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INTERNATIONAL AEROBATIC CLUB
EAA

SPORT AEROBATICS

JANUARY/FEBRUARY 2021

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

- JOURNEY FROM FEAR TO FREEDOM — CECILIA ARAGON
- PITTS MODEL 12 AT 92ND WEST AVIATION
- AKROFEST — THE CONTEST THAT SHOULDN'T HAVE HAPPENED

ICELANDIC Experience

P. 26

Remember, things don't always go according to plan!

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CONTENTS

FEATURES

DEPARTMENTS

COVER

ON THE COVER: This Pitts S-2E is owned by 16 fledgling aerobatic pilots. Shown near Reykjavik airport. Photo by Þórður Arnar Þórðarson.

ABOVE: IAC President Jim Bourke with smoke on for the 4-Minute Free at Akrofest. Photo by Garret Wood.

SPORT AEROBATICS
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Great Things Going On

BY JIM BOURKE, IAC 434151

THERE ARE TOO MANY GREAT THINGS happening with the IAC to cover them all in this space, so make sure you are subscribed to our *In the Loop* email newsletter and check in often at IAC.org.

The biggest news is that we are changing the publication schedule of *Sport Aerobatics* so we can use our resources to deliver more digital content. We've switched from 12 issues of 36 pages each year to six issues of 48 pages. This change will save significantly in paper and postage fees and free us up to do more with our online publications. You will get a little less printed information than before, but do not be alarmed: We will more than make up for it.

THE BIGGEST NEWS IS THAT WE ARE CHANGING THE PUBLICATION SCHEDULE OF SPORT AEROBATICS SO WE CAN USE OUR RESOURCES TO DELIVER MORE DIGITAL CONTENT.

Please send your comments, questions, or suggestions to president@iac.org.

Now that 2021 has officially begun, we can start talking about 2020 behind its back. Last year was ugly, for a bunch of reasons. I'll go out on a limb here because I think 2021 is going to be our best year ever. Granted, I'm the guy who thought 2020 would be awesome, but there is nothing wrong with letting your passions make a fool of you once in a while — especially when you see how many amazing things our volunteers are up to! Let me share some of our successes.

New for the 2021 IAC contest season is a provisional award program for the highest-scoring biplane. John Housley *(iacchapter61@gmail.com)* of IAC Chapter 61 came up with a great idea and followed through with it. There is no better way to get your name in a President's Page column than to show a bit of chutzpah! Going far beyond the concept stage, he is in negotiations with a sponsor, designed medals, and reached out to IAC chapter presidents to see how much enthusiasm was out there. Way to go, John!

The IAC has recently renewed its relationship with the National Aeronautic Association, the group through which we gain access to the outside world. This is a great time for us to reflect back on 50 years of the IAC fulfilling one of its most important missions: to field teams in international competition. We are very grateful for the support of Greg Principato, whose presence on our board is deeply felt and appreciated. I'm happy to note that our partners at CIVA have recently approved IAC board member Peggy Riedinger as an international judge for next year's European Aerobatic Championships. We congratulate Peggy on her success as a judge and thank her for her service to the aerobatic community.

On the subject of international competition, new for this year is a proposal to revamp the IAC team selection process. The new proposal is a significant change that does a fantastic job of addressing often-heard concerns about how we handle this important job. My thanks to Bob Freeman, who assembled a who's who of former and current U.S. Aerobatic Team members and spent a lot of time listening to concerns and creating revisions before the board released the proposal for member comments, which were posted online at IAC.org. This collaborative technique is the right approach for getting everyone on the same page. The comment deadline (January 18) is fast approaching, so if you are interested in chiming in, please submit your comments to our executive director, Steve Kurtzahn, at *execdir@iac.org*.

The board selected the dates and the contest director for the 2021 U.S. National Aerobatic Championships at its fall meeting. The contest will be held September 19-24 and will again take place in charming Salina, Kansas. I'm delighted to report that Doug Bartlett has agreed to take the reins this year. This is Doug's second time as Nationals CD, and I have heard absolutely nothing but rave reviews about his performance last time. Let's wish him the best and offer him a helping hand.

IAC Editor Lorrie Penner has generously donated her free time to clean up our *Policies and Procedures* documents. Lorrie led the P&P Working Group and got help from Lynn Bowes, IAC secretary Sara Arnold, and IAC directors Peggy Riedinger and Bob Freeman. The team made a number of recommendations that Lorrie tracked, collated, spindled, and massaged into a complete overhaul. Thank you, Lorrie. Keep at it!

CONTINUED ON **PAGE 48**

PHOTOGRAPHY BY **CHRIS BECERRA, ALTEZA FILMS**

The End of a Long Year – Time to Look Forward

BY LORRIE PENNER, IAC 431036

HAPPY NEW YEAR! Finally, 2020 is over!

It has been a crazy season for IAC-sanctioned contests, with only eight chapters able to hold their regional events. Even the ones that did almost didn't. You will see from Michael Church's article on Akrofest that that contest shouldn't have happened. Only through the perseverance of contest director Bryan Jones were the participants able to breathe a sigh of relief and move forward with their contest weekend.

Even my own IAC Chapter 34 Ohio was all set up and ready to go, but a month before our contest we found out that the local airport's repaving project was grossly behind schedule. Ramp space was reduced by half. There was only enough room to stage four or five airplanes, and they had also reduced the hangar capacity. It wasn't enough room for the 19 airplanes we were expecting from preregistration. So, we turned that lemon into lemonade and held a practice. We had a great couple of days flying, receiving critiques from former U.S. Unlimited Team member Brett Hunter, getting some judging for achievement awards from regional judge Gordon Penner, and hanging outside in the mild October weather. Our chapter treasurer, Chris Keegan, earned his ALL FIVE achievement award patch. Additionally, we gained 12 new members who were originally set to attend the contest.

I attended the IAC fall board meeting a couple of days before I sat down to write the Editor's Log. Even though I have a little teleconference fatigue, it was great to be on the call and listen to the board members carefully consider issues that affect our membership. Some decisions were easier than others. Because of a loss of income, the board voted to change the magazine's publication schedule to save nearly $50,000 in the budget. We will be going to six issues annually. Now, some might be concerned that they won't see the same volume of content, but the six issues are a plump and pretty 48 pages plus covers — 12 pages more than the monthly 2020 issues.

For those page counters out there, this means 96 pages, or 32 articles, are coming to you digitally. Those will be published in our monthly *In the Loop* e-newsletter's Exclusive Content section. The articles will have a link in them to our article bank on the website at IAC.org/Articles. You won't want to miss any news or stories, so if you haven't already subscribed to *ITL*, you can sign up for free at **EAA>News & Publications>News>Email Newsletters**.

Those of you on social media will also see an uptick in activity, with photo posts of members and their planes being featured more frequently. IAC is on Instagram, Facebook, YouTube, and Twitter. We love to share your photos and videos, so please tag us: #IAC_HQ.

I'd like to give a shoutout to all our authors and photographers who contributed to the last 12 issues of the magazine and *ITL*. Our publications would suffer if you had not shared your experience or submitted your photos. Your contribution has convinced someone to take flight lessons, become an aerobatic judge, take an introductory aerobatic ride, move up a category, or volunteer to help with a practice day or contest. You are playing a major role in inspiring people to follow their aerobatic dreams. Thank you! IAC

I'D LIKE TO GIVE A SHOUTOUT TO ALL OUR AUTHORS AND PHOTOGRAPHERS WHO CONTRIBUTED TO THE LAST 12 ISSUES OF THE MAGAZINE AND ITL.

SUBMISSIONS: Photos, articles, news, and letters to the editor intended for publication should be emailed to editor@iac.org. Please include your IAC number, city, and state/country. Letters should be concise, polite, and to the point. All letters are subject to editing for clarity and length.

TOP STORY

The American Champion Aircraft Flight Medal

TOGETHER WITH HER FATHER, Dick Swanson, Sara Arnold regularly participates in the International Aerobatic Club, the world's largest aerobatic organization. Dick has been a competitor for many years, starting in a Citabria in 1983. The pair fly an American Champion Super Decathlon and are the only known father-daughter duo currently competing in regional and national IAC contests.

Sara, the current IAC secretary, had an idea for a Decathlon-specific medallion when she was reminded of a retired trophy that originated early in IAC's history and was presented to the highest-scoring competitor flying a Pitts Special. "I thought it would be a good idea to have something similar for all of the Decathlons in competition, so I reached out to the American Champion Factory," Sara said.

As it turned out, American Champion Aircraft was very interested sponsoring a medallion. "We are very excited that we're able to contribute to the aerobatic club, and to be able to reward pilots for achieving their dreams."

The introduction of the new award highlights IAC's commitment to the grassroots development of the sport of aerobatics. The front of the silver-tone medal depicts a rolling Decathlon sporting the classic starburst paint scheme. The ACA logo is printed on the back.

In 2020, the medals were sent to the eight regional contests that were able to go forward with their events. In 2021, the medals will be sent to more than 30 regional contests and the U.S. National Aerobatic Championships, to be held in Salina, Kansas, from September 19 to 24. The new award is sponsored by American Champion Aircraft for five years.

