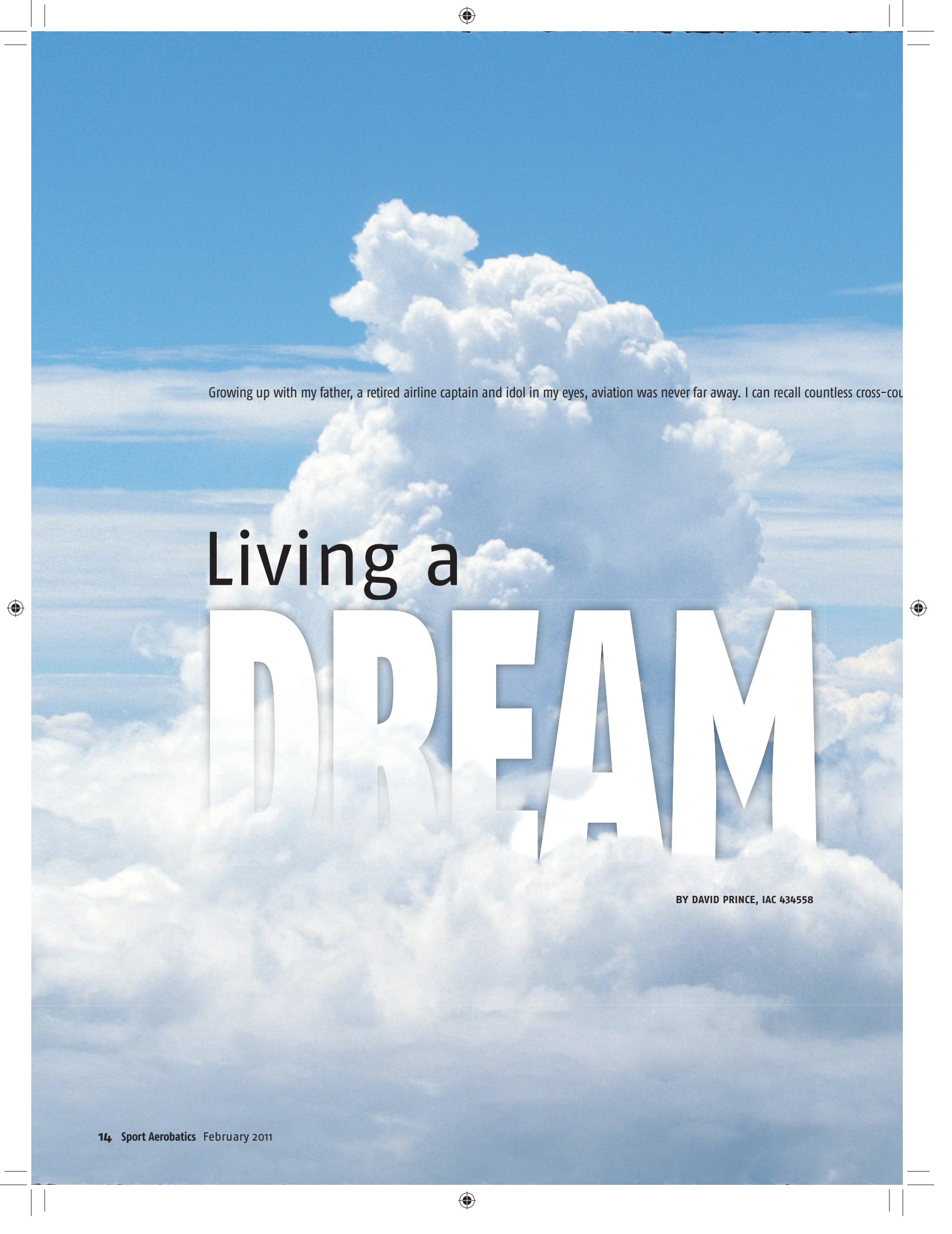
people wanted to attend the first flight, but I ended up rescheduling with just three supportive friends to keep the pressure off. I told my other friends that test flights are designed to be boring; it's the later flights that are exciting. Pam listened on a transceiver at home, feeling the stress of watching was just too much.

There is no way to fully describe testing an airplane you've built. The feeling of satisfaction after landing for the first time cannot be matched.

With 10 hours on the tachometer I can give a few specifics on the Doyle Skybolt. It has a 23.5-gallon main tank with an integral 3-gallon aerobatic sump. The airplane is equipped with a 9-gallon wing tank and a 3.5-gallon smoke tank located behind the rear seat.

The empty weight is 1,122 pounds including 8 quarts of oil. It has a top speed of 141 mph turning a Sensenich 76EMB-056 propeller at 3,100 rpm straight and level. Clearly it is under-pitched, but the climb is fantastic, so I'll probably leave it alone. With its long wings, the Skybolt slows down easily to a stall speed of 56 mph. I use 77 mph for approach and always three-point it. It is easy to fly and more responsive than a 180-hp Decathlon.

