

# **SPORT** *Aerobatics*

September 2015

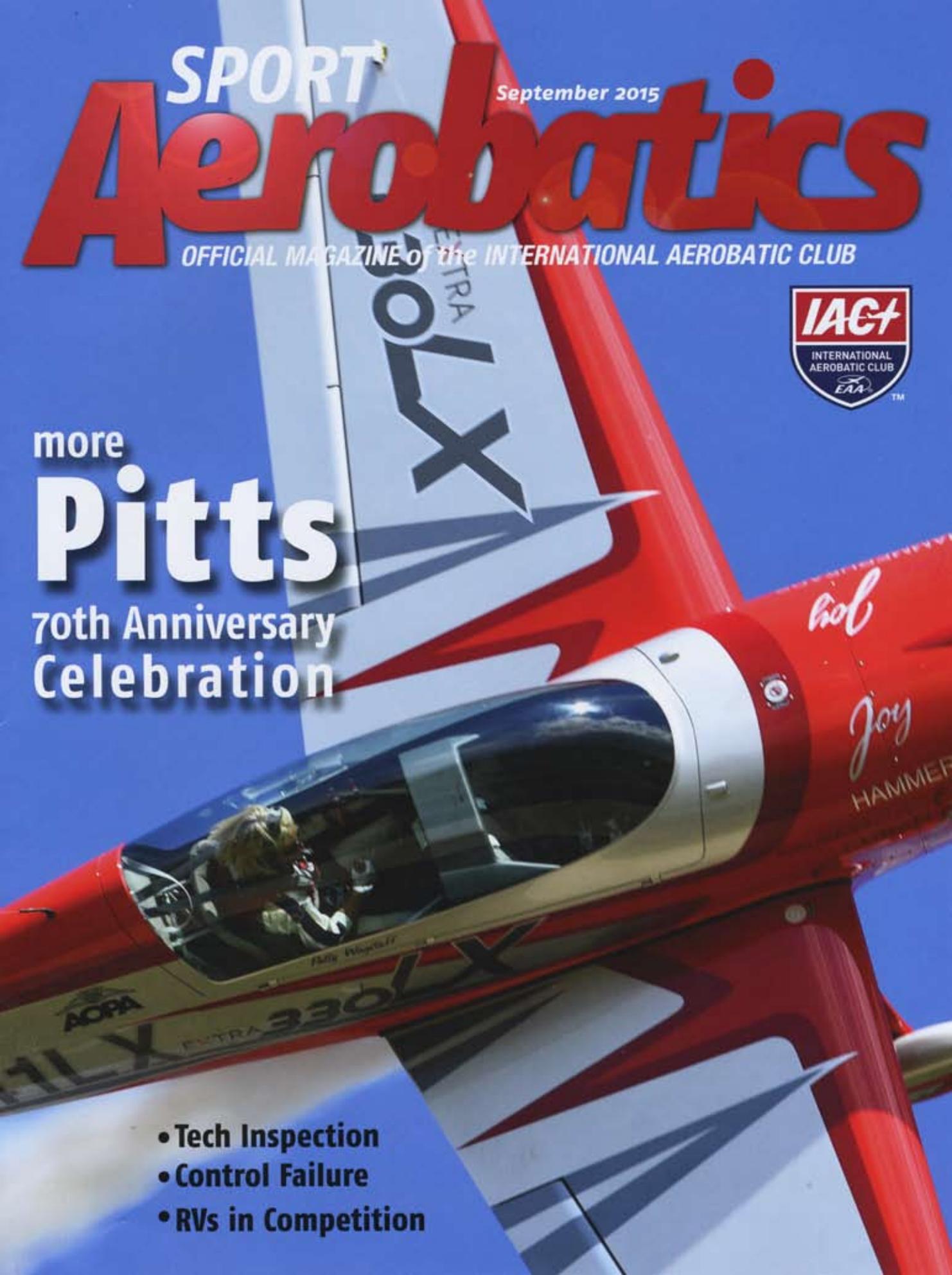
OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB



more

## Pitts

70th Anniversary  
Celebration



- Tech Inspection
- Control Failure
- RVs in Competition



EAA AIRVENTURE  
**OSHKOSH 2015**

# Thank You for Another Great Year!



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2015 was another remarkable year at AirVenture. The great partnership between Ford and EAA provided many benefits to AirVenture visitors and future aviators.

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# CONTENTS

*I had just flown 2,500 miles from Alaska to Wisconsin for an aerobatic competition, and the airplane performed beautifully.*

*But, on my first aerobatic practice flight, when I rolled the airplane inverted, I knew immediately something was wrong.*

—Patty Wagstaff

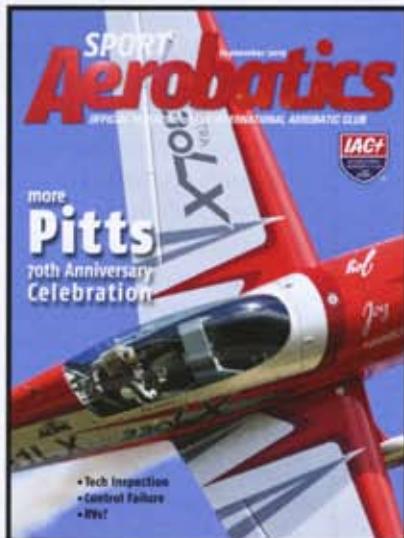
## FEATURES

- 6 The Value of the Tech Inspection**  
by Doug Jenkins
- 12 Thank you, Mr. Pitts**  
by Tom Poberezny
- 18 Control Failures**  
by Patty Wagstaff
- 22 Where Are All the RVs?**  
by Patric Coggin
- 28 What if?**  
by Jonathan Appelbaum



## DEPARTMENTS

- 2 / Letter from the Editor**
- 3 / President's Column**
- 4 / Lines and Angles**
- 25 / Safety**
- 26 / Letter to the Editor**
- 30 / Contest Calendar**
- 32 / Classifieds & Flymart**



## THE COVER

Patty Wagstaff flies during the EAA AirVenture air show on Wednesday, July 22 2015. Photo by Spencer Thornton.

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LETTER FROM THE EDITOR  
COMMENTARY / REGGIE PAULK

## The IAC is about the people

**AS I WRITE THIS, EAA** AirVenture is a few weeks behind me. We'll have the highlights in an upcoming issue, but suffice it to say that this year was pretty amazing in Oshkosh. I will say that my favorite part of the entire week, by far, are all the wonderful people who are either visiting for the first time or have made an effort to come year after year.

## For me, the most important part of AirVenture has changed from airplanes to airplane people!

When I first arrived at Oshkosh in 2008, I was completely star-struck and overwhelmed by the sheer immensity of the entire operation; it was everything I'd dreamed it would be—and more! I ran myself to exhaustion just trying to take it all in. Every time I heard the distinctive song of a Merlin engine or the thunder of a jet in afterburner, I'd run out to see what was flying overhead. In addition to being overwhelmed, I was completely lost! I'm from the Rocky Mountains and am used to looking at a mountain to see where I am. The only landmark I could make out at Oshkosh was the tower, and that took a while to figure out.

2015 marks my eighth visit to Oshkosh, and I have to say things

have changed—mostly me. Now, when I am preparing to drive to Oshkosh, what excites me the most are the people and wonderful friends I'll be seeing while there. For me, the most important part of AirVenture has changed from airplanes to airplane people! And what a wonderful distinction.

I get to interact with the staff at EAA who help produce this magazine. Olivia Phillip, Colleen Walsh, and Sue Anderson to name a few. I also get to see IAC Manager Trish Deimer-Steineke, whom I usually only speak with over the phone or share e-mails with back and forth. I get to talk with Mike Heuer, Doug McConnell, and the members of the IAC's board of directors. In addition to being the IAC's treasurer, Bob Hart is a heck of a nice guy. I enjoyed sharing a cold bottle of water and a discussion at his spot in Camp Scholler. Lynn Bowes will keep you in stitches, and Debby Rihm-Harvey makes short appearances at the IAC's pavilion as she runs around the grounds, pulled in 100 different directions. I also got to meet and work with Margo Chase, who did the rebranding and merchandising work that has brought the IAC into the 21st century. All I can say is that the IAC is extremely lucky to have such a dynamic individual working with us. Last, but certainly not least, I always look forward to seeing and laughing with Jim and Jean Taylor and hanging out with the IAC's parking chair, Jordan Ashley. And who can forget Nancy Carter, who keeps the pavilion in top shape for guests?

The IAC...it's about the people!

IAC

Please submit news, comments, articles, or suggestions to: [reggie.paulk@gmail.com](mailto:reggie.paulk@gmail.com)



MIKE HEUER  
COMMENTARY / IAC PRESIDENT, IAC 4

Please send your comments, questions, or suggestions to: [mike@mheuer.com](mailto:mike@mheuer.com)

## AirVenture and the Pitts Anniversary

### As I WRITE THIS COLUMN, IT

has been two weeks since the close of EAA AirVenture in Oshkosh and a very successful week for IAC. It goes without saying, the highlight of the week for us was the observance of the 70th anniversary of the Pitts Special's first test flight. But it was also the debut of the newly renovated IAC Pavilion, which housed the Pitts Exhibit as well as 20 of the IAC's valuable and prestigious trophies, and a sales area devoted to a new line of merchandise.

Because of the fact that we opened up the front of the pavilion with more glass windows and two new glass double doors, it was much more inviting to people and welcoming to those who may have felt it was a private club in years past. The atmosphere is completely different, and to make it even better, I asked officers, directors, and other key IAC volunteers to be available for shifts in the pavilion so they could answer questions, talk to aviation enthusiasts about aerobatics, and greet members passing through. We wanted the IAC leadership out front and talking to people about the sport we all love and to put faces to names.

The Pitts Exhibit consisted of 18 panels with more than 60 photographs and hundreds of words of text. The exhibit took you through the entire history of the Pitts and all of the models and variations that have been built and flown down through these last seven decades. One panel even chronicled Curtis Pitts' foray into air racing—yes, he actually built a couple of monoplanes!

Because of the anniversary, our

seminars were heavily oriented toward the Pitts—flying, building, maintaining, and buying—and were incredibly well-attended. I also suspect that between the seminars and the Pitts Exhibit, IAC and EAA members as well as other aviation enthusiasts came away with more knowledge of the Pitts than they had before they walked on the grounds. That's what IAC is about—to bring our experiences, knowledge, and skills to benefit as many as we can. Now we have to determine what our theme and emphasis will be at AirVenture 2016.