IAC Webinars – 2020 Review

FOLLOWING SUBSTANTIAL GROWTH in 2020, EAA's free webinar series, which has brought top aviation experts and personalities to online presentations for the past decade, has now welcomed more than 200,000 people.

The webinars, which are supported by Aircraft Spruce & Specialty, have drawn approximately 30,000 participants since March 1, 2020, as aviation enthusiasts have sought both information and community during the COVID-19 pandemic.

IAC members have been contributing webinars to this EAA series every month since 2011. This year the IAC webinars also hit an all-time high of more than 4,000 listeners. The enthusiastic feedback we have received for our IAC content means we will continue planning for more in the coming months. If you are interested in making a presentation, please contact Sara Arnold at sarnold969@gmail.com.

The webinars conducted by IAC members cover a variety of topics. This year's subjects have all been archived. Visit AC.org/Webinars for a link to listen in on these engaging webinars. EAA member login required.

- Emergency Bailout for Pilots and Survival Equipment | **ALLEN SILVER**, FAA master parachute rigger
- Understanding Hypoxia in Aviation | University of North Dakota aerospace physiologist **STEVE MARTIN**
- Unusual Attitude Training Versus Upset Prevention and Recovery Training: What's the Difference and Why Does It Matter? | **RANDY BROOKS** and **NORM DEQUIER** from APS Aviation
- Air Shows: Not Just Events, But a Lifestyle! | **GRANT** and **BRITTANY NIELSEN**
- Two Guys, One Airplane, and the 2018 World Advanced Aerobatic Championships | **MIKE LENTS** and **AARON MCCARTAN**, U.S. Advanced Team members
- Coaches and Camps for Aerobatic Competition | **JOHN OSTMEYER,** 2018 U.S. Nationals Advanced Champion
- You Just Got Your Pilot Certificate – Now What? | **JIM BOURKE**, IAC president, and **MARIANNE FOX**
- How to Read and Call an Aerobatic Sequence | **JIM BOURKE**, IAC president
- Removing Winter Rust and Spin Avoidance | **GORDON PENNER**, MCFI-A
- Basic Aerodynamic Principles Demonstrated in Aerobatics | **DAGMAR KRESS,** Metropolitan State University of Denver professor
- Avoiding the Base to Final Turn Spin Accident | **GORDON PENNER**, MCFI-A
- Competition Aerobatics 101 | **SUSAN BELL**, 2018 U.S. National Sportsman Champion
- Flying Aerobatics | **NORM DEWITT**, EAA/IAC board member and past U.S. Aerobatic Team manager

PHOTOGRAPHY COURTESY OF **IAC ARCHIVES**

2021 U.S. Nationals Dates and CD Announced

AT THE INTERNATIONAL AEROBATIC CLUB'S fall board meeting on November 14, 2020, the location and dates of the 2021 U.S. National Aerobatic Championships and contest director were approved by the IAC board of directors. The championships will return to Salina, Kansas, September 19-24, 2021, and Doug Bartlett, IAC 431228, was approved as the contest director.

Doug joined the IAC in 2003 and started competing that same year. While working his way up the competition ladder from Sportsman to Unlimited, he served as contest director for several regional contests as well as for the 2007 U.S. National Aerobatic Championships when they were held in Texas. As a national judge, he served on the line at the 2018 Nationals, which were held in Oshkosh, Wisconsin.

Doug flies a Sukhoi 29 in competition and is currently building an RV-14 that he intends on flying at the Sportsman level in 2021. He enjoys the opportunity of training acro pilots at the Primary through Intermediate levels.

Doug Bartlett

Along with some behind-the-scenes volunteers from past years, Doug already has begun the planning process for 2021. He has confirmed the championship dates with the Salina Airport and use of Hangar 606, which was the base of operations in 2019. He has the full support and encouragement of the IAC board of directors, and we are looking forward to a successful event in September 2021.

Updates and details can be found on the U.S. Nationals webpages, starting here: IAC.org/US-National-Aerobatic-Championships.

BELOW: Photo of Cecilia with her Sabre 320, an aircraft originally designed by Dan Rihn, which was modified with an all-composite Edge wing by Zivko Aeronautics.

ABOVE: 1993 Nationals Team selection.

Cecilia, We See You

ARAGON'S ASTONISHING JOURNEY FROM FEAR TO FREEDOM

BY BETH E. STANTON, IAC 436050

Sometimes I wonder what would have happened if Mozart had not found music. Or if Cecilia Aragon had not found aerobatics. "The universe buries strange jewels deep within us, and then stands back to see if we can find them," author Elizabeth Gilbert once said. Aerobatics is a strange jewel, indeed.

Cecilia's memoir, *Flying Free: My Victory Over Fear to Become the First Latina Pilot on the US Aerobatic Team*, was released in September 2020. The book traces her trajectory from a timid, frightened girl to a confident, accomplished woman. Cecilia's decision to learn how to fly was the first domino in a cascade that spurred her to incredible achievements both inside and outside the cockpit.

It's fascinating to consider that there is a version of our lives where our innate talents are fully realized and that it's our most important task to find it. I have a theory stating we are drawn to the experiences that will set us free to our most true selves. The Sanskrit word *spanda* loosely translates to "divine tug." Heeding an impulse that tugs at the spirit can lead to a life previously unimagined.

However, the instinct to chicken out, to stop ourselves before we even start, can be strong. It can be easier to hide — hide our perceived flaws, terrible secrets, mistakes, and failures. The divine tug beckons us to break free from the shackles that we have spent a lifetime constructing.

PHOTOGRAPHY COURTESY OF **CECILIA ARAGON**

LEFT: WAC 1994 U.S. women's aerobatic team: Cecilia with Patty Wagstaff and Linda Meyers-Morrissey.

Thirty-five years ago, Cecilia stepped into the unknown with tremendous bravery and a grand leap of faith. She has shown up again, sharing her powerful story with vulnerability and raw authenticity.

STUNNING STRETCH

We get a clue as to how Cecilia's story turns out from the book title, but discovering how hard she had to stretch to get there was stunning. Growing up in small-town Indiana in the 1960s as the daughter of a Chilean father and a Filipina mother, Cecilia was exposed to shocking racism and degradation from her teachers and peers. She uses the word "bullying" to describe traumatizing experiences at the hands (and fists) of her classmates, but in reality, it sounds like assault. Teachers routinely dismissed her bright mind, accusing her of plagiarism after turning in intelligent assignments.

Thank goodness she had the loving support of her parents, who nurtured their daughter with faith in her brilliance and worthiness. However, messages from the rest of the world far outnumbered their votes of confidence. Paralyzing self-doubt led Cecilia to a cramped life of invisibility, shrinking, and fearfulness.

After dropping out of graduate school, she was working as a Silicon Valley software developer in 1985 when a colleague invited her to come flying with him. Little did she know that this fateful flight would hold the key to her freedom. Cecilia's mind was crowded with fears about many things, but she was especially terrified of heights. Ultimately, she screwed up her courage, said yes, and soared over the Golden Gate Bridge on a glorious flight. "For so long, I'd been aching, lonely, missing something essential," she wrote. "But that day, the hole in my heart was filled." Her world transformed. She knew that she had to learn how to fly to become the person she wanted to be.

PILOT IN COMMAND

Cecilia's tenacity in learning how to fly was fierce. It included trying on different flight instructors to find the right fit and purchasing a Cessna 150. The financial commitment of airplane ownership would "force" her to pursue her goal of becoming a pilot. She methodically paced her training one step at a time, using the logic and discipline of her mathematics background. After eight months and 80 hours, she earned her private pilot ticket. Two years later, she became a CFI.

However, she continued to struggle with the concept of being in command. To develop confidence in both herself and her piloting skills, she decided to get checked out to fly tail-draggers and then enrolled in a basic aerobatic safety course. About that first aerobatic flight, she wrote, "I wasn't quite sure what happened to my body and soul, but I knew my world had been irrevocably altered once again. I *needed* aerobatics."

PHOTOGRAPHY COURTESY OF **IAC ARCHIVES**

ABOVE: At the 1993 U.S. National Aerobatic Championships with the rest of the team and support group.

PASSION AND PROGRESS

In April 1988, at the urging of her instructor, Cecilia flew her first aerobatic contest in the Basic (Primary) category with a Citabria. In a trajectory many aerobatic pilots can relate to, competition aerobatics soon consumed her life. She attended Northern California (IAC) Chapter 38 meetings and club critique sessions. She transitioned to a Pitts and then the Sabre, one of the trailblazing experimental aircraft that was revolutionizing the landscape of international competition from biplane to monoplane.

She founded Aragon Aviation, one of the first tailwheel and aerobatic flight schools in Northern California, which operated out of Livermore and Tracy airports. Cecilia began to fly air shows in 1990 and was chosen as the first Latina pilot to earn a spot for the 1993 and 1994 U.S. Unlimited Aerobatic Teams. She holds the record for shortest time (less than six years) from first solo to membership on the U.S. team.