You can ruin a really nice airplane by demanding too much of it, so the next airplane will be a single-seat competition bird. This one is just sweet indulgence for two. **IAC**



Growing up with my father, a retired airline captain and idol in my eyes, aviation was never far away. I can recall countless cross-co

Living a

# DREAM

BY DAVID PRINCE, IAC 434558



s-country flights and long weekends spent at the hangar . . . but the thought of becoming a pilot never entered my mind.



## living a DREAM

Upon graduation from high school, while looking for a more permanent job, I wandered into the hangars at Doan Helicopters in New Smyrna Beach, Florida. I didn't know what to expect and was looking for anything that would pay rent and my few expenses. When my eyes refocused upon entering the hangar, the most beautiful view of more than 25 warbirds caressed my senses. It wasn't just a visual thing; the smells, sounds, and even the cool feel of aluminum as I brushed by the wing of a TBM Avenger on my way to the manager's office filled my soul. I didn't even know places like this existed! At this point money wasn't even an issue. I just wanted to be part of aviation.

I spent the next several years sweeping floors and assisting mechanics on these powerful but delicate machines. Every day was a new challenge, and new responsibilities came my way as I worked my way toward an airframe and powerplant certificate. As a side benefit, I also had access to a Cessna 172 and Beech Musketeer. These planes were free for employees to use; just buy gas. I didn't understand how big of a perk this was at the time, and I would have

never finished my private ticket without it.

As time went on, I married Kristy, my high school sweetheart, and we started a family. It was clear the money I was making turning wrenches on warbirds was barely keeping us at the poverty level. Computers had always interested me, and programming was a hobby that had the potential of a career. At the blink of an eye, I gave up aviation for a desk, writing software with the promises of fortunes to come. I always look back on my warbird days with a smile.

### At the blink of an eye, I gave up aviation for a desk . . .

#### OPPORTUNITY KNOCKS

Many years passed without even a thought of airplanes entering my mind. I was so busy with work and raising a family that personal endeavors had to be limited to



*That's me sitting on my father's lap and my older brother sitting on the wing of our 1944 Beech D17 Staggerwing.*



weekends out with friends and the occasional family vacation. All the while, I knew something in my life was missing, and a chance meeting changed the course of my life once again.

Our zero-lot-line house in Florida was no place for aviation, but with the opportunity to acquire a Cessna 150 that needed restoration, I felt the hole in my life beginning to fill. The idea of building something with your hands is a great feeling, and after years of computer programming, the feel of working on an airplane inspired me.

It soon became clear that a change was needed, and Kristy and I moved our family to a local fly-in community where my dreams could be fully realized. The first order of business was to purchase a flying aircraft, and since my entire aviation experience to date was only with warbirds, I was under the impression that anything

built after 1949 just wasn't a real airplane. Just working from a set of pictures, I purchased a 1946 Stinson 108. Now I needed to get a tailwheel endorsement to fly my new bird, not knowing that this would

open up a complete Pandora's box of future opportunities.

Living in a fly-in community opens up many pathways and opportunities. A good friend of mine, Robert Woolley, once said,



*TBM Avenger torpedo bomber, one of many projects at Doan Helicopters.*

*Who would ever think  
24 feet of nylon could  
feel so good?*

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ABOVE: 1946 Stinson 108, my first flyable aircraft. LEFT: Thorp T-18 before restoration. RIGHT: Thorp T-18 after restoration.



"There are fighters and there are bombers; which category do you want to be?" At the time, Robert, better known as Barrel Roll Bob, was flying a 540 Glasair and was clearly in the upper echelon of the fighter category.

#### UNUSUAL ATTITUDES

It soon became clear that my Stinson fit the bomber category, and an upgrade was needed. A search of moderately priced two-place experimentals led me to a well-worn Thorp T-18. This bird had 150 hp and nasty stall characteristics, but seemed to fit the bill. The paint and interior on the Thorp were in poor condition, but the airframe and engine were sound and my restoration skills were up to the challenge.

## Fate is a strange thing. As one door closes, another opens.

Many flight hours were spent chasing Barrel Roll Bob around the skies of south-east Florida. In all fairness, I was usually the one being chased. I learned so much during these periods of flight, it made me part of the aircraft. I was able to feel every part of the encounter, and flying became second nature. All that was needed was more horsepower and a stronger airframe to handle the punishing g-loads.

Scouring Barnstormers.com and local sources turned me onto a wrecked Glasair project. The basic parts were there, but a total rebuild was needed. This is where living with a hangar in your backyard really helps. I was able to purchase the project and have it flying within eight months. The results were simply stunning! To this point in my flying career, I had never had command of such performance.

As things would have it, Barrel Roll Bob moved away soon after my Glasair fighter was ready. I still fly out and see him from time to time, but nothing can replace our afternoon impromptu dog-fights. Fate is a strange thing, and as one door closes, another opens.