There were several highlights of AirVenture for me and which I will always remember. First, was Peter Gauthier's exact and precise replica of Pitts NX86401, the second airplane Curtis built. That airplane was flown by Phil Quigley, then later purchased by Betty Skelton, who flew it to fame as *Little Stinker* and changed the registration to N22E and the paint scheme to what we see today, as the airplane is on display in the National Air and Space Museum. What Peter has done is re-create the airplane as it would have appeared after just being built—down to the correct tires (new old stock with special tread), an Aeromatic propeller, and even the spacing on the slot-headed screws. It is a beautiful airplane, and Peter brought it in on a rental truck from California so it could be displayed inside our pavilion—just the fuselage. It was an exciting and emotional moment for me when Peter pulled up in front of the pavilion in his truck, we met for the first time, and we unloaded it and pushed it into

our building.

Later, we had people stop by—often meeting Peter himself to talk about the airplane—who made names for themselves flying Pitts Specials or writing about them. Two of the three Red Devils were there, Gene Soucy and Tom Poberczny, to sign our posters and to talk about the Pitts. Budd Davisson put on a hugely successful forum on the Pitts, which he did to an over-size crowd. Standing beside us all were the many Pitts pilots who flew in for AirVenture—some for the first time ever. It was the Pitts anniversary that brought them to Oshkosh, which is a measure of how much our members revere Curtis Pitts and his wonderful designs.

All of this was made possible by the hard work of several volunteers and staff. The design of the interior of the IAC Pavilion as well as the Pitts Exhibit itself was the work of Margo Chase. I was delighted when I made the announcement at Oshkosh that Margo is this year's winner of the Frank Price Cup for outstanding contributions to aerobatics. It is very well-deserved—and Margo has been instrumental in helping us build a "new IAC," which I have written about often in these pages.

As this issue reaches you, we will be in final preparation for the U.S. National Aerobatic Championships in Sherman/Denison, Texas, from September 20 through 25, under the expert leadership of Contest Director Gary DeBaun. As with the initiatives we took at AirVenture this year, Nationals will also be improved and more enjoyable for all attending, and we hope to see you there.

IAC



## ELECTION RESULTS

The results of the 2015 IAC election were announced at the IAC annual membership meeting held in Oshkosh on Friday, July 24, by Ballot Certification Chairman D.J. Molny. This year, members cast their votes by electronic means only. A total of 234 votes were cast.

Vote totals were as follows:

Vice President: Doug McConnell—210 votes

Treasurer: Bob Hart—221 votes

Directors: Michael Steveson—192 votes

Bruce Ballew—210 votes

Tim Just—214 votes

Mike Rinker—204 votes

All candidates ran unopposed in this year's election and were installed at the conclusion of the annual meeting. The new board of directors will meet for the first time at EAA in Oshkosh, Wisconsin, on November 4-5, 2015. Officers and directors serve two-year terms.

## IAC MAJOR AWARD WINNERS ANNOUNCED AT OSHKOSH

Each year, the membership of the IAC nominates outstanding volunteers to be recognized for their contribution to the sport of aerobatics. The award winners are selected by a secret ballot of the IAC board of directors, and the recipients were announced at the IAC annual gathering at AirVenture on Friday evening, July 24.

### Frank Price Cup—Margo Chase

The purpose of this award is to recognize the person who has contributed the most to the sport of aerobatics in the previous year. Margo Chase, a professional marketing and branding specialist, has spent hundreds of hours and devoted her skills and talents in developing a new brand for the IAC, beginning in 2015. Her design of logos, posters, clothing, and other apparel has improved the look and image of the IAC and aerobatics. She has also been active in designing and ordering the uniforms for the U.S. Aerobic Teams and apparel and logos for the U.S. National Aerobatic Championships in Texas. Last but not least, she has been instrumental in the upgrade and refurbishment of the IAC Pavilion in Oshkosh, which serves as our headquarters during EAA AirVen-



Margo Chase

ture. Her design skills were instrumental in the planning and organization of the Pitts 70th anniversary celebrations at AirVenture 2015.

### Robert L. Heuer Award for Judging Excellence—Bill Denton

This trophy is presented annually to an IAC aerobatic judge for outstanding performance as a judge in competition aerobatics. Bill Denton has been actively involved in the sport of competitive aerobatics for more than 30 years and has been a top-ranked judge for several years at the U.S. National Aerobatic Championships. He has judged for team selection, and this year he will travel to Châteauroux, France, to serve on the judges' panel at the 28th FAI World Aerobatic Championships. He has been selected twice to judge at world championships (the 2014 World Advanced Aerobatic Championships in Slovakia and the 2015 WAC) and assisted at other world championship events. He has a deep and skilled understanding of the technical aspects of judging, has always been fair and unbiased, and adds a lot to a judges' line with his knowledge, honesty, and humor. He consistently ranks among the best in judging performance analysis.



Bill Denton

### Kathy Jaffe Volunteer Award—Lynn Bowes

This award recognizes an outstanding volunteer who shows a remarkable spirit and enthusiasm for aerobatics and the aerobatic community. Lynn Bowes has given countless hours of her personal time for the betterment of the IAC. She is always willing to take time to help newcomers as well as the veteran members who need assistance and support. Her organizational skills and patience demonstrated as registrar of the 2013 WAC in Texas is well-known. It has been a joy to watch her interact with the collegiate teams as chair of IAC's collegiate program as she encourages them along the way. She served the IAC as a member of the board of directors and now carries out the duties of secretary with professionalism and as a key member of IAC's executive and finance committees.



Lynn Bowes

She organized the work that was done on the IAC Pavilion in Oshkosh, which so many members had an opportunity to enjoy. She embodies the spirit of Kathy Jaffe through her unselfish and eager willingness to take on numerous responsibilities with a smile, constantly placing the needs of others above her own.

### **Harold E. Neumann Award for Outstanding Contribution as a Chief Judge—Sandy Langworthy**

The family of Harold E. Neumann provided this permanent trophy to recognize an outstanding chief judge who is known for leadership qualities and fairness on the judges' line. Sandy Langworthy's operational knowledge of IAC judging criteria allows for accurate identification and resolution of judging and safety issues. His contributions are significant, as several of the contests he has attended are sponsored by newly formed IAC chapters and chapters that do not have a sufficient number of certified judges among their memberships. Sandy has traveled many miles to support IAC chapter contests in Michigan, Ohio, Illinois, Indiana, New York, and Canada. In addition to his services as chief judge he has led efforts in placing a high priority on regional judging schools and dedicated meetings to evaluate aerobatic sequences for submission as future Knowns. He unfailingly supports the ethics promoted by the IAC.



Sandy Langworthy

### **Curtis Pitts Memorial Trophy—Bill Bainbridge, B&C Specialty Products**

The purpose of this award is to recognize an outstanding contribution to aerobatics through product design. General guidelines are that this person or company is one that has created products that have made a lasting impression on the world of aerobatics. Bill Bainbridge's ideas, products, and services have been a tremendous benefit to aerobatics specifically and experimental aircraft as a whole. The business began in 1980, building lightweight dependable parts for the homebuilt aircraft industry. Competition pilots looking to reduce weight in their airplanes have looked to B&C for

more than 35 years. From its smaller lightweight alternator, oil filter adapter, and advice on rewiring electrical systems for a higher level of safety, Bill Bainbridge and B&C demonstrate that they are dedicated to making an aerobatic pilot's life better with their products, service, and support.

### **REGIONAL DIRECTOR ASSIGNMENTS**

The IAC has procedures in place to assign a member of the board of directors to one of our six geographical regions. That regional map appears on our website at [www.IAC.org/legacy/iac-leadership](http://www.IAC.org/legacy/iac-leadership). We encourage our chapter presidents and members to establish and maintain contact with the IAC director who is assigned to your region. The directors also reach out to chapters prior to board meetings for their feedback on various issues.

A document that includes a copy of our regional map, as well as contact info for all the directors, can be downloaded at [www.IAC.org/news/2015-08-07-iac-regional-director-assignments](http://www.IAC.org/news/2015-08-07-iac-regional-director-assignments).

To summarize, the regional assignments are as follows:

Northwest Region: Michael Steveson  
Mid-America Region: Bruce Ballew  
Northeast Region: Rob Holland  
Southeast Region: Mike Rinker  
South Central Region: Doug Lovell  
Southwest Region: Tim Just  
International: Debby Rihn-Harvey

### **PITTS AWARDS AT AIRVENTURE**

The IAC presented four beautiful plaques at AirVenture this year to outstanding Pitts Specials and other achievements. Award winners were as follows:

Grand Champion Pitts: Winston Wright, Pitts S-1S N33HS

Longest Distance Flown: Brennan York, San Francisco, California (Pitts S-2C)

Best Homebuilt Pitts: Ted Teach, Pitts S-1 N8M

Best Customized Pitts: Brett Davenport, Pitts N360BX

It should be noted that Ted Teach's Pitts was built from plans he bought from Curtis Pitts in 1967 and is a re-creation of Caro Bailey's airplane and with her name and colors.

These airplanes, as well as complete coverage of the IAC at AirVenture and the Pitts anniversary, will be featured in future issues of *Sport Aerobatics*.

IAC

# The Value of the Tech Inspection



A cautionary tale

ARTICLE AND PHOTOS BY DOUG JENKINS

**T**hose of you who know me, either personally or through my articles, know that I value flying very highly. I especially value aerobatic flying, and on the very top tier of things I enjoy is competition aerobatic flying. Given all of that, the thought of not being able to fly my Pitts is tough to stomach. I tell you all of that as a prelude to this...my Pitts is grounded, and likely will be for some time. But, on the positive side of the ledger, I am alive to tell you why...and I didn't need to ops check my parachute either.

The purpose of this article is twofold, I suppose. Objective No. 1 is to describe what went wrong with my airplane in an effort to help anyone else in a similar situation. Objective No. 2 is to extol the virtues of the contest rulebook-mandated tech inspection. So, without any further ado, here's how it all happened.

For the benefit of those of you not familiar with me or my airplane, here is the background information you will need. I fly a plans-built experimental Pitts S-1 in Sportsman. My airplane is registered as an S-1E. It has symmetrical wings and four ailerons with an IO-360 180-hp engine. It is a pretty "normal" S-1. I did not build my airplane; it was built in 1989 and has a little more than 1,100 hours of flying on it. It has not been re-covered since the original fabric went on in 1989. Until I bought the airplane in 2012 it had never been flown in a competition. Not that this tells you a lot, but a little research led me to believe that it had been a +4/0g kind of airplane. By no means do I abuse the airplane, but I fly it to +6/-2g routinely in Sportsman.

Shortly after I brought it home

in 2012 and started flying it to these g-levels, I noticed minor cracks in the paint at the wing/center box junction. A little research on various websites led me to believe that this was normal in that location, and was cosmetic and not structural. I took pictures to document the condition and track any worsening over time. (See Photo 1 for the original condition at left.)