Aerobatics had not only become Cecilia's art, science, and passion, but it also spurred the next set of her extraordinary achievements. Accomplishing difficult things had prepared her for the challenge of her previously renounced doctoral program. In 2004, she earned a Ph.D. in computer science at University of California, Berkeley. For more than a decade, Cecilia has excelled in an illustrious career. She has conducted research with Nobel Prize winners, designed software for Mars missions at NASA, and was awarded the Presidential Early Career Award for Scientists and Engineers by President Obama. She went on to become the first Latina full professor in the College of Engineering — her dream job — at the University of Washington.

SHINING HER LIGHT

When I showed up on the IAC Chapter 38 scene in 2012, Cecilia already had left her legacy. A couple decades earlier, she had flown out of the same airports, trained in the same practice areas, and had instructed many of my fellow acro pilots.

Her story resonated deeply with me. I, too, had been indoctrinated with the idea that girls couldn't do math or science or handle machines. Like her, I despaired of not having the talent to learn how to fly. Earning my private pilot certificate shattered these false notions. I also had sought aerobatic training to face my fear of spins, thereby inadvertently discovering the alternate universe of competition aerobatics.

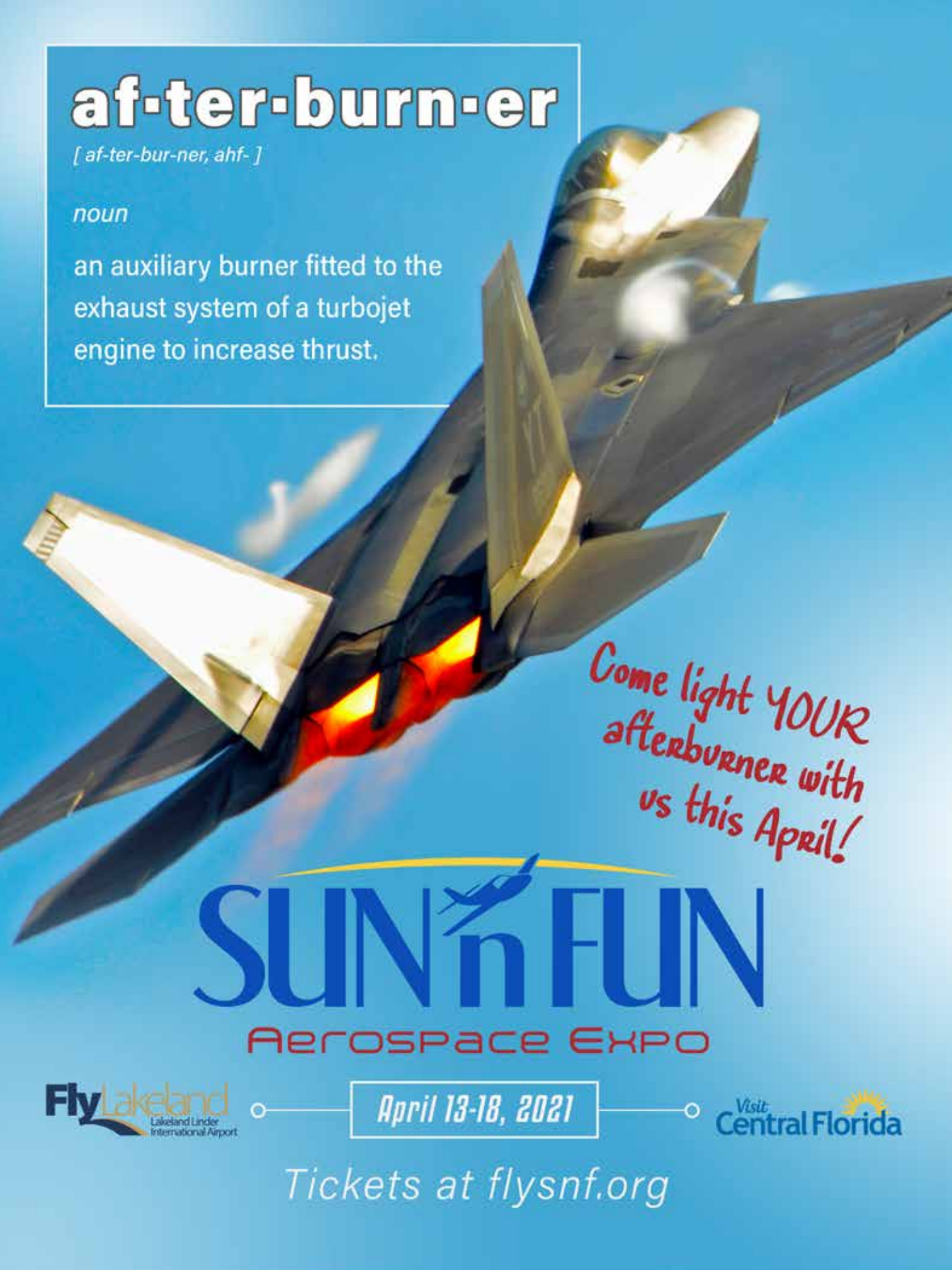
Yet I never had met Cecilia. In the media run-up for her book release last summer, kismet connected us. Her upcoming book had blipped on my radar the previous month, and I had been thrilled to learn about it. You see, it was spooky synchronicity; I've been writing a book about how following a divine tug to learn how to fly has taught me to rise above doubts and soar to unforeseen heights. Becoming a pilot has transformed what I believe I am capable of doing.

It's haunting to contemplate the treasures of an individual's talents remaining buried. The world is less bright if the light of our gifts does not shine in it. But it's an inside-out job; we need to make the first move. Thirty-five years ago, Cecilia stepped into the unknown with tremendous bravery and a grand leap of faith. She has shown up again, sharing her powerful story with vulnerability and raw authenticity. Professor and author Brené Brown wrote, "There's nothing more daring than showing up, putting ourselves out there, and letting ourselves be seen."

Cecilia, thank you for daring. IAC+

BETH is a writer, speaker, pilot, and coach. She has a private pilot certificate and flew competition aerobatics for seven years. She wrote an entertaining and thought-provoking column, "Brilliance & Buffoonery" for *Sport Aerobatics*. Since 2015, Beth has been writing articles for *EAA Sport Aviation* magazine.

PHOTOGRAPHY COURTESY OF **IAC ARCHIVES**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PHOTOGRAPHY BY **JIM WILSON**

Pitts MODEL 12

92nd West Aviation
BY LORRIE PENNER, IAC 431036

HE HAD KNOWN JIM AND KEVIN KIMBALL FOR YEARS — at least 10 when he purchased a set of their Model 12 plans. Don Adamson, IAC 436145, owner of 92nd West Aviation, jokes that the only reason he bought the Kimballs' Pitts Model 12 inventory, tooling, and CAD data was to get all the jigs to finally finish his own project.

In June 2017, Don found out the Kimballs were selling the Model 12 part of their business. There had been a potential buyer for a while, but Don saw online that the Model 12 business was up for sale again after the original deal had fallen through. Don called Kevin, and on April 13, 2018, at SUN 'n FUN, the Kimballs and Don had inked the sale of the Pitts Model 12 business.

LEFT: In addition to aircraft maintenance, parts, salvage, and fabric, 92nd West Aviation provides paint services.

In the sale, Don's business, 92nd West Aviation of Lonoke, Arkansas, acquired the Pitts Model 12 design rights, kit components, and current, past, and future Model 12 customers. It also agreed to purchase the M14P engine support items, such as fitting kits, air systems, clean kits, and the Kimballs' full line of M14P exhaust systems for the Model 12; Sukhoi 26, 29, 31; Yak-50, 52, 55, 18T; CJ-6A with M14P; and a few other M14P-powered aircraft.

The transition was smooth. In the initial acquisition, Don, three of his workers, and Kevin, who also brought along three guys, loaded everything up for transport. It took Don a year and a half to unload the trailer. He wasn't in a hurry and wanted to study and know everything about the Model 12, from top to bottom. There are still cowling molds in the trailer, as well as some cowling fixtures and tail feather jigs. There hasn't been a need for them yet, though, so Don can continue with his methodical study.

The information packet Don received also included a thumb drive with instructions about how everything worked. Don used the DraftSight 2D CAD drafting program that came with the Model 12 inventory. He still uses the program, but he also found that SolidWorks' CAD program, which is free to EAA members, was a good drafting tool for two-dimensional and sometimes three-dimensional parts.

The Kimballs had set up a great operation. "Kevin really had it running smoothly; the documentation and jigs are phenomenal," Don said. The wheelpants were organized as one mold, one mold for the same on both sides. More than 200 parts have been produced out of this mold. Don is looking at making a new one, since the mold is a little worn from use.

TOP: A beautiful paint job completed by 92nd West Aviation.

PHOTOGRAPHY BY **JIM WILSON**

Pitts MODEL 12

HISTORY

ORIGINALLY NICKNAMED "BOLSHOI," in reference to its Russian engine, the Pitts Model 12 made its maiden flight in April 1996. Curtis Pitts had been bending metal into aerobatic airplanes for 50 years when he came up with a formula for adding power to a light airplane with light wing loading. Curtis completed the first drawing of the Model 12 in January 1993. By December 1995, the Model 12 was presented to a large group of Curtis' friends during his 80th birthday party.