### NO CONTEST

While flying the Glasair over the Everglades one evening, I noticed an aircraft performing what to me were fighter-type maneuvers, and I turned to closer investigate. I pulled into loose trail formation and waited for confirmation that my presence was acknowledged. Just then the lead ship pulled vertical, and instincts took over; I pulled with him, keeping the formation intact. He flew off the top inverted, which caused me to break off and re-engage due to the lack of inverted systems in the Glasair. I continued to mirror three or four of his figures until I got the clue that



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The author's Skybolt.



The Pitts S-1S, Stepping Stones.

he must have been practicing something and either didn't see me or was just hoping I would stay out of his way. I broke off the attack and returned to the airport to call it a night.

Kristy and I went out to dinner that night. While at the restaurant, we met a group of pilots from another fly-in community. It just so happened the pilot I was attacking earlier in the day was Don Hartmann (IAC Chapter 23), and he was practicing in his Extra 300S. This encounter opened my eyes to an entirely new aspect of flying, and competition aerobatics would be my next endeavor. After spending time with

**. . . the Skybolt had taught me how to fly, but more performance was needed if I was going to move up to a higher category.**

Mike Mays (IAC Chapter 23 president), I was in search of a competition-capable machine for the upcoming spring Sebring contest. My good friend Barrel Roll Bob turned me onto a Skybolt, and my first experience in competition aerobatics had begun. I spent every free moment flying the Skybolt and learning what it takes to fly at the Sportsman level in IAC competition. I entered and placed eighth and 84.36 percent out of 15 in my first contest. Competition aerobatics was now in my blood! My second contest in the Skybolt yielded a fifth-place finish at 86.36 percent. It was clear to me that the Skybolt had taught me how to fly, but more performance was needed if I was going to move up to a higher category.

The Skybolt had to go, and the next move was to a Pitts S-1S. With the same power as the Skybolt and 300 pounds lighter, the Pitts would allow me to move up to the Intermediate category and extend my learning experience.



### STEPPING UP

The Pitts had a bad reputation as being a difficult airplane to land. Reading as much as possible on the subject didn't do much to dispel this, and when the Pitts arrived, it was clear that forward visibility would be an issue. My now good friend Don Hartmann stopped by on the night of my first Pitts flight, and by following the recommendation to fast-taxi and lift the tail, it boosted my confidence in being able to put this machine back on the ground after the flight. One fast taxi and I was off! The Pitts climbed much faster than the Skybolt, and the ailerons were feather light. It was easy to see how this machine could take me to the next level in competition. Other than the airport disappearing behind the engine cowl on final, the landing worked out fine; just never let your concentration wander when landing a Pitts. It will bite you!

My third competition came with only five hours of practice in the Pitts, but my confidence was high, and I signed up for the Intermediate category. For me, this step was drastic. In Sportsman, I had only one sequence to memorize, but now I had the Known, the Free, and a dreaded Unknown. Still, I thought it was time to move up to get the full contest experience. I finished seventh out of 12 and flew 78.17 percent. My only hiccup was zeroing the highest K-figure in the Unknown by not having enough energy to draw a vertical line on the second half of an N-figure. I felt good about my performance but knew I could do much better.

As things would have it, a chance came up to buy a Staudacher S300X. The X is a new design by John Staudacher. It is untested in aerobatic competition but on paper appears to be a capable machine. I went to see John, with cash in hand, and flew the S300X home to join my growing stable. As with any new design, I am taking the test flying serious and slowly building confidence in the design and my flying abilities. I was able to enter my fourth aerobatic contest using the S300X



2009 Staudacher S300X.



On the ramp at the Sebring, Florida, 2010 spring competition.

## In the end, it's all about the people.

and finished in ninth place out of 16 pilots in the Intermediate category. Again, I zeroed a figure in the Unknown, but the

aircraft performed flawlessly, and it was only my oversight on reading the sequence card that hurt my scores.

It is impossible to know the future or where my interest in aviation will lead. For now I am fully focused on competition aerobatics and the relationships coming from this wonderful sport. In the end, it's all about the people. **IAC**



The 1981 kit-built Pitts S1S that Bill Finagin flew in his first Sebring contest.

BY BILL FINAGIN

## Reflections on the IAC

*I flew my first contest in 1981 at the spring Sebring Aerobatic Contest in Sebring, Florida. Flying down to Sebring from Annapolis, Maryland, with fellow contestant Bill Burns (who happened to have been a World War II P-51 fighter pilot stationed in England in 1944), we used the prevailing type of visual flight rules navigation at the time—that of sectionals and an index finger. Actually, Bill used Esso road maps, but that might be the focus of a future article. Bill's Pitts S-1C was the open-cockpit variety, having been built years before in Florida. Mine was a recent kit from Pitts that was built in Butler, Pennsylvania. I was really high-tech, as I had the only radio. And that was the total avionics package!*

Imagine my first contest—and at a great venue such as Sebring! Ben Lowell, one of our more colorful members at the time, was the chief judge. Judges used a “hot box signal,” as many people had no radios and many had no electrical systems at all. In my first box at my first contest I flew the maneuvers *perfectly*—or at least I thought I did. After landing, Ben Lowell sauntered up (some might describe it as a snail-paced slither) and announced that I would have to go back up and fly the first three figures over because the judges didn't see me until figure number four. Seems as though my predominately white airplane was invisible in the bright clear 11 a.m. Florida sunlight. So up I went again. To my recollection I think I placed third in that flight.