Also, at the same time, I no-

## Given all of that, the thought of not being able to fly my Pitts is tough to stomach.

ticed significant vibration in the landing and flying wires under higher g-loading. Thinking there might be a connection, I did further research that led me to find the recommended tension settings for those wires. A friend at my airport, who also owned a Pitts, had a tension meter that I was able to borrow. Upon inspection it became obvious that my landing and flying wires were significantly looser than the speci-

fied numbers. Giving it my best pilot effort I tightened the wires to specification. I should also mention that the airplane has aluminum leading edges, and that many of the nails atop the top wing spar backed out and required tapping down after every flight. Again, research revealed this to be a common issue. Feeling good about my resourcefulness, I continued flying.

The cracks at the wing/center box junction were roughly static for a long while so I believed all was well. After a few months the landing and flying wires began to vibrate again. Checking the loading showed that they had loosened significantly. Naturally, I tightened them back to the proper numbers.

So began a trend. I was curing symptoms without addressing the actual disease. I was not asking why these things were happening; I was just fixing them periodically. There was a reason my landing and flying wires were loosening, there was a reason the nails were popping, and there was a reason the wing/center box junction was cracking, but finding that reason might mean not flying. Having convinced myself that these issues were "normal" and "cosmetic," I kept on flying.

Slowly another symptom manifested itself. The aluminum leading edges developed "bubbles" or "bulges" at a couple of rib locations. (See Photo 2.) Being new to the Pitts and biplanes, I asked a couple of folks their opinion of this development. The consensus was that the leading edge was not structural, and that it was likely a combination of loose nails and tapes. Reassured, I kept on flying. I knew, somewhere deep in my heart of hearts, that the top wing (at least) was not quite right. But



Photo 2

through selective reading of websites and wishful thinking I had convinced myself that all was well.

Do not underestimate the importance of psychology here. I knew that I really wanted to keep flying and competing. I also knew that I did not have the financial resources to make major repairs to the airplane. I also had a bad experience many years ago when I took my Taylorcraft apart for a restoration. That morphed into an almost decade-long project that saw me eventually selling the airplane (but that's another story). Given all of these powerful negative motivations I was biased toward not looking too hard. I thought that if I squinted just right and didn't think about it too much, it would all be okay. It was not, but I refused to accept that.

The next symptom was when the airplane developed a pronounced roll to the left whenever I let go of the stick. It had always had a minor left roll, but this was now *bad*. When I stepped in front of the airplane and looked at it, there was a clear and obvious difference in the orientation of the wing leading edges.

Once again my solution was to

treat the symptom instead of asking why and treating the actual disease. I borrowed rigging boards from my fellow Pitts owner and, at the 2014 condition inspection, rigged the airplane with the assistance of my local A&P. We got the wings back to level, and the left roll was back down to a dull roar again. Symptom cured; disease still present. All of my psychological pressures were still present as well. Throughout all of this there was a nagging voice in the very deep recesses of my psyche.

"You know this is not right," it said.

"Yes. I know that," I replied. "But what else can I do?" I asked.

"Well, you could actually figure out what's going on in that wing," it answered.

"Hah!" I said. "Like I have the money to do that. Besides if it was really bad I'd know it, right?"

My nagging voice said, "Well if that's how you want to go about it. But don't blame me when that wing falls apart."

I knew that might be a possibility I suppose, but I had convinced myself that there would be some flashing neon sign alerting me to an impending structural failure. I

only had about five of those signs flashing at me simultaneously. I just did not want to see them.

Over time the cracks at the wing/center box junction did progressively get somewhat worse, and the bulges on the leading edge also grew. I also noticed that the wings now had a pronounced twist to them that was discernible simply by looking at the wingtip (see Photo 3); yet another symptom. Also at that time, a problem I considered a simple annoyance began; the paint along the top of the left wing began to crack. I wrote this off to simple age and put some yellow and white tape over the cracks.

Again, I couldn't be bothered to ask why. I just wanted to keep flying. On one flight the left side landing wires actually began to sag under g. After landing a check showed all of the wires were significantly loose, again. So, what did I do? I simply tightened them back up. *Duh.* By this point even I was beginning to understand that there was a problem that needed to be addressed. I mentally began to shift gears.

The compromise I eventually reached with myself was that, af-



Photo 3

ter this season, I would embark on a rebuild. I still wasn't sure where the money was going to come from, but even I had seen enough. My new plan was to fly straight to a mechanic's shop the day after 2015 Nationals and take the airplane apart to see what we were dealing with. This seemed like a logical plan to me. I would get to fly this year, have some time to put money aside, and could mentally prepare for the project. We all know that no plan survives first contact with the enemy.

All of that relates to objective No. 1: to describe to you what was going on with my airplane and with me. If *any* of this sounds familiar, run, do not walk, to a trusted source of information and find out what is going on and *why*. Please. It could save your life and your airplane. This brings us to objective No. 2: to extol the virtue of the tech inspection.

So there I was, freshly arrived at KGYI (North Texas Regional Airport) on June 11, 2015. Tom Braymer and I had enjoyed an uneventful formation flight up from San Antonio, and I had snagged one of the last practice slots. Life was great. As is the norm for me,

my practice flight stunk. At least I had seen the box again.

After I landed, I put my airplane in Mike Plyler's hangar and took care of the registration paperwork. Next I tracked down Tony Wood, who was doing tech inspections. I have always heard the tech inspection described as "not an annual (or condition) inspection, but you want to make sure that the airplane is safe." And this seems about right to me. Tony and I chatted as he looked over my paperwork, then he began to look at my airplane.

Now what would you do as a tech inspector if you saw what you see in Photo 2 or Photo 4 on a competitor's airplane? I will tell you what Tony did. He was concerned enough that he went to get John Ostmeyer, who was also inspecting airplanes. Tony pointed to the bulge on the leading edge and asked John what he thought of it. John looked at it and decided that it was not quite right. Tony was in full agreement. Next they got Pat Clark over to look at my airplane. He also declared it not quite right. About then Craig Dobesh showed up. His opinion was also, as you may

have guessed, that my top wing was not quite right.

By now the ever-growing crowd around my airplane was taking on a life of its own. The bottom line was that I had a bunch of highly smart and experienced folks telling me that my airplane was not quite right. I was feeling physically ill. Sometime during all of this, it gets kind of blurry for me. Mike Plyler had wandered over to see what all the hubbub was about. The smart people decided on a course of action. We needed to see what was going on inside the top wing. All of the symptoms, leading edge bulging, cracks at wing/center box junction, twist in wingtip, etc., added up to something being wrong. Finally someone without a dog in the fight had the courage to ask *why* all of these things were happening. Finally I was being forced to stop putting bandages on hemorrhaging arteries.

Tony, John, Pat, and Mike decided that we should cut some holes under the top wing and check on the drag and anti-drag wires, as everyone seemed to agree that these were likely culprits in causing what we were seeing. I agreed to this as it seemed



Photo 4

to be the best way forward. If we opened the wings and all was well, we could put the covers on and I'd be in business. If all was not well, I decided not to think about that. It only made me sicker.

Mike graciously agreed to go to his house and retrieve inspection covers, rings, and other various supplies that would enable the inspection. John Ostmeyer, with a herd of onlookers numbering in the dozens, attached the rings at the position of the "X" where the drag and anti-drag wires cross on both the left and right wings. When it came time to actually cut the fabric, I got to do the dubious honor. Once the fabric was out of the way, eager hands went into the wings.

The drag and anti-drag wires were way loose. We were getting closer to the disease, but we weren't there yet, because we were finally going to keep asking why until we got to the root cause. Why were the wires loose? We went outboard and cut another hole where the wire should be at-

## Denial was easy; I had been in denial for about a year and a half.

tached to a block on the outboard side of the rib. The block was destroyed. At this point I could tell that some people were feeling uncomfortable, like this had somehow been an intrusion into my airplane, like they had personally ruined my day. I actually asked everyone to stop for a minute and

personally thanked everyone for what they had done. I thanked Tony for being concerned about what he saw, I thanked John and Pat for not just saying it was probably good enough to fly, and I thanked Mike for bringing all of the stuff needed to make the inspection happen. I shook everyone's hand and tried to collect my thoughts. At that point it was obvious to me that my contest flying was done for the year.

I began to move through the stages of grief. Denial was easy; I had been in denial for about a year and a half. Done. Anger was short-lived. Who did I have to be angry at? I decided the answer was only myself for continuing to fly an airplane that was literally crying out for attention; that was tempting but counterproductive. Done. I will admit that I wallowed in sadness for a while that afternoon and evening. Fellow pilots were all expressing their disappointment in the outcome, and I succumbed to the temptation to be a little melancholy. But what

purpose did that serve? None. Done. Finally I moved on to acceptance. Somewhere, deep inside, I actually felt relieved. Some smart people, people without all of my psychological baggage, had the courage to ask why and to find the actual problem. Faced with the full severity of the structural issues inside the top wing, I had no choice but to accept the outcome and begin to move on.

Chrissy, my wife, was driving up to join me at the contest, and I had told her earlier in the day that there might be issues when we first started the process. Now I called and told her the outcome. I think she may have felt worse than I did. She understands what all of this means to me. She later told me she felt sick to her stomach when I told her what had happened. But, in true Chrissy fashion she invested the rest of the drive up concocting plans to get the plane back in the air.

When she arrived in town that night I took a little of my anger out on her. I quickly realized that was pretty dumb because she had more good ideas about getting this thing fixed than I did. Once I started actually listening to her I found my hopelessness was turning to something better; if not optimism, then at least hope. We spent the rest of the weekend hanging out at the contest, me judging and her assisting and recording. As a matter of fact she got 36 assists. She plans to go to a judges school this year and be ready to judge next year, but I digress.

Next, having had a week to work on plans, I rounded up an experienced IA in San Antonio who had room in his shop and on his schedule. I priced the supplies I needed and mentally accepted that the project I planned to commence after the season just simply got moved to the left by a few months. I still wasn't 100 percent sure where the money would come

from, but Chrissy hatches a new plan every day. And that improves my chances of being on the line ready to fly at Lone Star 2016.

So here's the wrap-up statement. Tony, John, Pat, Mike, and others who I may not have noticed given my state of mind, saved my life. Thanks. Their diligence saved me from myself. They saw a problem I was too scared to see. We discovered a problem at 1g and 0 knots before it had a chance to destroy my airplane and hurt me, or give me a chance to ops check my parachute, or kill me. And that is the value of the tech inspection. So at your next contest, don't resent the attention. Welcome it. And if your airplane is telling you it is hurting, listen. In the long run it will be for the best.

I look forward to competing, in an airplane that will be better (and safer) than ever, in 2016. Bring it!

IAC

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**YOUR COCKPIT  
TO ADRENALINE**

# Thank you, Mr. Pitts

PART 2

BY TOM POBEREZNY

**Editor's Note:** This is the second of a two-part series that first appeared in the June 1973 issue of Sport Aviation magazine.