This two-seat biplane, looking like a stretched Pitts, was built especially for use with the 360- to 400-hp Russian Vedeneyev M14P/PF radial engine. In March 1996, the prototype, nicknamed *Macho Stinker*, was flown by test pilot Ben Morphew, who liked it so much he asked Jim and Kevin Kimball to build one for him. The Kimballs had received Curtis' permission to start building parts for their own Model 12. Ben's Model 12, N69BM serial No. 003, took its maiden flight on February 26, 1999.

In July 1996, a *Sport Aerobatics* article announced that "Curtis Pitts has sold the rights to the Model 12 to Mid-America Aircraft Inc. of Wichita, Kansas. CEO Scott Randel, along with vice president Ed Saurenman, are refining the drawings and will market the plans." During the building of their Model 12 proof-of-plans prototype, they christened their version of the Model 12 the *Monster*. Refinements to the plans included optional Super Stinker wingtips and squared trailing edge ailerons.

When 1998 rolled around, the Kimballs were showing their as-yet-unfinished Pitts Model 12, N360KJ serial No. 002, at SUN 'n FUN. The plane attracted a huge amount of attention, and it was clear the airplane would be popular. Jim Kimball Enterprises acquired the rights to the Model 12 plans. It proceeded to develop several modifications, components, and kits for builders. By the time the June 1999 issue of *Sport Aerobatics* was published, 45 Model 12s were under construction.

"In an interview with Ed Wischmeyer for *Kitplanes* in 2011, Kevin said that Kimball Enterprises had three powerplant choices. The Russian/Romanian engines come in 360- and 400-hp versions, designated M14P and M14PF. The 360-hp engine (at 34 inches of manifold pressure and 2900 rpm) has an Eastern bloc propeller flange good for 450 hp. The 400-hp engine (at 38 inches of manifold pressure and 3000 rpm) is virtually identical, but it has a bigger supercharger and a Lycoming flange rated for 400 hp. Reduction gears drive the propeller.

Engine guru Monty Barrett had worked to "get more manifold pressure to the top of the pistons," as Kevin put it. He designed new forged pistons with new rings, did some valve work that yielded a 7.8:1 compression ratio, and micro-polished the gears in the nose case. An Airflow Performance fuel-injection system and automotive spark plugs complete the package. The results were impressive: 410 hp, with better fuel economy of the mixture control, and oil consumption reduced from roughly a quart per hour to one quart per six hours.

As for propellers, the MT was the model of choice. There was an Eastern bloc version made under license, but it required a modified governor. The old paddle-blade propellers cannot absorb the power of the engine, and the tip vortices are hard on the airframe, Kevin said in the interview with *Kitplanes*."

In a two-part series in the June and July 1999 issues of *Sport Aerobatics*, Ben Morphew shared his Pitts Model 12 flying and building experiences with interviewer Scott Erickson.

S.E. You built your own fuselage. Was it exactly to plans?
B.M. I put double wires on the tail. I also wanted the seat back a little farther. … It's more like the One Design seat is, but not as radical as the Sukhoi. There were personal preferences, just a couple of little creature comfort things, that I changed.

When I first started, Curtis Pitts got me in touch with Kevin and Jim Kimball, and that's how the ball got rolling on these newer wings. Between Kevin's connection with Steve Wolf, and Wolf's connection with Sean D. Tucker, these wings kind of became a larger version of Sean D. Tucker wings.

S.E. Tell me how this plane compares to some others you've flown.
B.M. Going from the One Design to this, it obviously does not have anywhere near the roll rate. It is a bigger airplane and shows up really well in the distance. People say it looks like it is rolling pretty fast for a large airplane. I am not sure what the roll rate is, but I'd say it is faster than a B model and the same or faster than the C.

What this plane has turned into … it's a "biplane 29" [as in Sukhoi 29], except for the roll rate. Speedwise, vertical penetration is almost the same. Last week there were two people in the biplane and Jeff Eicher in the Sukhoi, and the biplane was pulling away from the Sukhoi incrementally. They let it go for three or four minutes and the "12" was three or four plane lengths ahead when it was over with.

S.E. Do you have any advice for prospective builders?
B.M. Buy everything built that you can. I wouldn't even recommend putting the wings together, although they have a real nice wing kit. I'd want them in the crate, to pull them out and stick them on the sawhorses and start putting fabric on them. That would turn the project into about a year rather than three years.

If I was building anything again at all, it would be something with a quick-build option on it. I would recommend that to anybody, unless they are really crazy about this stuff. It is not cost-effective or emotionally effective for me to have to spend $700 to build something that is worth $300.

I think every little boy is born with a gene for a radial engine aerobatic biplane. I just had to have one, and this is it. It's a hell of an airplane.

DON ADAMSON

EAA 391598 since 1991

IAC 436145 since 2012

Certificates and ratings: certificated flight instructor, CFI-instrument, multiengine, airframe and powerplant, inspection authorization

Hours: 3,000-plus

Airplane types flown: a variety of single-engine and multiengine aircraft

MIDDLE: Don (right) with son Matthew next to Don's own Model 12 project during 2019 AirVenture.

Don's company works with some vendors on new parts. These vendors include VR3 Engineering Precision Tube Fabrication, a Canadian company that takes tubing and then cuts and bends it so Don can offer a ready-to-weld fuselage kit. He has sold four of these in 2020. Fiberglass work is done in-house. Other vendors that 92nd West Aviation works with are Grove for landing gear, Kerlo Composites for carbon fiber seats, and Airplane Plastics for the bubble canopy. The canopy is assembled onto the frame in-house.

Since owning the Model 12 business, Don has received a lot of orders, particularly for the parts, kits, and supporting items. In addition, 92nd West Aviation has sold a dozen full sets of Model 12 plans. The company is set to deliver a fuselage kit to a client in the United Kingdom and a full kit to Austria. Also, one of the Model 12 kit clients has finished the wings on their kit.

Buying the Model 12 business was the right move. Unfortunately, COVID-19 interrupted Don's business just as it did everyone else's. A large part of Don's customer base is overseas, with most of the interest (at least half) coming from Canada, Australia, Germany, and the United Kingdom. Don also gets business out of Sweden, Austria, and Iceland. The other half of Don's business comes from customers in the United States.

When Don took over the business, he didn't really do a lot of advertising. The Model 12 market is a small niche market. "Most people interested in the Model 12 seemed to know we took over the business," Don said. "Occasionally, people will still find old data and call Kevin Kimball, who forwards those messages to me. Those inquiries are mostly for the engine parts."

So why aren't there Model 12s in IAC competition? "Most Model 12 guys want to go out and have fun; they are not into competition," Don said. He knows a lot of guys like this; they are fun guys. "There is a fellow with a Model 12 in Florida that we just finished up some work on his plane. Every time the fellow flies his airplane, a couple times a week, he flies a sequence. He likes to fly the maneuvers but has no interest in competition," Don said. "That seems to be the common feeling among most Model 12 owners I know."

In February 2020, Don went to Jackson, Tennessee, to attend a judge school taught by IAC national judge and Advanced category competitor Steve Johnson, IAC 27151. Don enjoyed the class and plans to start out in the Primary category whenever he can get to a contest. In the meantime, he is reading up on the IAC Achievement Awards program and may fly for a Primary smooth patch one day soon.

PHOTOGRAPHY BY **EVAN PEERS, JIM WILSON**

Don started down the aviation path flying control line U-control model airplanes at the age of 8. He moved up to radio-controlled airplanes at 13. He had a keen interest in the building process and built his own VariEze at the age of 16. He always loved flying, but he loved building projects just as much.

Since Don was retired military and semi-retired from all other work, he started his business at 92nd West Aviation in 1997 as something he could do in his spare time. Don served for 24 years in the U.S. Air Force's C-130 program as a crew chief. "The C-130 was the best airplane," Don said. "It allowed me to see the world. We went to a lot of countries." Don said he was based in Guam and served two tours in the Philippines before settling at the Little Rock Air Force Base in Arkansas in later years.

Don's son Matthew has been around the business his whole life. When he was growing up, he built radio-controlled and model airplanes in the hangar loft overlooking the business's day-to-day activities. Today, Matthew is Don's "left-handed" man — whenever something needs done around the shop, he is there to help. In his professional life, Matthew is an A&P/IA mechanic with an engineering degree who works for Dassault Falcon Jet as a technical writer on its service bulletins.

In addition to aircraft maintenance, parts, salvage, fabric, and paint services, 92nd West Aviation also hosted a Part 141 flight school for two years. The company worked with a local community college (which was purchased by the University of Arkansas) and was in charge of running the flight and ground school up until the purchase.

Now Don runs a Part 61 training operation called Diamond Aviation. In addition to private, commercial, and instrument training, Don gives tailwheel training. He was going to apply for the Greg Koontz Airshows Aerobatic Instructor Scholarship in Memory of Bobby Younkin but had too many irons in the fire. Eventually he would like to give aerobatic instruction at Diamond Aviation. IAC

SPECS

WINGSPAN:	22 feet
LENGTH:	19 feet, 8 inches
EMPTY WEIGHT:	1,520 pounds
GROSS WEIGHT:	2,250 pounds
WING LOADING:	15.33 PSF
SEATS:	2
FUEL:	54 gallons
CRUISING SPEED:	170 mph
RATE OF CLIMB:	3,000+ fpm
ROLL RATE:	300 deg/sec

* The specs listed are for a base Model 12.