To many of you more recent contestants at Sebring, you must understand that we were using some old World War II barracks for our headquarters and as our restaurant, not the modern beautiful amenities that are there now. Holes in the floors and “medium-sized” little gray critters with long tails were also not too uncommon scurrying about the tables. Also, we spent our evenings in the Kenilworth Hotel in Sebring. That first year the hotel did not have any air-conditioned rooms. In later years it added a few each year. I think my lowly rank in contestant status meant that I suffered heat stroke for about four years until I got an air-conditioned room!

On to many more contests using only those sectionals and finally one year I arrived at Fond du Lac, the “mecca of aerobatics.” At one of those contests I remember the arrival of a reproduction of a Curtiss-built biplane nicknamed the *Little Looper*. The original was built for Lincoln Beachey, who in his day was perhaps the most well-known aerobatic pilot in the world. His first loop was done in November 1913. This reproduction, complete with a Le Rhone engine, was built by Vern Tallman, a famous movie stunt flier. To this day one of my highlights was watching Vern fly a loop in that airplane at Fond du Lac. Vivid in my memory was his lubricating of the engine before the flight with an oil can filled with castor oil. (Legend says that one of the reasons that WWI pilots were all thin was that they ingested a lot of castor oil during their flights—with the usual outcome!)

Another moment still vivid in my memory was watching a Pitts lose an elevator due to rusting of the framework and the near crash right in front of my eyes. The part was removed, taken to Oshkosh, repaired by several friends and even Paul Poberezny, who insisted on doing some of the welding so it was correct! His wife, Audrey, even fixed us some sandwiches. (And all of this was right after a nonstop week of Oshkosh for Paul and Audrey.) I watched that airplane fly the next morning (minus a paint job on the repaired elevator). For those who might want more details, ask Tom Adams and he will fill you in on the “Rossi scare.”





Fast-forward through more than 80 contests over the years to 2008. By now I have gone through many Pitts aircraft, S-1S, S-1T, S-2B, and S-2Cs, but 2008 presented another opportunity that not many people get to have. Through a long affiliation with the Goodyear blimp people, it was my pleasure to fly one evening with the pilot of blimp N3, Jerry Hissom, along with Stu Horn and Jim Taylor. On our flight I got to shoot an approach at the airport at Fond du Lac. Needless to say that during this flight I replayed the many contest flights at “Fondy.” With the real estate being what it is today, a contest could never be held there again—but the memories will always clearly remain.

There are a zillion more stories, but they will no doubt be sealed in my brain forever. (Some are better left untold.)

Hopefully each and every aerobatic pilot when asked why he does “this stuff” responds with all sorts of answers, but one I am sure that will make it to the forefront is: Because it is just plain so much fun I wanted to do it!

May you all begin to jot down your past experiences. They bring back a lot of memories!

Some may say, “They don’t make ‘em like that anymore!” Maybe that’s a good thing! **IAC**

*TOP: Bill signing autographs at a very early air show. He was also wearing black-and-white checkered tennis shoes. MIDDLE: The “Spezio Tuholer”, his first “aerobatic airplane.” BOTTOM: With Bill Burns and his 1986 Pitts S1T, in which he won over 30 first-place contests.*





**GREG KOONTZ**  
COLUMNS / JUST FOR STARTERS

## A Good Time to Start

I WAS ENJOYING ONE of my favorite shows the other night. It's the one about a Vegas pawn shop. In the opening the owner always say, "You never know what is gonna come through that door." I



can identify with that. There are lots of reasons people want aerobatic training, and there are a lot of different types of pilots. When I'm on the phone taking reservations, I can't help but try and picture the person I'm talking to, but it always turns out I never know what's coming through that front door.

Take Tom Hardy for instance. Tom calls me one evening and says he wants to learn to fly upside-down. He's been a pilot a long time and has focused on gliders more recently. I give him

my spiel about learning the basics as a group and all that. He says, "All that's good as long as it includes flying upside-down." We devised a plan and put him on the schedule. Just before we finished the call Tom asked if I had an age limit. Of course I said, "Nope, as long as I'm going on the flight you could be any age, in fact." I say jokingly, "My policy is 8 to 80, blind, crippled, or crazy. I'm fine as long as we're safe and having fun." I should be more careful with my dumb jokes. I soon found out Tom was 92.