**A**t 3,000 feet, that aerobatic zone sure looks small. Let's see. The wind in a quartering cross-wind from my left. Okay, let's fly slowly into the area just left of the X-axis and put that inverted spin upwind of the Y-axis. Slow it up...oh, it's breaking. Establish a good downline. Push inverted. You're moving downwind fast...better push up for the family 9. Center the half-roll. Push over the top. Come on, Tom...set a good downline. Push out inverted. Watch the wind. FLY! Vertical rolls...snap rolls...spins...hammerheads. The list of competition maneuvers goes on and on and so does the Pitts Special. This midget biplane, designed in 1942 by Curtis Pitts, has undergone a number of refinements that has made it the top aerobatic airplane in the world today.

Some may argue that statement, but a close look at the facts speaks for itself:

- 1970 - Four of the six U.S. Aerobatic Team members flew Pitts Specials. The U.S. Team won the World Aerobatic Championships (WAC).

- 1972 - All seven U.S. Aerobatic Team members flew aircraft designed by Pitts. The U.S. Team won the WAC title for the second

consecutive year. In addition, Mary Gaffaney and Charlie Hillard garnered the women's and men's individual titles respectively.

- 1969-1972 - The last four U.S. National Aerobatic Championships (men's and women's division) have been won by pilots flying Pitts Specials. But, I am getting too far ahead of myself in talking about the recent accomplishments of the airplane and its designer. In last month's issue of *Sport Aviation*, we followed Curtis' early design and building activities, which included such notables as *Little Stinker*, Samson, and his two midget racers, No. 21 and No. 8.

In the 1950s, air show activity was at a low point, which in part was responsible for Curtis doing little designing and no building during that period.

"As air shows were becoming fewer and fewer, I felt that I better put my efforts into something that would make grits and gravy for the children," he said.

With that in mind, he concentrated heavily on his crop-dusting business. Crop-dusting is a tough business, one that calls for long hours and physical exhaustion at the day's end. For more than 15 years, Curtis saw the sun rise early in the morning and set late at

night, but thoughts of building and designing were always in the back of his mind.

It was during this period of time that Curtis started developing ideas for a two-place design. Spending his summers in Mississippi working the cotton crop, Curtis could be found evenings in his trailer sketching and drawing. This work was to pay dividends later when the popular Pitts S-2A became a reality.

Though Curtis "didn't build a thing in the '50s," a couple of Pitts Specials were being built. One day, a gentleman by the name of Billy Williams from Tulsa, Oklahoma, paid Curtis a visit. He asked if he could obtain a set of the shop plans for the Pitts. Drawings in hand, Billy headed back home and started the airplane. Subsequently, he left Tulsa and somebody else took over the project. Eventually, it ended up in the hands of Dean Case of Wichita, Kansas, who completed it. Under the name of Joy's Toy, the airplane was flown at numerous air shows by Dean's lovely daughter, Joyce.

About this time, another Pitts project was started by Jim Meeks, who was a duster pilot working for Curtis. One of the instigators behind this project was Phil Quigley,

along with Perry Boswell of Delray Beach, Florida. Meeks scrounged around Curtis' shop and found some of his very early drawings. From these drawings and information extracted from Curtis, *Mr. Muscles* was built.

Using a 170-hp Lycoming, *Mr. Muscles* was the highest-powered Pitts to date. The airplane was actually a muscular brother to Betty Skelton's famous Pitts, *Little Stinker*. Weighing only 689 pounds, this high-powered aerobatic mount was an indication of things to come. Today a 180-hp Pitts is the rule rather than the exception. Last heard of, *Mr. Muscles* was somewhere in Ohio and going strong! (Editor's Note: U.S. Civil Aircraft Registry 1968 shows Kenneth Bixler of Alliance, Ohio, as the last owner of *Mr. Muscles*, N37J).

After staying in Gainesville for 10 years, Curtis moved to Homestead, Florida, in 1955. Though he moved to Homestead with the intention of concentrating on his crop-dusting business, "Lots of people began to pester me for plans," he said. Bill Dodd of Lake Zurich, Illinois, worked continually on Curtis to make drawings available.

"He would come see me two or three times every winter and push like the devil to get me to put those drawings out."

Enter Pat Ledford into the picture! Pat also agreed that drawings should be made available. He told Curtis that if someone could do the drawings, he would like to build the airplane.

Pat's airplane, N8L, was more or less the guinea pig for the rebirth of the Pitts Special.

"We had most of my old shop drawings, which were not detailed at all, just a mess. They were not something you could build an airplane from. With Phil helping Pat, the airplane was built. We really didn't change anything in it. I did hire a draftsman who came along and filled in the loose parts and redrew a lot. We really didn't improve the draw-



Pat Ledford's famous N8L over Miami Beach. It was this airplane, with Phil Quigley at the controls, that gave most EAAers their first real taste of high-powered Pitts air show work.

ings a heck of a lot, but we got them out anyway," Curtis recalled.

Having proved the drawings through the construction of N8L, they were made available in 1962. Today, more than 300 Pitts Specials have been completed with an untold number under construction. Little did anyone realize at the time the impact these drawings were to have on the sport aviation and aerobatic movements in the United States and throughout the world.

Today, competition aerobatics has become an exacting science with even the smallest bobble or mistake proving costly. The quality of flying improves year after year even though the sequences become progressively more difficult. More and more negative (outside) maneuvers are being flown, necessitating excellent inverted characteristics on the part of the airplane. This means that a symmetrical airfoil is a must!

Back in 1948, Curtis was already thinking about using a symmetrical airfoil in his design.

"Phil Quigley and I used to ar-

gue about this in the late '40s. We had all kinds of ideas for inverted performance," Curtis said. "We got a lot of discouragement from the aeronautical section of the University of Florida, so we never did build any."

During the period when Curtis and Phil were developing these ideas, aerobatic competition was not as we now know it. The complexities of aerobatic competition did not exist. The concept of the symmetrical wing on a Pitts was strictly for air show work.

"We felt we would have a little edge on everybody if we designed the symmetrical wing, and it would also make life a little easier for the pilot!"

The symmetrical wing concept was dropped until around 1960 or 1961 when Curtis realized the need for this type of wing if the characteristics were to improve appreciably. The first set of symmetrical wings appeared on Pat Ledford's N8L. As you can see, Pat's airplane was used in a great deal of Curtis' initial test work.

"We didn't like the first wings

worth a hoot. We tore them down and modified them, put them back on again, but were still unhappy. We improved them a second time, and they were pretty good."

Curtis was asking various aerobatic pilots, such as Don Pittman, to fly the airplane with the symmetrical wings. Their comments were invaluable in making the necessary modifications.

This first set of symmetrical wings had only a single set of ailerons on the lower wings. It wasn't until 1967 that the four-aileron, symmetrical wing as we know it today was built. It took long hours of research and testing, rebuilding and modifying, plus a great deal of effort and expense for Curtis to develop these wings. It is a real shame that only a minority (not a majority) of those who enjoy the fruits of Curtis' efforts will ever realize the magnitude of the work involved in the development of these wings!

Curtis put the first set of four-aileron, symmetrical wings on a Pitts that he had built. The first pilot to use a set of these wings in actual competition was Bob Herendeen of Torrance, California. He actually had the No. 2 set of wings. Bob was looking for ways to modify and improve his Pitts, so he began corresponding with Curtis. Before long, he showed up one weekend at Curtis' shop in Homestead. One thing led to another, and soon he was flying with the new wing!

In talking with Curtis about his friendship with Bob, I asked him if there was one particular person who really did the most for the Pitts' national and international recognition.

He answered, "I've got to say Bob Herendeen, naturally. But Betty Skelton was the first one really. Betty got real famous before air shows began going downhill."

Bob was a big factor in the rapid growth in popularity of the Pitts as we know it today. He proved beyond a doubt that the Pitts had all the characteristics of a top-notch competition machine. For the past

few years, "Herendeen" and "Pitts Special" have been names to be respected and watched closely at national and world aerobatic meets.

Curtis also credited Don Pittman for help in developing interest in the Pitts. Don flew *Joy's Toy* at a number of air shows throughout the country. His freelance style in the air has thrilled many a spectator.

While all this activity was taking place, Curtis was still operating his dusting business under the name of Pitts Aero Service. In 1964, he decided that his design and plan sales activities were going to start taking on major proportions...thus the evolution of Pitts Aviation Enterprises.

In 1966, he sold his dusting business to devote all of his time to the development of his designs. And develop they have! As Curtis so aptly put it:

"I've been working on this little airplane every day and night ever since I left the dusting business!"

In July of 1967, Pitts Aviation moved to its present location, which is about 3 miles south of the Homestead, Florida, airport. Working out of a cluster of small Quonset-type hangars, the first two-place Pitts, *Big Stinker* (Pitts S-2A), was completed just in time to make its debut at the 1967 EAA International Fly-in at Rockford, Illinois.

It took Curtis about a year to build *Big Stinker*, which was the culmination of some of his early design efforts back in Mississippi. The performance of *Big Stinker* with its four-aileron, symmetrical wings thoroughly convinced Curtis to use this wing on the Pitts Special.

There have not been too many changes from the original *Big Stinker*, except those needed to comply with certification, to the Pitts S-2A as we know it today.

"The big change was installing the 200-hp engine. We added additional rudder area along the way, and we changed the weight and balance considerably."

Curtis had started the two-place certification project back in 1967,

with the idea of producing the airplane in Homestead. But a gentleman by the name of Herb Anderson wanted to change these plans. Herb worked for the Callair production facility in Afton, Wyoming. In 1966, Callair sold out to Rockwell Standard, and Herb moved to Albany, Georgia, to set up a production facility there. Herb has been a production man all his life, having also worked for Mooney and Piper. There is no doubt...Herb knew his business!

After the aircraft contract for the Albany plant had expired, Herb went back to Afton. Herb knew of Curtis' production plans and tried to get him to come out and view the facility in Afton, hoping he would set up production there. But Curtis wasn't interested initially.

Herb was persistent. One day in 1969, he called and offered to pay expenses, if only Curtis would come to Afton. He explained that he had an empty production facility with trained people ready to work. Finally Curtis flew out there and what he saw amazed him. He viewed an excellent facility with a wealth of trained people who had been building steel-tube aircraft since 1945. He was convinced...Afton, Wyoming, was to be the future home for the production facility of Pitts Aviation Enterprises.

Arrangements were made and preparations were begun. The actual certification and testing of the Pitts S-2A was done at the Homestead facility, but upon completion of this work, the Afton plant was ready to produce. The first S-2A (N14CB) was delivered to Marion Cole in the summer of 1971. Since that time, Pitts aircraft have been turned out at the rate of two a month. As of May 1, 1973, 48 Pitts S-2As have been produced and delivered, with future delivery dates up to June 13, 1974, already sold!