AKRO

AKROFEST

The contest that shouldn't have happened

BY MICHAEL CHURCH, IAC 12032

Authorities said it could not, others said it should not, and many said it would not happen. As a result, the 2020 Borrego Akrofest came within a whisker of cancellation. Thanks in large part to the efforts of one member, the event survived.

PHOTOGRAPHY BY **GARRET WOOD**

AKROFEST

Great Lakes N60GL got a workout – flown by two Primary and two Sportsman competitors.

BACK STORY

In September, after weeks of back and forth with contest director Bryan Jones, the county of San Diego appeared ready to issue a permit for the contest. But in early October, two weeks before our scheduled start, the county reversed course and denied permission.

COVID, of course, was the villain, and no one seemed to know which policy should prevail. At issue were county "back to work" requirements. Were we a sporting event, a theatrical production, or something else entirely?

Bryan simply would not take no for an answer. He launched a stream of phone calls, arguments, and petitions — a series of missiles designed to intercept the virus and shore up administrative courage. Three days before the contest's scheduled start, his efforts paid off — the permit was issued. Cancellation notices were canceled, and those on-site in one of the four training camps already underway breathed a sigh of relief.

THE CONTEST

The event itself was well worth the wait; 33 pilots came to fly, the most for a Chapter 36 contest in several years. The large turnout was certainly another COVID consequence. After 26 contest cancellations across the nation in 2020, including Nationals, there was a lot of pressure to get back in the sky and compete.

It was gratifying to host two luminaries from IAC: newly elected President Jim Bourke and Director Rob Holland, our Southwest rep. Most importantly, the contest hosted nine first-time competitors, a happy sign of things to come that more than made up for no-shows from a couple of usual attendees. There is a general understanding that our sport needs to reverse a steady trend of reduced participation; everyone made sure to make the newcomers feel welcome.

VOLUNTEERS

Whenever possible, Chapter 36 makes a point of filling contest administration roles with new volunteers. Thus, the contest director, registrar, and volunteer coordinator (Bryan Jones, Dan Chripczuk, and Matt Sparks) were all first-timers in their respective positions. All three doubled up, flying contest flights in and around taking care of contest business, with Dan taking second place in Sportsman.

Filling out the admin ranks were a few more seasoned veterans — Michael Church served as chief judge, Bill Hill as scorer, and Kent Minor as starter.

The large turnout provided a welcome bonus: enough volunteers to fully staff all the supporting roles, including judges, judge assistants, boundaries, runners, and corner drivers. Kent Minor brought four nonflying volunteers, and Jair Griffith and William Monsonnec, both from Sunrise Aviation, spent two full days assisting Bill Hill with scoring.

We implemented a significant staffing change that may signal how many future contests will be run while COVID restrictions remain in place. We limited each of the grading judge positions to a judge and a single assistant. The reduction in force definitely raised the level of difficulty for judges, but all in all the quality remained good.

Now, onto the flying.

PRIMARY

Fourteen pilots made this the largest category. They flew four different aircraft types: Decathlons, Pittses, Yaks, and Great Lakes. Worth noting was the absence of Extras in the category, which marked a departure from the norm in recent years and may have given pilots a chance for greater success in lower-performance machines.

The top finishers were Cameron Koutz (Pitts), Donald Milton (Yak-52), and Marianne Fox (Decathlon).

PHOTOGRAPHY BY **GARRET WOOD**

Susan Bell, 2018 U.S. National Sportsman Champion. She now flies in the Intermediate category and finished in second place at Akrofest.

RIGHT: Chris Olmsted mentors Primary competitor Sean Moran, who earned his Stars achievement award at Akrofest.

BELOW: Lloyd Massey in his Super Decathlon. A Sportsman competitor who earned his Stars achievement award at Akrofest.

LEFT: Mark King, Sportsman competitor, acted as safety pilot for Justin and Janie Thomas in Primary in his beautiful Pitts S-2B.

SPORTSMAN

The Sportsman category is another important key to continued growth for IAC. The six pilots brought a nice mix of aircraft: Extras, Great Lakes, Decathlons, and Pittses. The top three finishers were Ali Ostovar (Pitts), Daniel Chripczuk (Great Lakes), and Rob Johnston (Extra).

As noted, Dan also served as registrar, producing "flawless paperwork," according to the chief judge table.

INTERMEDIATE

Seven pilots entered. It was great to welcome back Mike Hartenstine (first place) and Zach Niles (third place), who hadn't participated in any contests over the past couple of years. Susan Bell, 1998 Sportsman champion, rounded out the top three finishers, winning second place in her midwing Extra.

The competition was tight: Zach edged Kevin Elizondo, chapter president, out of third place with less than a 1 percent margin, and the spread was less than 10 percent from first to seventh place.

ADVANCED

Barrett Hines joined two members of the U.S. Advanced Team, Matt Dunfee and Johnny Wacker, in this three-pilot event.

Participants showed little sign of any rust that might have accumulated in the eight months since the viral outbreak. The category was as exciting as ever.

PHOTOGRAPHY BY **GARRET WOOD**

Clearing the cylinders on this radial engine Yak-52 by rotating the prop to pull the oil out of the bottom cylinders and avoid liquid lock during the subsequent start.

AKROFEST

Jim Bourke finished in first place in the Unlimited category at Akrofest.

UNLIMITED

We saw even more IAC royalty, as A.J. Wilder joined Jim Bourke and Eric Lentz Gauthier in the Unlimited category. Jim flew on the U.S. team at the last World Aerobatic Championships, A.J. was on the U.S. Advanced Team before moving to Unlimited, and Eric is a past glider champion, now competing in a Yak-55.

We had planned at one point to have five Unlimiteds, but a late withdrawal and a bird strike on Rory Moore's wing reduced that number by two. Although the bird definitely got the worst of the encounter, Rory's wing was compromised. Repairs are underway, and he'll be back in the air soon.

THE WRAP

The party was as pleasant as ever — beautiful setting, nice folks, and lots of laughs. Bryan and Kevin handed out the loot.

PRIMARY

- Cameron Koutz, Pitts S-2C
- Donald Milton, Yak-52
- Marianne Fox, Decathlon

SPORTSMAN

- Ali Ostovar, Pitts S-2B
- Daniel Chripczuk, Great Lakes
- Rob Johnston, Extra 300LT

INTERMEDIATE

- Mike Hartenstine, Pitts S-1S
- Susan Bell, Extra 300
- Zach Niles, Pitts S-2B

ADVANCED

- Matt Dunfee, Extra 330SC
- John Wacker, Extra 330SC
- Barrett Hines, Extra 300

UNLIMITED

- Jim Bourke, Extra 330SC
- A.J. Wilder, Extra 330SC
- Eric Lentz, Gauthier Yak-55

HIGHEST SCORING CHAPTER

- Chapter 26

HIGHEST SCORING FLIGHT SCHOOL

- XL Aviation

GRASS ROOTS AWARD

- Lloyd Massey

AND A NICE SURPRISE

- Winner of the 2019 California Point Series, Unlimited Category: Hiroyasu Endo! IAC