A few weeks later Tom calls to postpone his training. His wife of many years was having some health problems. After some discussion I got him to reschedule in the fall. I even stooped to using the old joke about not buying green bananas. (Tom has a great sense of humor, thank goodness.) When his scheduled date did come it was much cooler. His wife still couldn't make the trip but was well enough to stay alone, so Tom showed up with a 25-year-old lady, his granddaughter Emmaline. Grandma sent her along because there was one thing Tom had wanted to do, and Emmaline was sent to be sure he didn't do it. It wasn't aerobatics; it was sky diving! I guess Grandma didn't trust him.

Tom learned to fly in 1942 at the government's expense. In his logbook there is a flight lesson endorsed by Scott Crossfield. Crossfield was in charge of teaching him inverted spins in a Stearman. Crossfield's comments in the logbook say, "Student slow to reduce the power; otherwise, capable at recoveries." Tom started as an Army Air Corps pilot but was sent to the Marines to fly Corsairs. They shipped him off to the Pacific theater for two-and-a-half years, where he was in the first strike on Iwo Jima. Tom shot down some enemy planes, including a suicide plane headed for a ship. He got credit for three kills, but it's a safe bet he actually got more. But to Tom that's all ancient history. He wanted to talk aerobatics.

Tom never really stopped flying, although there were some breaks. He had to stop for a while after the war to take over the family farm in Mississippi. But like anyone with flight in their blood, he conjured up ways to justify flying. Tom got into selling farmland and used a little Cessna 150 to show the

properties. In 1973 he joined a sailplane club and has been hooked on soaring ever since. At 92 he has a second-class medical, has 4,000 hours, and flies his sailplane regularly. He decided to get some aerobatic training after getting bumped pretty hard doing some mountain soaring.

So how do you approach teaching a senior like Tom? My first concern was hidden health problems. When we go to hanging on our belts we introduce the brain to some uncommon pressures. There could be a few veins not limber enough for the trauma. We briefed the possibilities, checked with his primary caretaker, and assessed the risk. We decided we would surely limit negative g exposure to the minimum required to learn the upset training desired and definitely not exceed negative 1g. Tom is the type of person who's taken very good care

## But like anyone with flight in their blood, he conjured up ways to justify flying.

of himself. He did so to enjoy life, and this is the kind of thing he enjoys.

Tom has an engineering degree from Mississippi State University. He put in a few years working for Pratt & Whitney before volunteering for World War II. If you ever had engineers for students, you know they're meticulous thinkers. That type of person generally wants the facts lined up in a neat row. It's that technical way of thinking. "Just tell me the procedure for an upset recovery," he'd say, "and I think I can do it." At 92 Tom is as knowledgeable as any pilot

I know. We had more concern about aircraft entry and egress than grasping the complexity of the maneuvers. Simply put, Tom's mind could outrun his 92-year-old reflexes. Even so, the argument for staying active in your senior years proved out well in Tom. While Tom was complaining that he is moving slower these days, I had no baseline for comparison. As I saw it he was doing a great job.

It's never too late. Most of the students coming here for just fun aerobatics are older than 50—some are way over 50! That's probably because most of us lack the free time and disposable income until that time of life. I can't think of any better way to stay sharp and enjoy flying as we age. From Primary to Unlimited, just flip-flopping for fun or air shows, aerobatics can be as much or as little you want to make of it. The real mistake would be to miss out! **IAC**

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Photo by DeKevin Thornton



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**STEVE JOHNSON**  
COLUMNS / SAFETY CORNER

## On Safety

**AS THE NEW CHAIR** for the IAC Safety Committee, I just wanted to give everyone some background on me and my experience. First, we all must thank Stan Burkes, our retiring Safety Committee chair, for the good job he has done the last several years. Thanks, Stan!

To give you all a little background, I'm a practicing safety engineer, and have been for more than 25 years. I bring my safety education and experience with me every time I fly, and I will try to spread this culture throughout our sport. I started flying aerobatics in 1994 and went to my first contest in my 180-hp Acro Sport. I eventually moved up to Advanced in a Pitts S-2B, and since 2008, I have flown my new MX2 in Advanced. I hope to move up when I figure out monoplane snap rolls!

To begin with, I hate the phrase "safety first." If we truly believed in safety first, we would encase ourselves in Styrofoam blocks and never leave the house, let alone drive to work or fly upside-down. The concept of a good safety culture is to accomplish the task while allowing the least amount of adverse risk into the task.

We have annual inspections done on our airplanes, perform maintenance as needed between inspections, and check the gas and oil before we fly to ensure we have enough to

**The concept of a good safety culture is to accomplish the task while allowing the least amount of adverse risk into the task.**

complete the flight. These steps take care of the potential mechanical risks of our flight. But what about our mental or cognitive risks? How do we perform our normal maintenance or checklists to prepare ourselves for the flight?