The pilot and customer response to the S-2A has been excellent. In fact, I am sure it has exceeded the expectations of many who have watched it since the certification

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The *Big Stinker* prototype of the Pitts S-2A was significant in many respects. N22Q was the first open-cockpit biplane certified by the government since the 1930s, and was the trial horse for the four-aileron symmetrical wing system, for which Curtis Pitts had obtained patent rights.

process was started back in the '60s. Let's take a close look at some of the factors contributing to its success:

- An FAA certificated, Unlimited competition machine with aerobatic capabilities exceeding those of any other certified airplane on today's market.

- A two-place aerobatic trainer for all classes of aerobatics from Sportsman to Unlimited. Many top aerobatic training schools across the country are using this airplane.

- A good dependable airplane for air show use.

- A uniqueness and early-day, fun flying mystique that seems to accompany all biplanes.

These factors, combined with many others, have brought a large number of customers to the doors of Pitts Aviation Enterprises. Among these customers has been the Rothman Tobacco Company in England. Curtis sold five S-2As to the Rothmans for use by their company-sponsored aerobatic team, which appears at numerous air shows throughout Great Britain and Europe. Previously the Rothmans were using Stampe biplanes, but after seeing the performance

of the Pitts at the 6th World Aerobic Championships in Hullavington, England, a change was in order.

Manx Kelly, leader of the Rothman team, visited Homestead to test fly the airplane. Manx's enthusiasm for the airplane must have been tremendous as indicated by Rothman Tobacco Company's purchase! (See the June 1973 issue of *Air Progress* for some excellent in-flight photos of the Rothmans in their new Pitts S-2As.)

Curtis has also sold a number of Pitts S-2As in Australia and Canada with interest being expressed by many other people throughout the world. The reputation of this airplane and its designer is truly international.

As if certifying one airplane wasn't enough for Curtis, he turned his efforts to the Pitts Special, completing type certification on this airplane on February 6 of this year. The basic airplane will have no electrical system or any other additions that would detract from its performance. An electrical system, radio, and so forth are available for those who request it. The first production model will

come off the line on August 8 with 15 airplanes already ordered. I asked Curtis if he felt that the Special will generate the same type of interest as the S-2A. He thought it would, but that it would not sell like the two-place airplane.

Granted, the single place is more of a true sport airplane, since it does not offer the training capabilities that the S-2A does, but its tremendous flight characteristics speak for themselves. As it racks up victory after victory in national and international competition, the demand for this airplane seems to spiral upward.

Curtis has geared production at his Afton facility so that he will be producing four airplanes a month: two S-2As and two Pitts Specials. Curtis has planned his production schedules wisely. It would be easy to meet the tremendous demands and increase production. But he does not feel this is best over the long run, and I agree.

By keeping production limited, the market does not become saturated with Pitts airplanes. Therefore, the airplane will continue to hold its value well, plus the fact there will be very few for resale to compete with those coming off the production line. These are custom airplanes that appeal to a limited market. The best way to overextend yourself is to saturate this market. Do this and it will soon disappear!

I have spent most of my time talking about Curtis' certificated offsprings. You may ask: "Can I still buy plans? Will I still be able to build a Pitts Special?"

The answers to these questions are—yes and yes. Actually, Curtis is offering a number of options to the man or woman who still wants to build his or her own airplane.

One option that eventually will be available is the type-certified airplane in a kit form.

"Apparently, in my negotiations with FAA, what I'm going to have to do is to complete all the individual parts of the airplane. Essen-

tially, it will then be a final assembly project. The kit will include everything except the store-bought items that you just bolt on, such as the engine, propeller, and instruments. We will furnish these things separately, but they won't be part of the kit."

Two kits per month will be offered, their production being part of the operation at the Afton plant. Various individual parts for the Pitts Special will also be made available.

In addition, drawings for the Pitts Special (not the S-2A) will still be marketed.

"I'm going to offer an M-6 airfoil, four-aileron version. We have an excellent set of drawings which consists of 47 sheets. There will be a 'how to build' manual, inspection flight test forms, and a flight manual accompanying the drawings."

The airplane completed by the homebuilder will not be exactly the same as the certificated model.

The Pitts Special has worked its way to the top, winning every major aerobatic title. Being on top makes it the primary target for the many new designs that are being developed to take its place. I asked Curtis point-blank how the Pitts will stack up a few years from now against some of the designs now appearing such as the Stephens Akro and the Acro Star. He paused momentarily and answered:

"I'm not too concerned about it. I've heard this kind of stuff all my life. I feel that if that kind of airplane will have any advantages over the Pitts, there will have to be some changes in the rules. As long as the rules and the box are not changed, we've got an advantage over all of them. High performance is not going to win the contest. It's going to be the man driving the airplane that's going to be the world champion."

Some may not agree with Curtis, but you can't argue with success. He has developed an airplane that was vitally instrumental in the U.S. victories in the 1970 and 1972 WAC meets. He has developed an airplane that has completely dominated aerobatics in the United States for the past five years. He has developed an airplane that has brought the United States from last to the recognized world leader in competition aerobatics. He has developed an airplane that is just plain fun to fly.

For this, we must all say...thank you, Mr. Pitts! **IAC**

**Author's Note:** Throughout his career, Curtis has experienced many thrills and highlights. I am sure it would be difficult for him to choose one that would stand out among all the rest, but this is what he said:

"There were lots of times when I felt pretty good, but I would say that the first time I flew the first little airplane was the biggest thrill for me. It was like a ride in a sky-rocket after flying those other airplanes."

If he thought that was a sky-rocket, today's Pitts is nothing short of a moon-ship!

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# Control Failures

Learning to fly with trim can save your life

BY PATTY WAGSTAFF

SPENCER THORNTON

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The NTSB report read: "On-scene examination determined that the airplane impacted the ground with the left wing down and a 30-degree nose-down pitch. The wreckage examination identified a loose, puck-like, 4.5-inch diameter portable XM-GPS antenna in the empennage tail space that houses the elevator bell crank. The antenna had a 9-mm diameter semicircular indentation witness mark that was consistent in shape

and size to the end of a 9-mm diameter bolt that attaches the forward spar of the vertical stabilizer to the fuselage frame, located directly above the elevator bell crank. The antenna location and associated witness mark indicate that the unsecured antenna migrated to the tail section of the airplane and obstructed the free movement of the elevator bell crank, limiting the pilot's ability to control the airplane in pitch."



DEKEVIN THORNTON

Control failures and foreign object damage (FOD) aren't something that GA pilots often think about. We might hear of disastrous accidents on takeoff where someone forgets to remove gust locks, but in the air show world, we think about FOD and control failure all the time. In January, the NTSB issued a new safety alert: "All Secure, All Clear (forgotten and unsecured items have jammed control system components and caused crashes)." Aerobatic airplanes are designed to be light, eliminating cockpit refinements like bulkheads, which makes it easy for stuff to get lodged in our flight controls. The careful aerobatic pilot checks for FOD in the airplane before every flight.

I didn't know the pilot in the incident above, but I probably assumed he was too low and lost situational awareness. If the NTSB hadn't found the GPS antenna, we would've never known what happened. An accident without a clear ending is the most tragic because we can't learn from it.

The first of four control failures (yes, I'm counting) I've had due to FOD was in a Super Decathlon.

I had just flown 2,500 miles from Alaska to Wisconsin for an aerobatic competition, and the airplane performed beautifully. But, on my first aerobatic practice flight, when I rolled the airplane inverted, I knew immediately something was wrong. I wasn't able to move the stick forward to keep the nose up. Luckily, my ailerons were free and clear, so I was able to roll back upright. The Super D has a very responsive trim control, and I had practiced flying with trim only, maybe just for this moment, so I headed straight for the runway. After landing, I took off the rear fuselage inspection panel and, *Voilà!* A full set of keys were wrapped around the elevator bell crank. They belonged to a friend I had given a ride to just before I left Alaska. He got his keys back via FedEx as soon as I could dig them out of the empennage. Since then, I've never flown [aerobatics] with a passenger without asking them to first empty their pockets.

Three years later, I was flying a Pitts S-1T. [Aerobatic] pilots are always looking for ways to lighten their airplanes to get better performance, and I'm no exception.

A few days before a contest, I removed the battery from the airplane to save a few pounds.

I arrived at the contest, registered, and then took off for a practice flight in the box. I'll never forget the tailslide I executed: The airplane went straight up, the power came off, and I slid backward and flopped forward to a perfect vertical downline, perfect except that I wasn't able to pull out of it. Something was jamming the elevator control. This wasn't my first rodeo, and I quickly used the Pitts' powerful trim handle to level the airplane off, enter the pattern, and make a very careful landing. I looked in the tail, and a rather large piece of wood was jamming the controls. It was the battery tray. When I removed the battery, I didn't realize the tray the battery rested on wasn't fixed to the steel tube fuselage.

Since then, I've been very careful with my preflights. I follow a written checklist religiously before every flight, and perhaps the most important item on it is to check the airplane over carefully for FOD. There's a reason why every Extra manufactured has a clear Lexan panel on the lower-right rear fuselage of the airplane, because

that's where everything that doesn't belong in the airplane—keys, earrings, passports, wooden battery trays, tools—ends up.

As the saying goes, you can never be too careful, and yet things can still happen. The third time I almost had a really bad day was when I was flying the Extra 260 at an air show. The morning of the show, I had some avionics work done to repair a bad radio. As showtime loomed, I was very anxious to get in the air and kept bugging (in a nice way, of course) the avionics guy, who was working as fast as he could, to get the job finished. As soon as he zipped up the cowling, I jumped in the Extra and took off for my first flight. To show off the great performance of the 260, my opening maneuver was a vertical S—a double climbing half-loop. When I got to the top about ready to push over to go downhill, something in the stick didn't feel right. The elevator wasn't completely jammed, but I felt something restricting smooth control movement. I didn't know what the problem was, but I sure wasn't going to troubleshoot it in the air when I was over a perfectly good runway.

My crew came running over to see what was wrong. Clear as day, inside the Lexan panel, we saw one, two, three—there were nine—small screwdrivers and a plastic case. You might say I was horrified to think about all that stuff floating around in the tail of my airplane. It was creepy to think that even with a careful preflight, I didn't see the screwdriver case left on top of a radio stack before takeoff.

FOD doesn't have to be wood or steel. A friend of mine told me he did a roll on takeoff at an air show, and a sectional chart smacked him in the face, temporary blinding him a few feet off the ground.

My fourth—and hopefully my last—control failure happened when I was practicing near an airport outside of Tucson. I remember it well. It was late in

the day, there was a high overcast, and the flat light made the runway seem much farther away than two miles from the box.