PHOTOGRAPHY BY **GARRET WOOD**


WORTH
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Free admission for youth ages 18
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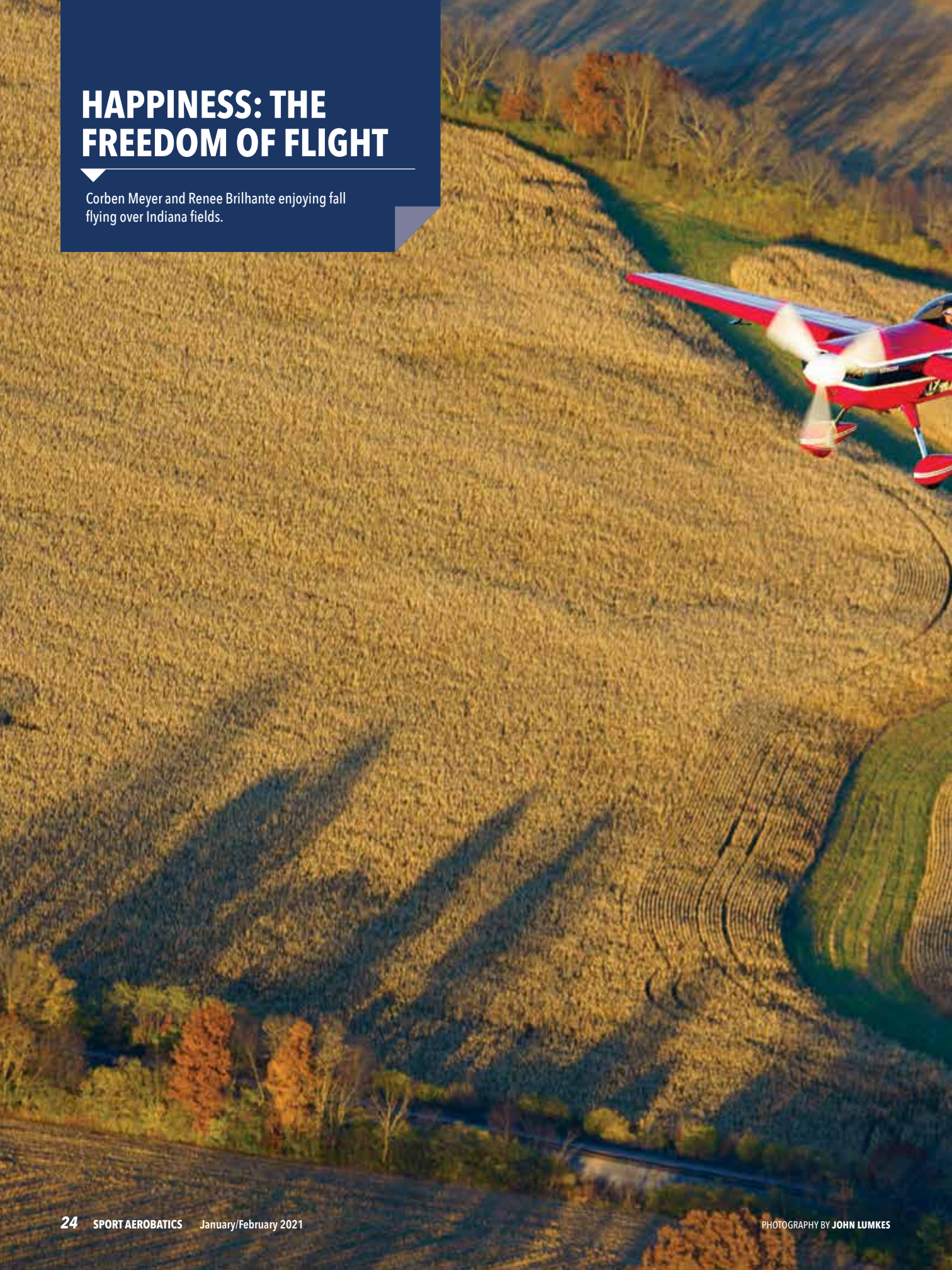
HAPPINESS: THE FREEDOM OF FLIGHT

Corben Meyer and Renee Brilhante enjoying fall flying over Indiana fields.



PHOTOGRAPHY BY **JOHN LUMKES**

ABOVE: Luke with Sigurður Ásgeirsson.

The Land of Fire, Ice, and Aerobatics

BY LUKE PENNER, IAC 437639

Have you ever felt like you were absolutely destined to do something? We're lucky as human beings to experience those moments when we're overcome with such clarity about what we're reaching for in life. We're even luckier when we can actually grab ahold of what often feels unreachable. This is the story of when I stretched my arms fully to the sky and found my feet on the rudder pedals of a yellow Pitts S-2E, high above a beautiful volcanic island in the North Atlantic.

I hung by my red, slightly worn Hooker harness, inverted over the snow-capped volcano crater: Eyjafjallajökull. (If I see you at a contest and you can pronounce this name, you will get a prize!) It is the volcano that shut down air travel over the North Atlantic in 2010. Here, as I hung from the harness in the yellow Pitts S-2E, an almost Zen-like calm came over me. So many things in my life had to line up for me to be in this place in this moment, flying over this almost mythical place, in an airplane of certain mythical proportions with people who have become just fantastic friends of mine! I tell you life can be unfairly beautiful, too.

My obsession with Iceland started in 2012 when I made a stopover in the Nordic country on my way to the United Kingdom to take in some of the Olympic events in London. I spent five days and 2,000 kilometers in my rental car exploring lava fields, fjords, hot springs, and some of the most beautifully desolate landscapes that I had ever seen. Before I had even boarded my outbound flight to the United Kingdom, I knew that I would be back. Now, eight years and seven subsequent visits later, the fascination with this unique island country and its wonderful people has only deepened.

Back to destiny. This story all started when I saw an inquiry on a Pitts forum on Facebook that was looking for someone to travel to Iceland and train nearly a dozen pilots on their newly acquired Pitts S-2E. I boldly thought, "This person *needs* to be me; it simply cannot be anybody else!" I had been working full-time as a flight instructor for 11 years at this point while also teaching aerobatics and full checkouts on a Pitts S-2B at Harv's Air. Harv's Air is my family-owned flight school operated in the central Canadian province of Manitoba. Between my passion for instructing and growing up in one of the harshest climates in Canada, I felt perfectly prepared for this role ahead of me. The thought of flying a Pitts over landscapes that can only be described as otherworldly was too much not to pursue with all my heart. I sent an email of my proposal to Valdimar Bergsson, one of the (*16!*) owners of the Pitts, and *köttur út í mýri, setti upp á*

PHOTOGRAPHY COURTESY OF **LUKE PENNER**

TOP, RIGHT: Eggert Jónsson pumping fuel while Helgi Rafnsson fuels the Pitts.

RIGHT: Luke and Birgir Steinar Birgisson.

BELOW: The secluded 3,500-by-120-foot grass strip at Múlakot.

sig stýri, úti er ævintýri! (Translated from Icelandic, it more or less means that the rest is history.)

Fast-forward a few months and picture a scene, nestled in a quiet valley surrounded by rugged mountains and volcanoes, not far from mile-wide black sand beaches along the southern coast of Iceland. My skin had become sore from pinching myself so many times because every day was more ridiculously awesome than the last, and I had to be sure that it was not just a dream.

The initial plan was to ferry the Pitts, TF-ACE, from its base at Reykjavík (BIRK) to Múlakot (BIMK) for what would be a solid week of me training as many of the owners of the airplane as possible. During the ferry flight over to Múlakot, Valdimar and I had an RV-4 escort flown by Atli Þorvaldsson, whom I would soon also be training to fly the Pitts. As our two yellow airplanes joyfully skirted by geothermal powerplants venting a continuous flow of steam, we could smell the sulfuric tinge. Ninety-nine percent of Iceland's energy comes from renewable sources like these. As our two-ship formation made its way east, moss-covered volcanic rock gave way to a relatively large expanse of prairie-like terrain that makes up part of South Iceland. After our short jaunt, the secluded 3,500-by-120-foot grass strip at Múlakot appeared and in a setting right out of *Game of Thrones*.

ABOVE: Luke and Snorri Bjarnvin Jónsson with the Yak-52.

BELOW: Luke with Vladimar Jóhann Bergsson who is ready to film with his GoPro.

After landing and getting situated, it was clear that Múlakot was ideal for an efficient training operation that would allow us to park and refuel the Pitts within a few feet of a beautiful summer cottage that we had procured for the week from a generous Icelandair captain. We took full advantage of the 20 hours of bright daylight at this latitude during late May. The guys kept me busy with as many as 12 separate flights in one day, and it was a beautiful thing of which to be a part. There I was, teaching the fundamentals of performing accurate slow rolls over lava-formed gorges and towering waterfalls.

Wake-up time was 0700, and the first order of business was to prepare breakfast, which mainly consisted of rye bread and Icelandic yogurt. As the comforting aroma of freshly brewed coffee filled the modern-yet-rustic summer home, I gazed out the living room window. It provided a sweeping view of the runway backed by treeless mountains that just demanded to be seen up-close and personal, framed by the surreal juxtaposition of the yellow wings of the Pitts. I finished my last sip of coffee just as my first two students finished refueling the airplane by hand, utilizing a hand pump and a healthy supply of 100LL barrels. Most of my students required a mixture of aerobatic/spin and landing training. A typical mission profile was to depart Múlakot toward the coast and operate over the beach, just to the west of the ferry port at Landeyjahöfn, and then get to work. Without any section lines or a straight road to reference, it never failed to make me giddy to say to my student, "Okay, so when you pull to vertical, you need to not only *set* the vertical, but you need to *fly* the vertical. So just keep the main island of Vestmannaeyjar off your left wing and don't let it move!"

Another fun one was, "For this next loop, how about we start the figure and finish it pointed at Seljalandsfoss, that busy waterfall with all the tourists that's at the western base of Eyjafjallajökull?" To my English-speaking tongue, it felt like I had to do an unlimited level of aerobatics with my mouth and throat to make these words sound remotely correct, although I'm sure I hard zeroed on most attempts. As we returned back to Múlakot after our coastal training sessions, we would often do inverted passes over waterfalls, mountain peaks, and meandering rivers. I could just imagine lonely tourists on the ground being fully engaged in some of the most stunning scenery of their lives when a yellow biplane flew over them upside down — I'd like to think we enhanced their experiences!

Back in the circuit pattern at Múlakot, each of my students needed to round out their aerobatic/spin training with plenty of takeoffs and landings.

LEFT: The Múlakot summer home provided lodging for the eager aerobatic students.

For the majority of these pilots, it was their first experience flying a Pitts. Múlakot was well suited for rapid progression due to its generous proportions, especially its width of around 120 feet of nicely maintained grass. It is also perched in a quiet area seeing minimal traffic, particularly when compared to the busyness and sometimes reluctant tendencies of the Reykjavík controllers.