There are different programs the airlines and the FAA use to assist us in these areas. Crew resource management, or CRM, is designed to help airline crews, and IMSAFE, an acronym promoted by the FAA, stands for illness, medication, stress, alcohol, fatigue, and eating and should be used by pilots to determine their personal well-being and fitness for flight. The IMSAFE checklist is shown on page 27. Most of us understand the need for the mechanical inspections and repairs on our airplanes, but we don't pay as much attention to our "personal maintenance." Yet nearly all aviation accidents occur



## FLIGHT FITNESS: The "I'm Safe" Checklist

- ✓ **ILLNESS**.....Do I have an illness or any symptoms?
- ✓ **MEDICATION**.....Have I taken prescription or over-the-counter drugs?
- ✓ **STRESS**.....Am I under pressure from job, health, or family matters?
- ✓ **ALCOHOL**.....Have I been drinking within 24 hours?
- ✓ **FATIGUE**.....Am I tired and not adequately rested?
- ✓ **EATING**.....Am I adequately nourished?

from human failures and mistakes, not airframe failures. Be sure you have done a good preflight inspection on your mind and body before you go fly.

The outcomes of accidents cannot be predicted; some people survive accidents, while others do not. So we must work to prevent the accident from occurring at all. By reducing the risk factors inherent in aviation, we can maximize the positive outcomes of our aviation sport.

There are several new programs being implemented to assist all of us in flying safely and running safe contests. The first of these is the IAC Incident Response Plan. The Incident Response Plan is used by contest directors to be prepared for any incidents that may occur. If unsafe conditions or acts occur at IAC contests or other functions, the incident needs to be investigated and documented. The investigation fills several needs, but the most important needs are, first, to analyze the incident to prevent recurrence and, second, to spread that information throughout the aerobatic community to keep similar unsafe events from happening at other contests. If a contest director or other contest official asks for your help in investigating an unsafe event or accident, please help all you can. The information gathered may help to save a life next time.

The IAC is also setting up a new Internet-based safety resource tool for us to list and get help with airframe and engine issues, failures found, solutions for issues, and other topics that will help us keep our airframes and bodies in good working order. When this tool is up and running, you will be notified of its availability.

I hope to be a valuable resource for everyone in the IAC as we go forward. If you have questions or ideas, please don't hesitate to contact me. If I don't have the answer, someone in the IAC probably does, and we have tools to help spread the information to everyone in the IAC. **IAC**

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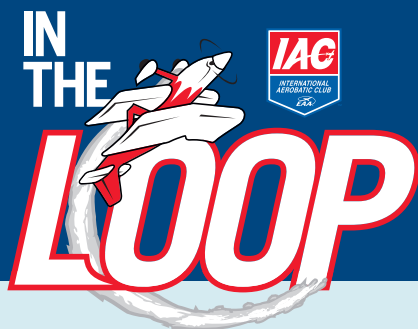
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## TECH TIPS

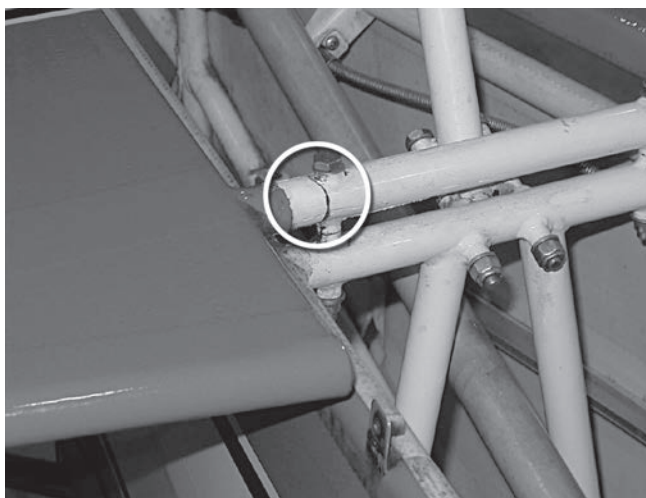
DEPARTMENTS / VICKI CRUSE

*Before her untimely passing, Vicki told me to reprint her tech tips pieces as I saw fit. This is one I think merits a reprint. -Ed*

# Limits on Unlimiteds

This month's column ironically includes three service letters/bulletins for three Unlimited-capable aircraft, involving tail structures, an aileron issue, and a fuselage fix. As always, send us input on technical items you find; it is necessary for this column to continue.

## EDGE 540 SERVICE LETTER



**IN LATE 2004**, ZIVKO Aeronautics released mandatory Service Letter SB-E54010, which addressed the tube and fabric horizontal spar attach in serial numbers 12 through 20. This service letter is applicable only to Edge 540s that have fabric tail surfaces.

During taxiing of Edge 540 SN 0020, motion of the forward right horizontal spar was noted. The turtledeck was removed, and it was found that the forward spar tube of the horizontal stabilizer had cracked through just outboard of the right fuselage attach point.