I had no idea what had caused the elevator to jam and didn't want to make the situation worse, so I set the trim and headed for the runway. I had to set a level descent to the runway without letting the descent rate get too steep. The Extra is unstable, and I found it difficult to set a level attitude because the airplane wanted to diverge into a climb or descent. Also, my trim control was stiffer than in previous airplanes, making it harder to fine-tune. It wasn't a great situation. I got the airplane on the ground, and while rolling out, noticed that my hands were shaking.

I had a tank for smoke oil behind my seat, and the fuel cap was nonstandard for an Extra. It was the type that had you turn a handle to tighten the seal. In the weeks prior, I noticed the cap was losing its seal and was getting harder to tighten, and I had planned to replace it at annual. I purposely put a small metal chain on it to the tank in case it came off during flight—an attempt at eliminating FOD problems. When I was up doing [aerobatics], the cap came off, the chain held it, but it lodged between the tank and the torque tube, completely jamming my elevator control.

What did I do wrong? In each case, I admit I was really lucky. I made mistakes, but I did some things right, too. I dealt with each situation methodically. I didn't try to troubleshoot in the air. My primary mission was to keep flying the airplane and get it safely on the ground. I didn't bother with a lot of radio chatter. Also, I had practiced flying with trim only and made sure my trim controls were smooth and responsive.

Mistakes? I didn't ask my passenger if his pockets were empty before we did aerobatics. I also second-guessed the battery tray yet

didn't remove it with the battery in the Pitts incident. I didn't listen to warning signs with the loose fuel cap in the Extra and was waiting for the annual to get it replaced. I rushed the avionics technician and didn't watch when he replaced the cowl to check for loose items.

The worst thing about a control failure in an airplane is a loss of faith. Instead of being your friend, the aerobatic airplane that you wear and not just fly becomes the wolf that bites the hand that feeds it. A friend of mine had the stick in his aerobatic airplane break off during flight. He was able to land it safely and told me later that the first thing he thought when it happened was how much this would affect his confidence and trust in the equipment later.

The loss of faith is a test. We fix the problem and need to move on to restore our confidence. Get back on the horse that bucked us off. When I'm flying an air show, I need to trust my airplane and have confidence in it.

I'm not telling these stories to make some sort of emotional confession. They taught me something, and if I pass them on, they might help you avoid the same mistakes. In all likelihood, you'll never have these situations happen in your Cessna or Piper, but I'd suggest keeping a sterile cockpit and checking inside the airplane for loose tools and parts after annual but before your mechanic zips it up.

We don't have to be air show pilots to know that we need to have confidence in the machines we fly. We're all capable of making mistakes, but solid preflights, good preventive maintenance, keeping a sterile cockpit, not waiting until annual to fix or repair things, staying current, and practicing flying with trim all help give confidence and trust, and enable us not only to be safe, but also to get maximum pleasure and enjoyment out of our flying. Isn't that what it's really about?

IAC



PHIL HIGH

# Where Are All the RVs?

A new conversation about RV competing

by Patric "Balls" Coggin  
[balls@hawgaviation.com](mailto:balls@hawgaviation.com)

## The Beginning

Almost nine months ago, Reggie Paultk, the editor of this fine publication, introduced himself to me as I stood next to my RV-4 at the 2014 National Championships. As we talked it was clear that he was interested both in my story and the RV. Despite it only being my first year of competition, I suspect he may have detected my newly created passion for the IAC.

"You should write an article for our magazine. There is a lot of in-

terest in getting the RV community out to compete, and I think you could write a good piece on it." As I recall, I laughed it off as I explained I am no writer...I was the guy in college that took most of an all-nighter to complete a two-page paper.

You can all blame my very beautiful and better half for me giving this writing thing a shot. When I told her about my conversation with Reggie, my wife convinced me that I may just enjoy the challenge. I'm now three articles in, and I'm

finally ready to tackle that initial subject about RVs. This topic was important enough that I felt it needed more thought and research than the others.

From my perspective as the new kid in class, it appears that RVs competing in the IAC is not a new conversation. However, I know very little about those previous debates, and that is just fine. What is clear is that the IAC is struggling with bringing in new members and securing the future of the sport. I

am convinced that RVs and their pilots can play a major role to remedy that.

### The Case for RVs

Much has been written about the price of admission to IAC competition and its implications for our organization's longevity. Along that line, I've heard many a yarn about affordable clipped-wing Cubs or basic Citabrias filling the entry-level ranks years ago...only to see the those same class rosters dominated by pricey Extras and top-end Pitts today. Doug Jenkins wrote an outstanding piece on how he paved his inexpensive path to competition with his classic Pitts. In terms of price of ownership, wherever he referred to "my classic Pitts," you could write "my RV-3/-4/-6" and still get to the same bottom-line costs. Other aerobatic RVs may cost a bit more, but still cost much less than many of the mounts seen in primary and sportsman today.

The Van's line of RV aircraft is quite varied, and each has its own flying qualities. I have flown a few different models and studied them all, and I can say they all are graded with high marks in cross-country efficiency and pure fun. However, if you put cross-country capabilities and aerobic abilities on different ends of a scale, each base model lands on its own spot on that scale.

The RV-3, RV-4, and RV-8 certainly land closest to the fun and sporty end of the scale. Each one gets bigger and capable of more powerful engines. The RV-3 is single-seat, and the RV-4 adds a part-time rear seat. The RV-8's rear seat is more capable of carrying a fully grown human through aerobatics. The RV-6 and RV-7 are side-by-side models. Both are capable of Sportsmen-level aerobatics but are clearly designed with a bit more cross-country in mind than earlier models. The RV-6 has a smaller vertical stab of the two and is reported to have slow recoveries from fully de-

veloped (two-plus rotation) spins. (The RV-6 is the only kit that can no longer be purchased.) The RV-9, -10, and -12 are designed as cross-country machines with sporty handling, and they are not designed to do aerobatics.

Van's newest kit, the RV-14, brings back aerobic capabilities to a side-by-side machine. For those curious, adding an "A" to the end of a model means it's a nose-dragging variety of a model originally of conventional design.

The designed capabilities of the aerobatic RVs are all similar: very low drag, relatively high roll rates, and stressed up to +6/-3 g's at or below published aerobic gross weights. Buried in the text on the Van's website it states that the RV-4 can be competitive at "sport" level aerobatics. I find completing the Sportsman-level routine is well within the envelope of the RV-4 and have spoken with other RV-4 pilots who complete Intermediate-level figures. To drive home the point that RVs can be competitive, four different RV competitors have competed in IAC since the start of 2014 and have racked up one Primary win, one Sporty third, and one Sporty win.

Beyond IAC competitions, many RVs are performing at air shows across the country. Multiple aerobic formation teams are comprised solely of RVs. Joe "Rifle" Shetterly puts on an eye-watering solo show in his RV-8. Do RVs have the roll rate of an Extra or the g rating of a Pitts? Of course not! But as a surrogate to those Cubs and Citabrias of old, RVs are a great way to compete in the entry levels of the IAC and at a very affordable price, relatively.

### Where Are All the RVs? Why Are They Not in IAC?

With more than 5,000 aerobic-capable RVs registered in the United States, one must ask, "Why are all these aircraft not at our events?" It's a great question... especially when you consider that

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there are fewer than 1,000 Decathlons in the United States, yet they are common-sight in the IAC.

Anecdotal evidence tells us that the average age of the RV builder and owner is, to put it nicely, wise. Let's face it, most young people don't have the resources to build an aircraft kit of any kind. At such an "experienced" age, many builders/pilots are reluctant to attempt a new challenge such as competition aerobatics.

Another reason may be Van's Aircraft itself. If you have a chance, I encourage you to take a look at the Van's Aircraft website. Nowhere will you find references to current aerobatic competitors, air show performers, record holders, air racers, or any other activity that falls out of the middle of the road. In fact, the front page of Van's recommends against "serious competitive aerobatics." (There is no explanation of what "serious" is.) I find this curious, considering the success of some within those circuits. In many ways Van's appears to be very risk-adverse in today's litigious environment, and it appears it feels the IAC falls into that risky category. I suspect the notable absence of references to aerobatic achievements in Van's media contributes to the lack of RVs pursuing the activity.

Lack of the ability to train for competitive aerobatics is yet another reason many RV owners don't show up at events. The RV-3 (single-seat) and the RV-4 (two-seat, but very CG/gross limited in aerobatics) make up a large portion of the aerobatic-capable RV fleet. RV-6/-7s are not immune to weight/CG aerobatic issues, either. Most builders don't want to rent an airplane to train while their newly finished RV sits in the hangar.

There also appears to be a general disconnect among RV owners (and probably others) on what competitive aerobatics is about. I have talked to a few pilots who have a misperception that all IAC

## This is good news for us, but only if we capitalize on it.

routines looks like Rob Holland's free. I've had this conversation more than once:

Me: "Ever think about competing in the IAC?"

Them: "Nah...I just like to go up and have some fun. I'm not good enough to compete."

Me: "Can you do a roll safely?"

Them: "Sure."

Me: "Can you do a loop safely?"

Them: "Of course."

Me: "How about a Cuban-eight, you feel comfortable with those?"

Them: "They are one of my favorite things."

Me: "You've just completed a Primary IAC routine."

Them: Perplexed look.

### Where Do We Go from Here?

I've done my best to outline some of the obstacles in recruiting RV pilots to the IAC. While there is no one solution, I believe there are some things we can do, both as an organization and as individuals, that can help. First, it appears the demographics of the average RV owner are becoming younger as the first generation of builders sell their aircraft due to age. This is good news for us, but only if we capitalize on it.

Most RV builders and owners are members of EAA. I would like to see the IAC leverage its access to EAA publications with some pointed advertisements, fliers, and magazine articles about getting

more RV involvement. This media exposure should address the concerns of builders and owners I outlined above.

I would like to see the IAC become more aggressive in its own internal communications about RV involvement. This communication wouldn't be focused on the RV pilots themselves, but on pilots of all aircraft types who are already in the IAC and know prospective RV competitors. I am confident most who read this article know RV pilots who could be solid competitors if given the proper encouragement.

We all can all as IAC members can become more assertive face-to-face recruiters. Armed with the information in this article, hopefully you can convince at least one RV pilot to come give Primary a try at a local contest (with the proper training, of course.) Be ready to give the examples I provided above and convince him or her that basic aerobatics is all that is required to start. Lastly, I'm more than happy to talk to any interested RV pilot about the path I took to start my adventure. Feel free to use my e-mail address: [balls@hawgaviation.com](mailto:balls@hawgaviation.com).

I hope I've been able to outline my case for RVs within the IAC ranks. There are certainly some obstacles to bringing these new pilots to competitions, but I encourage us all to try. This line of aircraft could very well be the background of entry-level competition in the future. If you do see a new RV at a competition, go introduce yourself and show your interest. It only takes one negative experience or remark from an established member to drive off new pilots and all of their friends.