The days went by, one by one, and I had the immense privilege of sending a number of the guys on their first Pitts solo. As I watched each of them take off on their own, I felt the same way that I did when I sent my very first student to solo at the beginning of my career in flight training, many years ago. The difference here was that after becoming airborne and climbing to a safe altitude, they would each perform a mandatory loop and barrel roll to celebrate their milestone. After briefly experiencing this majestic scenery, framed by nothing but those two yellow wings, they each returned back to the base for a safe first solo landing, and thus, became Pitts pilots.

Ask just about any active member of the IAC what is their favorite part of the club, and they will tell you that it is the people. I think some of that inherent camaraderie stems from us being emotionally connected to this unique and unusual activity that the vast majority of people cannot relate to. We're a small guild of passionate people with chapters around the world (literally and figuratively), and my cohorts of the Icelandic aerobatic community took me in as one of their own. This experience has brought value to my life, value that an airplane in itself could never bring. To find one's passion in life and then find oneself in a totally new place, relating to people with that same verve, is a beautiful thing. At the time I am writing this article, I have had seven unforgettable trips to Iceland, with much of my time there spent with pilots of a variety of backgrounds. Most are airline pilots flying for Icelandair, but others work in the tourism sector, fishing industry, medical field, coast guard, and transportation. Although they vary in professional backgrounds, they are brought together by a mutual love of aviation, and in particular, aerobatic flying.

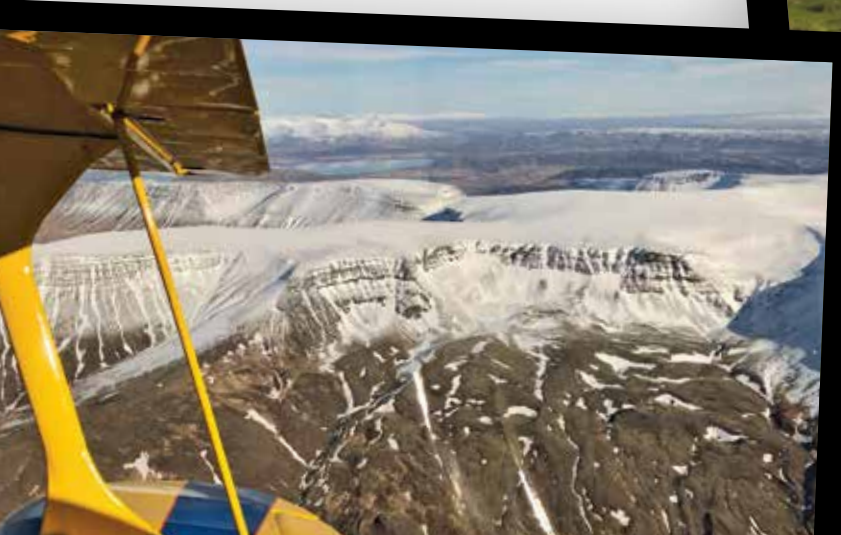
Our long-term dream is to experience a sanctioned aerobatic contest in Iceland. The passion and talent are there, and there are several smaller towns with airports that could host a contest. I'm hoping I can rope members of my Chapter 78 (wink, wink) into volunteering there to help on the organizational front. The biggest challenge to host a contest there would be the changeable weather. Ah, weather in the North Atlantic, how challenging you can be! If the ceilings aren't 800 feet overcast in torrential rain, the winds are usually extremely variable and gusty or a combination. The summer season is very short there, lasting from June to August. While there are certainly periods of time where the sky conditions are severe clear, a high degree of luck would be needed to pull off a weekend contest.

However, this topic brings to mind one of my favorite things about Icelandic people: their undying sense of humor in the face of living in a geographically isolated island in the North Atlantic, and its extreme weather challenges. They embrace their unique country and love it unequivocally. In turn, it has made me not only appreciate Iceland more from the perspective of a visitor but also value my own country of Canada and our vibrant aerobatic scene even more. Truly, we all have challenges as participants in aerobatics, but what I love the most is how we all rise up to meet those challenges and help one another to soar to whatever heights we aspire to reach, no matter where we come from.

To Valdi, Helgi, Erling, Thrainn, Biggi, Atli, Eggert, and the rest of the aerobatic community in Iceland: Thank you, guys, from the bottom of my heart for welcoming me into your beautiful country and trusting me to train you in our mutual passion of aerobatic flying. *Takk fyrir mig og sjáumst sem fyrst aftur!* (Translation: "Thank you and see you again soon!). IAC

BELOW: Iceland with its lava fields, fjords, hot springs, and some of the most beautifully desolate landscapes.

RIGHT: Luke (middle) at Múlakot with Birgir Steinar Birgisson and Erna María Þrastardóttir.



HILL COUNTRY

David Valaer with his CAP 10.

BY DOUG JENKINS, IAC 436255

The 2020 IAC aerobatic contest season, such as it was, has wrapped up. Thirty-two aerobatic pilots, numerous family members, judges, and other volunteers gathered in tranquil Llano, Texas, from October 15-17 to conclude the season at IAC Chapter 107's Hill Country Hammerfest. By any objective measure, the contest was a success; we had several first-time competitors, well above average participation, and lots of cookies.

PHOTOGRAPHY BY **JERRY SMITH**

HAMMERFEST

Let's begin with the turnout. Over the past few years, Hammerfest has seen participation of about a dozen pilots. This year we had 32! Unprecedented participation generated some pre-contest concerns about hangar space and having enough daylight. Not the things we normally worry about. Normally, it's "Can we afford to keep doing this?" I must say that, given the choice, I prefer the concerns generated by having too many pilots versus too few! So, to all of you who made the trip to Llano, thank you from the depths of my soul for making the effort and keeping the dream alive! Your efforts were greatly appreciated.

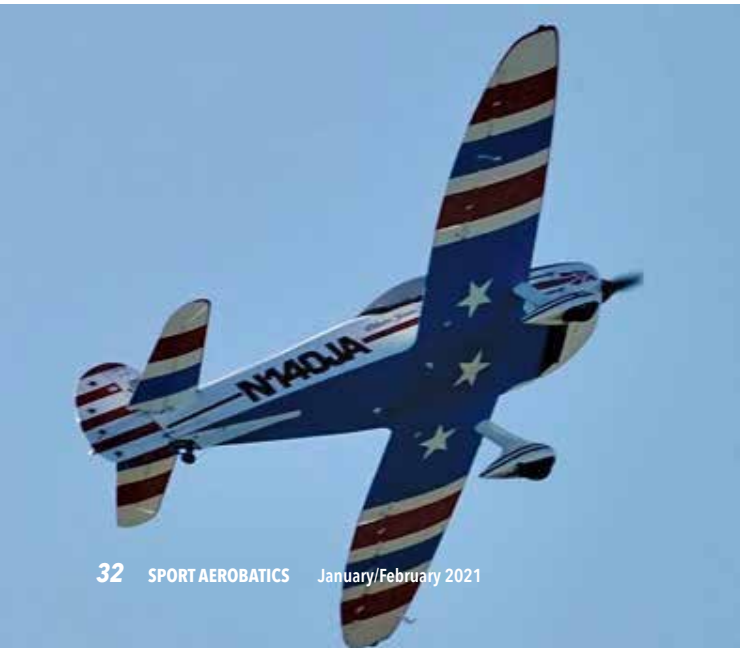
In addition to the pilots, we had lots of nonpilot volunteers who cared enough to show up and support us. Registrar and scoring were handled by techno-wizard Joel Utz. Nonflying judges included Jeff and Lynne Stoltenberg and Jeff Poehlmann. Nonflying assistants and recorders included Gary James, Bud Judy, Lynda Judy, Linda Cain, and Mark Malone. The Llano airport staff, led by Roy Buntyn, was as helpful as always. Chrissy Jenkins was our catering director, and baby Douglas was the unofficial contest mascot. I am reasonably certain I forgot someone; if so, I sincerely apologize!

No matter how you slice it, I think the reason we keep doing it is the people.

So, how did the contest go? Honestly, better than I expected. My main concern going into the event was hangar space. Thanks to the master of spatial relationships and hangar stacking, Tony Wood, we narrowly averted the undesirable situation of putting expensive airplanes on the ramp. Tony and the hangar stacking crew managed to stuff 19 airplanes in the main hangar and somehow get the remainder into the overflow hangar. Whew. My second concern was having enough daylight to get everyone through the box. Thanks to great weather, Chief Judge Lynne Stoltenberg, and starters Erick McDaniel and David Valaer, we conquered this demon as well. We started flying at 0815 on Friday and had gotten everyone two flights before 5:30 p.m. Well done!

Unfortunately, our run of good weather came to a screeching halt on Saturday as low clouds rolled in and prevented any further contest flying. Still, a two-flight contest for everyone is a success in my book!

Hammerfest attracted 32 pilots.



Now on to the results.

In Primary, several first-time competitors showed up — and flew well.

After the Known, first-time pilots occupied spots one through four. Glenn Chiappe was in first at 77.06% with Aditya Anne nipping at his heels with a score of 76.79%. Third was Mark Waggoner at 71.92%. All of these guys flew Decathlons.

On the second flight, Aditya and Glenn swapped places, and Jaret Burgess (another first-time competitor in a Decathlon) took third.