The failure appeared to be relatively old, with indications of wear at the fracture point, which probably means the airplane was flown in the failed condition. The pilot reported that he had occasionally felt a vibration through the control stick on previous flights, but no other handling discrepancies were noted prior to the detection of the damage. The aircraft had approximately 1,180 hours at the time the damage was noted.

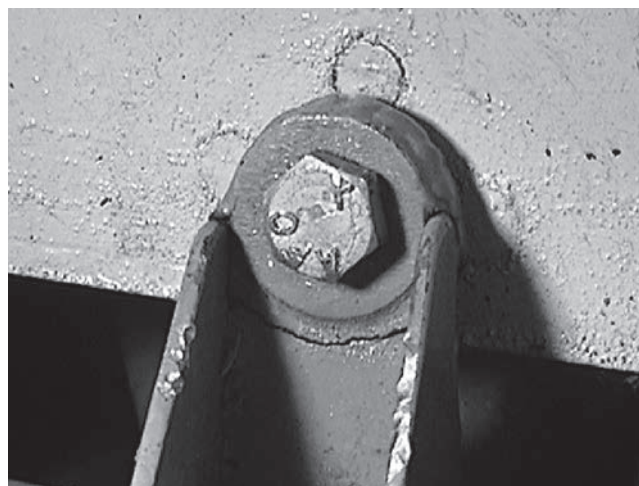
The aircraft owner said, "Obviously, I was glad to have found this problem on the ground. However, it was just prior to the team

selection Unknown flight at Nationals. There was a temptation to ignore this movement for one more flight. I'm glad that I didn't. When an airplane talks to you, the pilot should listen."

Zivko recommends removing the turtledeck and inspecting the region where the forward tube bolts to the fuselage. If any indication of a crack is detected, please contact Zivko Aeronautics at 405-282-1330.

## SUKHOI FRONT HORIZONTAL STABILIZER MOUNT

**DURING AN ANNUAL INSPECTION** in the spring of 2004, the owner of a Sukhoi 26 noted a broken front stabilizer mount. Further inspection revealed the break probably occurred several hours before it was discovered due to corrosion found between the broken pieces. Initially, the owner thought this might have

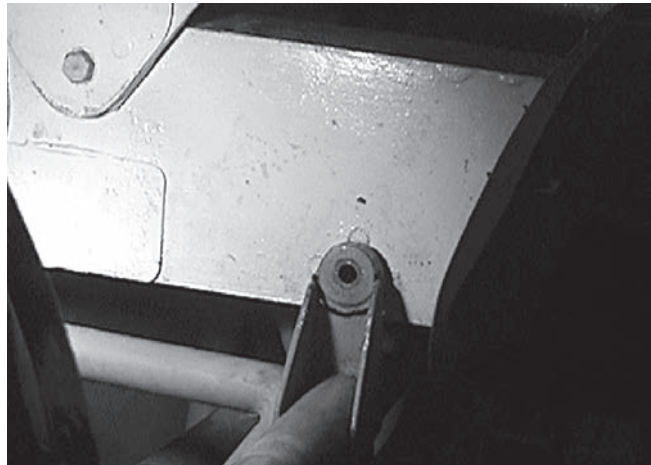


been due to torquing the bolts too tightly, though this has not been confirmed. The owner hired a mechanic from Russia to fix the problem by welding the pieces back together.

There is no known AD for this occurrence, and according to the aircraft owner and Russian mechanic, the problem has not been found on any other Sukhoi.

Researching the Sukhoi 26 issue turned up a Service Bulletin applicable to the Sukhoi 29 and originally dated June 1994. Service Bulletin 29.011-BD was issued due to the appearance of play in the front stabilizer hinge fittings and refers to reinforcement of the front spar and stabilizer hinge fitting brackets. At the time, 26 aircraft, all Su-29s, were affected. The repair involves removal of the vertical and horizontal stabilizer and the installation of plates and bushings in the wall of the front spar of the horizontal stabilizer and reinforcement of the horizontal stabilizer hinge fitting brackets.

For additional information, contact Richard Goode at [richard.goode@russianaeros.com](mailto:richard.goode@russianaeros.com).



## SUKHOI SPADES

While on the subject of Sukhois, here is a bit of information about Sukhoi spades, compliments of Richard Goode in the United Kingdom.

The Su-26 and Su-29 have identical ailerons and two spades per aileron, with a larger spade typically found inboard. To confuse matters, a few late Su-29s have full-span ailerons that have the same profile but are longer. Su-31 ailerons have a different aerodynamic profile with more self-servo action, so they only need one spade per aileron.

What so many people in the West do not understand is that Sukhois are designed to be "tuned" for the pilot. Goode says he has flown more than 40 different Sukhois, and the heaviest ailerons forced were at least four times as much as the lightest. Each aileron/spade combination is adjustable according to the pilot's preference, but few Western pilots seem to bother to do this.