Go fly!

IAC

*Author's note: Since writing this article, and completely independent from my efforts, the IAC has sent fliers to various RV owners about joining the ranks of IAC. It was well written and an outstanding step to get more RVs involved.*



TIM BRILL

COLUMNS / IAC SAFETY CHAIR

tim@aerobaticcompany.com

# Why would they do that?

## Flying within the envelope

**OUR AIRPLANE PROMPTLY** enters a spin. Exactly what it was told to do! Why did they do that? Exactly. Okay, a bit of background information first. A few weeks ago I had the privilege of flying with a Lufthansa airline captain. He was a great guy! But like many airline captains, he had no tail-wheel time, never landed off a paved runway, and never flew aerobatics, including spins.

Our plan was to explore the spin characteristics of our 8KCAB Super Decathlon. We agreed on most everything related to flying. Foremost, the pilot in command's (PIC) primary job is to keep the airplane within its flight envelope. When the airplane flies within its flight envelope, everything the airplane does it was designed (and tested) to do. The airplane will only do what the PIC tells it to do—nothing more, nothing less.

We then dissected spin recovery using the PARE acronym:

- P - Power, idle
- A - Aileron, neutral
- R - Rudder, full opposite
- E - Elevator, neutral

As aerobatic pilots, most of us use a similar procedure. Most of us move the rudder before the elevator. We know not to rush the sequence. Most of us end up with full rudder input and full elevator input (forward or aft) before the airplane will enter the spin. We know that the airplane will respond to those specific inputs and either enter or recover from our spin.

We then spoke of how many pilots do such a poor job of controlling their airplane when low, slow, and turning. We specifically

outlined the steps that lead into the base to final stall/spin scenario. The distraction of flying past our final. The faulty perception of seeing the nose slice through the horizon toward the ground plus the increased roll and the inappropriate control inputs to "fix" the perceived problem. Namely, more elevator to lift the nose, more opposite aileron to reduce the roll, and more rudder to turn the airplane. At some point, the unskilled pilot ends up with full rudder deflection and (in this scenario) full aft elevator. Our airplane promptly enters a spin. Exactly what it was told to do!

At this point my Lufthansa friend slightly lowered his head deep in thought. His eyes opened, his head raised, and he uttered those perfect words, "But why would they do that?" Exactly, why would our pilot purposely tell the airplane to enter a spin that close to the ground? As an instructor, I know what the airplane will do by watching the control inputs being made by the PIC. So why are so many pilots so oblivious to those same inputs? Guess and hope is not a particularly good method to control your airplane.

I have noticed the tendency of many pilots to struggle with what I call ergonomics. How do you physically connect to the airplane? Sit behind pilots trying Dutch rolls for the first time and watch their wild head movements. Teach a roll to the left and watch pilots take out the aileron input as they add forward elevator near inverted. Why, I guess when your elbow is locked at your hip, you can only

move the control stick in an arc. Watch those same pilots shove the stick forward, then a little right in that aborted attempt to complete that slow roll to the right. Watch pilots in the landing flare add more and more left aileron, again due to their arm moving in an arc. The list continues. I have heard many pilots (myself included) complain about why the airplane is not doing what they want it to do. Rather the question is more appropriately, what did I just tell the airplane to do?

Since this is an aerobatic magazine, I guess a quick tip on aerobatic training may be appropriate. As you train to move up in categories, break up your maneuvers into their fundamental parts. Ensure you understand and can perform each part before you combine those parts into a maneuver. For instance, the Immelmann—basically a half-loop and half-roll. Make sure you can do a loop and a roll, then combine the parts into your Immelmann. Similarly, make sure you can do individual maneuvers before combining them into sequences. Pay attention to the specific inputs you are making in each part of your maneuver and sequence. Your airplane will always do what you tell it to do.

Over the next several months you will see a concerted effort from the IAC, EAA, the FAA, and the NTSB to address loss of control incidents and accidents. Luckily, as a group, we aerobatic pilots do a pretty good job of controlling our airplanes, perhaps because we pay particular attention to the exact inputs (instructions) we give our airplanes while flying.

IAC

# Thank You and Farewell to the IAC

Dear Mike,

Having read your excellent column about "The I in IAC," and having also often pondered upon what the "I" stands for, I couldn't resist jotting down a few lines in response, as seen from the other end of the line.

Our national association "Urheilutaitolentäjät" (!) Sport Aerobatic Club (of Finland) was established in the early 1980s, when aerobatics started to gain a foothold in Finland. The kingpin at that time was Mr. Seppo Saario, who has some 800 air shows—solo or formation—to his credit. After a visit to Oshkosh, he ordered a set of Pitts S-1C drawings and had the first Pitts in Europe in 1971. Later he also had the first Christen Eagle and Ultimate in Europe. As a former Finnish air force instructor, he believed in the IAC category system, which we adopted from the very beginning. No doubt, this has greatly contributed to our impeccable safety record. However, we did not see it necessary to ever establish an IAC chapter in Finland, although many of us were and became individual members of IAC. Presently we have more than 100 members, and typically there are about 20 participants in our annual Nationals. If you multiply these figures by 60, you'll get the proportional numbers for the United States.

IAC Official Contest Rules are the real asset of IAC. These rules are tested and robust. They can be applied in a friendly weekend meeting as well as in any national or regional championships. They are also an excellent contest organizer's and director's handbook. We have used them since the very early days of our Nationals and Nordic Championships. Sometimes there has been some pressure to adopt the CIVA set of rules, but they are cumbersome, top-heavy, time-consuming, and trying to create exactly

similar laboratory conditions for every competitor is a formidable task, at least in the Nordic weather conditions. Notwithstanding what is said above about the CIVA rules, we are more than happy to use the FAI Fair Play System for calculation of the results, because it gives much more accurate and refined results and feedback about the pilot's and judge's performance

**After a visit  
to Oshkosh,  
he ordered a set  
of Pitts S-1C  
drawings and had  
the first Pitts in  
Europe in 1971.  
Later he also had  
the first Christen  
Eagle and Ultimate  
in Europe.**

compared to the older methods. Especially now that the judging criteria are the same, when there are no competing *national* teams, and if all aspects of sportsmanship are honored, IAC rules are an ideal solution. This is not to say that, for instance, the rules of the British Aerobatic Association were any worse, but we happened to adopt those of the IAC and have been happy with them.

In the beginning, it was difficult to get judges with any kind of competence. Luckily, we had a couple of pilots who were former model aerobatic

competitors. We started with them until I became the first one to attend an IAC judges school in Sweden. Later we have had numerous judges schools run by IAC instructors. IAC was the only available source of tuition and also an organization for checking the currency and skills of the judge. Lately, CIVA has started its judges courses too, which is very important for standardization of judging in light of the world and European championships. At this point I must note that presently we have two Finnish judges among the 10 best judges ranked by CIVA. We owe this, to a large extent, to the IAC contest/judging system and to the idea of the "neutral judge," which allows a judge to serve in an international competition without a compatriot pilot participating in that competition. A concept that I promoted and that was strongly supported by Mike in CIVA. Now I only wish that our pilots could fly as well as our judges judge!

Sport Aerobatics (SA) is good and instructive reading for aerobatic pilots at early stages of their careers. Reading it was really eye- and world-opening. Later you can't be continuously interested only in reports about annual contests of some U.S. chapters. For the lack of other international reports, we have ourselves to blame. At one time SA established a network of correspondents around the world. If I'm not mistaken, the only one who produced any reports was Luca Salvadori from Italy. For foreigners, the overstatements, support-collection, and spirit-boosting of the U.S. world championship team(s) doesn't really resonate that well, especially if you have a team of your own at least as good as those are. But of course, you have to serve the majority of the market.

All in all, statistics and membership numbers give some limited information. In most cases, however, the major nations have their own aerobatic clubs, rules, and procedures, if not for any other reason than for national pride. Some individuals might be IAC members just as a matter of general interest or curiosity. Internationally, CIVA already controls the championships in higher categories. If you want to assess the importance of IAC for smaller aerobatic nations, you have to consider the whole substance of aerobatics—everything that is included there—because this is the beef; statistics are the bones. Here, among the new and aspiring aerobatic nations, I can see a market and role for IAC, although even a small chunk of a larger market in a bigger country is likely to produce a considerably larger income. Then again, this would require the organization to be truly international.

I have been an IAC member of good standing since 1982. However, this year

I let my membership expire. I didn't renew it anymore despite numerous reminders. The past years together have been good and useful. The time to say thanks for these years has come.

IAC is not the only subject I owe many thanks to—the other one is Mike Heuer. When I was quite new on the judging line and everything went wrong, I asked Mike, "What shall I do?" His short answer was, "Keep on judging!" This was the right piece of advice, resulting in a long career as an aerobatic judge. Later I had the pleasure to serve nine years as a vice president in the CIVA Bureau, led by Mike as the president. I often admired Mike's commitment to his work and obligations. He managed a vast correspondence around the world with his fast, at least 12-finger typing. Meetings led by him were well-organized, documents were prepared for everyone to the last page, well in advance. Any organization having a stalwart enthusiast like Mike can consider itself extremely lucky.

IAC

## Call for Photos

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



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# What If?

Preparing for emergencies

BY JONATHAN APPELBAUM



What if? What if? What if? How much of our time training and practicing do we think about what-ifs? What if the engine fails on takeoff? What if the vacuum system poops out? (And if one of the current glass-panel generation asks, "What is a vacuum system?" it is okay to poke them in the eye.) The point being, in aviation we plan ahead. We anticipate. We make plans for the what-ifs!

With that thought in mind, as aerobatic competition season winds down and we look for projects to keep us busy until next year, consider the worst-case scenario of what-ifs. Meaning, what to do if there is an accident during a competition. Are we prepared? Is there an emergency plan established, thought out, and in place?

Lloyd Stoop of IAC 12 put together an incident-response box, which is brought to all IAC 12 events. It is a large storage container from Home Depot. It has a flip-up lid and is separated into dif-

ferent areas. It lives in the back of a truck on the judges line, and the intent is to provide a quick response until further help can arrive.

**As aerobatic competition season winds down and we look for projects to keep us busy until next year, consider the worst-case scenario of what-ifs.**

Some of the items included are heavy duty wire cutters for crossing fences and a hatchet for canopy

access, a large dry-chemical fire extinguisher, smoke goggles, firefighting gloves, and a smoke jumper's lightweight jumpsuit. The medical equipment includes a large pad/blanket to provide a more sterile place for the victim, sterile pads to apply pressure to limit bleeding, tape, gauze, and rubber gloves. Also included is a first-aid kit. The flip-up lid is adjusted so it can be laid back at an angle and Velcroed open.

My personal project for this winter is to update the first-aid kit component of the box. A general supply list should include the following:

- Antibiotic ointment
- Bandages
- Tape
- Gauze pads
- Aspirin/acetaminophen/ibuprofen
- Benadryl or other antihistamines
- Roller bandage
- Eye wash (or access to an eye wash station)
- Burn cream (can use antibiotic ointment)



- Knife
- Tweezers
- Gloves (nitrile, not latex; they store better over long term)
- Scissors/trauma shears
- Alcohol wipes
- Flashlight
- Hand sanitizer
- Ace wraps (two to four)
- Emergency thermal blankets
- SAM Splints (at least two; SAM Splints are commercially available, padded, soft aluminum moldable splints)
- QuickClot (gauze impregnated with a chemical that makes blood clot rapidly)
- Tourniquet
- Duct tape
- Safety pins
- Cotton swabs (work well to get foreign bodies out of eyes or skin)

When planning events, involving local emergency medical services (EMS) is another good idea. Depending on the area, the resources may be quite varied and diverse. This can range from local volunteer agencies with limited resources all the way up to full-time fire departments. From the EMS perspective, most agencies and responders do not have much experience with aviation. A suggestion is to invite the local EMS agency and fire department to your next contest. These are the people who will be responding if anything untoward happens, and it is beneficial to meet them ahead of time. Involving them early can be a fantastic opportunity to teach about aircraft as well as sharing information. In

talking with a number of paramedics and EMTs, they would jump at the opportunity if someone came up to them and said, "Hey! Want to come out to the airport and check out some cool planes?"

## When planning events, involving local emergency medical services (EMS) is another good idea.

Most EMS responders are not familiar with the intricacies of aircraft, and the opportunity to demonstrate the details of safety harnesses, parachutes, and fuel and electric systems is valuable. Keep in mind, most EMS providers are quite familiar with cutting cars apart to extricate people, but they are not familiar with the details of fuel lines that run along cockpits, how to turn off master switches or magnetos, parachutes, ballistic chutes (if your aircraft have them), or other structure details.

Last year, we had the opportunity to put together an educational program with a local fire department. Staff from the NTSB, FAA, and military came out and talked, and we showed videos from a num-

ber of aviation sources, including Cirrus. It was quite enlightening. As the capstone, Beegles Aircraft Services from Greeley, Colorado, was kind enough to donate a wrecked Cessna 172 for the firefighters to practice extrication and to cut apart. It was a real eye-opener when they peeled back the interior and found fuel lines running along the door posts! We were able to set up a follow-up class with a larger surplus aircraft.

If it works with your gathering, perhaps invite the EMS and fire department to come out and watch the practice and contest. Having them nearby, just in case, couldn't hurt. Just like developing rapport with the local FBO can yield unexpected benefits, making friends with the first responders might just help save your tush.

And a heartfelt thank you to Lloyd for all his hard work setting up the IAC 12 box. Hopefully we will never need it, but it's nice to have it just in case.

IAC

**Jonathan Apfelbaum** has been a private pilot since age 17, with instrument, glider, and seaplane ratings. He's an emergency physician with more than 25 years' experience in EMS and was one of the folks who stepped up at Reno to help when the P-51 crashed.

Pictures of the box are from DJ Molny, IAC 12 president, and pictures of the aircraft exercises are from Julie Woods, Rattlesnake Fire Protection District.

## CONTEST CALENDAR

**For a complete list of contests and for the most up-to-date contest calendar, visit [www.IAC.org](http://www.IAC.org).**  
If your chapter is hosting a contest, be sure to let the world know by posting your event on the IAC website.



### **Rebel Regional Aerobic Contest (Southeast)**

**Friday, September 4 – Saturday, September 5, 2015**  
Practice/Registration: Thursday, September 3  
Rain/Weather: Sunday, September 6  
Power: Primary through Unlimited  
Location: Everett-Stewart Regional Airport (UCY): Union City, TN  
Region: Southeast  
Contest Director: Michael Tipton  
Phone: 573-922-9600  
E-Mail: [michael.tipton@hotmail.com](mailto:michael.tipton@hotmail.com)  
Website: [www.iac27.org](http://www.iac27.org)

### **Happiness Is Delano (Southwest)**

**Saturday, September 5 – Sunday, September 6, 2015**  
Practice/Registration: Friday, September 4  
Rain/Weather: Monday, September 7  
Power: Primary through Unlimited  
Location: Delano Airport (DLO): Delano, CA  
Region: Southwest  
Contest Director: Steve De La Cruz  
Phone: 760 963 6426  
E-Mail: [DelanoCD@iacChapter26.org](mailto:DelanoCD@iacChapter26.org)  
Website: [IACChapter26.org](http://IACChapter26.org)

### **Rocky Mountain House Aerobatic Challenge (Northwest)**

**Saturday, September 5 – Sunday, September 6, 2015**  
Practice/Registration: Friday, September 4  
Power: Primary through Unlimited  
Location: Rocky Mountain House Airport (CYRM): Rocky Mountain House, Alberta  
Region: Northwest  
Contest Director: Dave Barbet  
Phone: (403) 875-3467  
E-Mail: [dbarbet@telus.net](mailto:dbarbet@telus.net)  
Website: [www.patspencer.ca/aerobaticscanada/AC/Chap7/RockyContest/](http://www.patspencer.ca/aerobaticscanada/AC/Chap7/RockyContest/)

### **Hill Country Hammerfest (South Central)**

**Saturday, September 5 – Sunday, September 6, 2015**  
Practice/Registration: Friday, September 4  
Power: Primary through Unlimited  
Location: Llano Municipal (AQO): Llano, TX  
Region: South Central  
Contest Director: Jeffery Poehlmann (acting)  
Phone: 512 423 5333  
E-Mail: [jeffery@texas.net](mailto:jeffery@texas.net)  
Website: [www.iac107.org](http://www.iac107.org)

### **Apple Turnover (Northwest)**

**Friday, September 11 – Saturday, September 12, 2015**  
Practice/Registration: Wed., September 9 – Thurs., September 10  
Power: Primary through Unlimited  
Location: Ephrata Municipal Airport (EPH): Ephrata, WA  
Region: Northwest  
Contest Director: Jerry Riedinger  
Phone: 425-985-9469  
E-Mail: [jriedinger@perkinscoie.com](mailto:jriedinger@perkinscoie.com)

### **East Coast Aerobatic Contest (Northeast)**

**Saturday, September 12 – Sunday, September 13, 2015**  
Practice/Registration: Friday, September 11  
Power: Primary through Unlimited  
Location: Warrenton-Fauquier Airport (HWY): Midland, VA  
Region: Northeast  
Contest Director: Krysta Paradis  
Phone: (925) 878 9830  
E-Mail: [krysta.paradis@gmail.com](mailto:krysta.paradis@gmail.com)

### **Salem Regional Aerobatic Contest (Mid-America)**

**Saturday, September 12 – Sunday, September 13, 2015**  
Practice/Registration: Friday, September 11  
Power: Primary through Unlimited  
Location: Salem-Leckrone Airport (SLO): Salem, IL  
Region: Mid-America  
Contest Director: Joe Overman  
Phone: 314-452-6049  
E-Mail: [joeoverman2000@yahoo.com](mailto:joeoverman2000@yahoo.com)

### **U.S. National Aerobatic Championships (South Central)**

**Saturday, September 19 – Saturday, September 26, 2015**  
Glider Categories: Sportsman through Unlimited  
Power: Primary through Unlimited  
Location: North Texas Regional (GYI): Sherman-Denison TX  
Region: South Central  
Contest Director: Gary DeBaun  
Phone: 612-810-6783  
E-Mail: [B747Inst@aol.com](mailto:B747Inst@aol.com)

### **Rocky Mountain Invitational Aerobatic Contest (South Central)**

**Friday, October 2 – Sunday, October 4, 2015**  
Practice/Registration: Friday, October 2  
Glider Categories: Sportsman Intermediate  
Power: Primary through Unlimited  
Location: Lamar Municipal Airport (KLAA): Lamar, CO  
Region: South Central  
Contest Director: Jamie S. Treat  
Phone: 303-304-7937  
E-Mail: [jamietreat@q.com](mailto:jamietreat@q.com)  
Website: [WWW.IAC5.org](http://WWW.IAC5.org)

**2015 Blue Ridge Hammerfest (Northeast)****Thursday, October 1 – Sunday, October 4, 2015**

Power: Primary through Unlimited

Location: Foothills Regional Airport (MRN): Morganton, NC

Region: Northeast

Website: [www.iac19.org](http://www.iac19.org)**Borrego Akrofest (Southwest)****Friday, October 9 – Saturday, October 10, 2015**

Practice/Registration: Thursday, October 8

Rain/Weather: Sunday, October 11

Power: Primary through Unlimited

Location: Borrego Valley (LoB): Borrego Springs, CA

Region: Southwest

Contest Director: Brenda Frazier

Phone: 951-275-2420

E-Mail: [Hippychicky22@yahoo.com](mailto:Hippychicky22@yahoo.com)Website: [iac36.org](http://iac36.org)**ACE'S High Fall Acrotober Fest (South Central)****Saturday, October 10 – Sunday, October 11, 2015**

Practice/Registration: Thursday, October 8 – Friday, October 9

Power: Primary through Unlimited

Location: Newton City County Airport (EWK): Newton, KS

Region: South Central

Contest Director: Mark Wood

Phone: 602-361-3504

E-Mail: [mark@dreamcatcheraviation.com](mailto:mark@dreamcatcheraviation.com)**Keene Fall Classic (Northeast)****Saturday, October 17 – Saturday, October 17, 2015**

Practice/Registration: Saturday, October 17

Power Categories: Primary Sportsman

Location: Dillant-Hopkins Airport (EEN): Keene, NH

Region: Northeast

Contest Director: Farrell Woods

Phone: 603-801-0276

E-Mail: [Farrell.Woods@comcast.net](mailto:Farrell.Woods@comcast.net)Website: <http://iac35.aerobaticsweb.org/>**Sebring Fall #72 (Southeast)****Thursday, November 5 – Sunday, November 8, 2015**

Practice/Registration: Saturday, October 31 – Wednesday, November 4

Rain/Weather: Sunday, November 8

Glider Categories: Sportsman through Unlimited

Power: Primary through Unlimited

Location: Sebring Regional (SEF): Sebring, FL

Region: Southeast

Contest Director: Carol A. Brinker

Phone: 561-346-1676

E-Mail: [f1tschoolmom@bellsouth.net](mailto:f1tschoolmom@bellsouth.net)**HARVEY & RIHN AVIATION INC.****101 AIRPORT BLVD. LAPORTE, TX 77571 (281) 471-1675****AEROBATICS**

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