When the Russian team first received Su-31s, some of the pilots preferred the feel of the Su-26 ailerons and changed their Su-31 ailerons to Su-26 ailerons. (They are interchangeable.)

This has led to the theory that Su-26 ailerons are somehow "better," but the truth of the matter is that there are probably only a handful of pilots in the world who can even detect the difference, let alone prefer it one way or another.

The differences are minute. The Su-31 aileron will roll slightly quicker, but is slightly less precise in stopping.

## EXTRA AIRCRAFT SERVICE BULLETIN

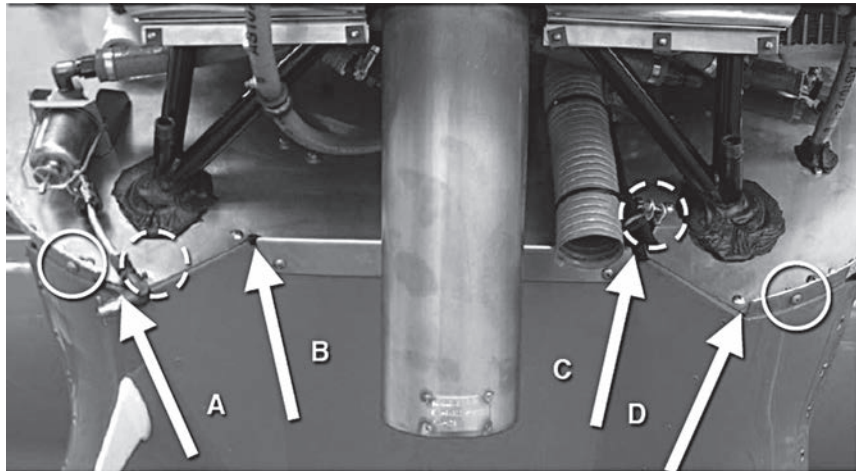
**NOT TO BE LEFT** out this month is a bulletin from Extra Aircraft dated May 2004. I do realize this is a year old, but there may be some Extra owners unaware of this bulletin.

Service Bulletin 300-4-04 is a mandatory bulletin issued to stop the problem of fuel entering the cockpit between the gaps in the bottom fuselage cover (belly fairing) and the firewall (locations A through D in the photo) through the use of a firewall sealant. Every time the bottom fuselage cover is removed the sealant must be replaced.

This bulletin applies to Extra 300 serial numbers 0 through 67; 300/S serial numbers 0 through 31; 300/L serial numbers 0 through 167, 168 through 170 (or converted to 1168 through 1170), 1171, 172 and 173 (or converted to 1172 and 1173), and 1174 through 1181; and 300/200 serial numbers 0 through 31.

The application of sealant after the reinstallation of the bottom fuselage cover applies to all models, all serial numbers.

For more information on this service bulletin, please refer to [www.ExtraAircraft.com](http://www.ExtraAircraft.com) under the link for Tech Service.



Bottom of the firewall.

## CONTEST CALENDAR



Mark your calendars for these upcoming events. A complete list and the latest calendar are at [www.IAC.org](http://www.IAC.org).

And if you're hosting a contest, let the world know by posting it there!

### Armed Forces Memorial (Southeast)

Friday, May 20 – Saturday, May 21, 2011  
 Location: Granada Municipal Airport (KGNF): Granada, MS  
 E-Mail: [wroberts@waco-eng.com](mailto:wroberts@waco-eng.com)  
 Website: [www.IAC27.org](http://www.IAC27.org)

### Wildwoods AcroBlast (Northeast)

Friday, June 10 – Sunday, June 12, 2011  
 Location: Cape May County (WWD): Cape May, NJ  
 Phone: 717-756-6781  
 E-Mail: [cwisman@comcast.net](mailto:cwisman@comcast.net)

### Ohio Aerobatic Open (Mid-America)

Friday, June 17 – Saturday, June 18, 2011  
 Location: Union County Airport (MRT): Marysville, OH  
 Phone: 574-721-4340  
 E-Mail: [jgranger@columbus.rr.com](mailto:jgranger@columbus.rr.com)  
 Website: [www.IAC34.com](http://www.IAC34.com)

### Illinois Aerobatic Open (Mid-America)

Saturday, September 3 –  
 Sunday, September 4, 2011  
 Location: Kankakee (IKK): Kankakee, IL  
 Phone: 815-258-0047  
 E-Mail: [jimklick@sbcglobal.net](mailto:jimklick@sbcglobal.net)  
 Website: [www.IACChapter1.org](http://www.IACChapter1.org)

### Ohio Fall Frolic (Mid-America)

Saturday, October 1 – Sunday, October 2, 2011  
 Location: Bellefontaine Regional Airport (EDJ): Bellefontaine, OH  
 Phone: 513-284-5076  
 E-Mail: [penn.lorr@yahoo.com](mailto:penn.lorr@yahoo.com)  
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