At the end of the contest, Aditya edged out Glenn by 2 points out of almost 1,000 total to take first place. Jaret Burgess finished third. Aditya took home the snazzy American Champion Aircraft medal, too. All three of these pilots qualified for their Primary Stars patch at their first contest.

A hearty well-done to all of our Primary pilots!

Sportsman saw a good mix of experienced, steely-eyed veterans (including the defending National Champion) and fresh-faced newcomers.

After the Known, home chapter pilot Andrea McGilvray was leading the pack at 82.36% in her Pitts S-1C. Second place was Mike Hoy in his beautiful Monosport at 81.47%, and in third place was first-time pilot Jeff Cain in his open-cockpit (there will be a theme developing here) Bucker Jungmann biplane at 81.14%.

The Sportsman Free saw a shuffling of the standings. Mike Hoy flew to a first-place finish with 83.44%. Jeff Cain took second at 81.94%. Living legend D.R. Bales zoomed to a third-place showing in his Extra 200 at 81.27%.

When the two flight results were tallied, Mike Hoy (82.46%) edged out first-time competitor Jeff Cain (81.54%) with Ali Ostovar (80.62%) taking third place in his Pitts S-2B. Ali's consistency also qualified him for a Sportsman patch.

Intermediate was highly competitive after the Known. Your scribe was in first place but only a whisker ahead of defending Intermediate National Champion Tom Rhodes, 82.02% to 81.69%. To continue a theme, I, as always, was flying my open-cockpit Pitts S-1E biplane while Tom was riding his pink steed (a CAP 232). Third place went to Extra 200 driver Erick McDaniel.

As with Sportsman, the Intermediate Free shook things up. Erick turned in a strong first-place finish at 86.88%. I was close behind him at 86.14%. Open-cockpit Skybolt pilot Todd Nelson finished a solid third with 81.24%.

Intermediate finished with me in first at 84.14%. Erick was second at 82.90%, and Todd was third at 78.18%. So, flying an open-cockpit biplane is apparently not a handicap in Intermediate. I should mention that it was Todd's first Intermediate contest, and he qualified for his Stars patch, too!

The Advanced Known saw David Prather take first place at 78.26% in his Staudaucher S-600F. Julia Wood scored second-place honors in her Pitts S-2B with 74.72%. Klayton Kirkland showed that old-school biplanes can fly in Advanced by taking third at 71.06% in his S-1S.

The Advanced Free saw Klayton narrowly edge out Julia, 80.12% to 80.04%. It's tough to get much closer than that (3 total points out of 2,600). David Prather stayed on the podium with 79.98%. (Only another 2 points out!)

When the JaSPer scoring program totaled the scores, Dave won with 79.14%, followed by Julia at 77.45% and Klayton with 75.71%.

Impressive showings by old-school biplanes led to the informal formation of a new group. Look out for "the four-banger biplane mafia" at any future contest. Our new and still unofficial motto is "Underpowered for the wiiiiiin!"

In an effort to get some of the sport's legends back in the game, we again offered the Legacy category this year. Three pilots accepted the challenge.

In the Known, Mike "Spanky" Gallaway took first with 84.97%. Tony Wood was second at 84.63%, and Herman Dierks took third at 80.29%.

The Free Program saw some differing approaches. Herman flew his standard Intermediate Free to a first-place finish at 85.30%. Tony Wood rode a modified Free to second at 84.33%, and Spanky drove a five-figure beauty of a Free to third at 80.14%.

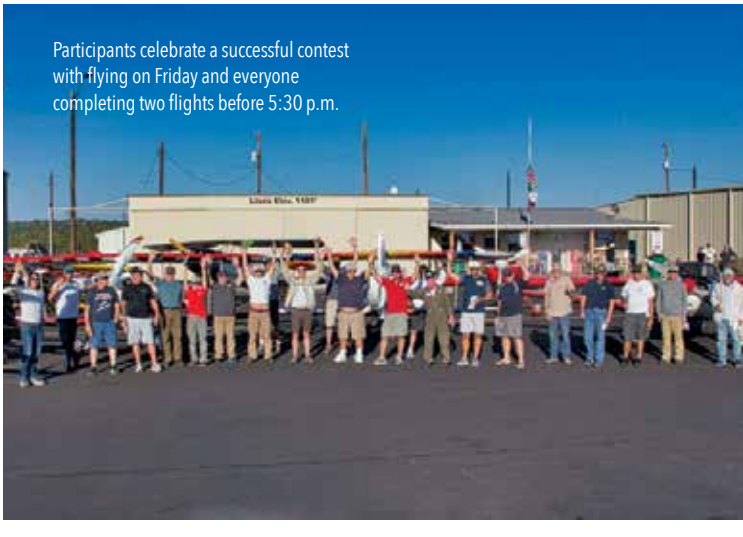
After everything was totaled, Tony bested Herman, who finished slightly ahead of Spanky.

As we rounded up the herd to hand out awards, I was left to ponder what it all means. Why do we do this? Why spend thousands of dollars and invest thousands of hours for a $20 plaque? Well, maybe it is the thrill of a well-flown figure. Maybe it's landing and knowing that you just nailed a sequence. Maybe it is the affirmation of seeing yourself on the podium, knowing that you edged out some really good pilots and airplanes. Or maybe, just maybe, it's something simpler than that. Maybe it is a chance to spend some time with other people who like to fly airplanes in crazy attitudes to impress a panel of their peers on the ground. If you bring your family along, maybe it is a chance to spend a quality span of time with them. No matter how you slice it, I think the reason we keep doing it is the people. So, to all of you who somehow managed to participate in our beloved sport in 2020 (at a contest, at a practice day, at a chapter meeting, or just flying a-sequence for the fun of it), thank you for keeping the spirit alive.

I am certain of one thing: We all hope for more and better flying next year.

Fly fun! *IAC+*

Baby Douglas and Chrissy Jenkins. A kiss for luck.



Participants celebrate a successful contest with flying on Friday and everyone completing two flights before 5:30 p.m.

PHOTOGRAPHY BY **JERRY SMITH**

Spin Training – Beyond the Basics

How I learned to stop worrying and love the back seat!

BY TONY JOHNSTONE, MD, FACS, ATP, CFI, IAC 16578

IN APRIL 1912, a young Royal Naval officer, Lt. Wilfred Parke, was demonstrating an Avro G cabin biplane to a group of military officers at Brooklands airfield in England. He put the aircraft into a tight bank at around 800 feet, when the aircraft suddenly dropped its nose and began rotating. He tried to recover with opposite aileron and back elevator to no avail. At around 200 feet, he released the controls to brace for the impact. At an altitude of 50 feet, he made a last desperate attempt to counter the left rotation by applying full opposite rudder. The aircraft promptly recovered. Parke had just become the first pilot known to have recovered from a spin, an aeronautical phenomenon not understood to that point. The feat became known as "Parke's dive," and he gained some fame. Ironically, he was killed later that year following an engine failure; he attempted to turn back to the field when he stalled and spun in.

MY PERSONAL EXPERIENCE WAS GOING UP IN THE OLDEST C-172 IN THE FLEET; THE INSTRUCTOR DID A SPIN ENTRY TO ABOUT THREE-QUARTERS OF A TURN, I DID ONE, AND THEN WE WENT FOR LUNCH.

Tony's father, B.T. Johnstone (left) with fellow aviator L. Edwards in the mid-1940s.

It took a couple of years before the mystery of the spin was properly understood, but by the middle of the First World War, pilots were routinely trained to spin and recover. Spin training was part of primary flight instruction into the late 1940s. My dad, who taught me to fly when I was 13, got his Royal Airforce (RAF) wings in 1943. His logbook shows spinning in his first three hours, and repeated regularly after that. The RAF obviously thought it was important; he passed that on to me when we started flying together in a Cessna 150.

The Civil Aviation Authority (CAA) (now Federal Aviation Agency FAA) thought differently, however, and in 1949 spin training was removed from civilian instructional programs. The only people now required to have actual spin experience are those wishing to become certificated flight instructors (CFIs). The CFI spin endorsement is a logbook entry following ground and flight training, which is laid out pretty loosely by the FAA. It is rare for a CFI candidate to actually have to demonstrate spin recovery on a checkride, unless some knowledge deficiency shows up in the oral.

The rationale for removing spins from primary and advanced flight training was that pilots were getting killed in instructional spin accidents. The emphasis was shifted to "awareness" of stalls and "avoidance" of spins. The United States is one of the few countries that take this approach. So, has it worked? Well, apparently, not so well.

PHOTOGRAPHY COURTESY OF **TONY JOHNSTONE**

Reading National Transportation Safety Board (NTSB) reports, stall-spin accidents are still occurring with alarming regularity, as often as weekly. Most are fatal. My personal opinion is that we now have a population of CFIs, many of whom have received perfunctory spin training at best. I have flown with a number of instructors who openly admitted they were not really comfortable teaching stalls, let alone spins.

My personal experience was going up in the oldest C-172 in the fleet; the instructor did a spin entry to about three-quarters of a turn, I did one, and then we went for lunch. I was duly signed off as being possessed of "instructional proficiency" to teach stalls and spins. At the time, I had been flying for 33 years, had owned two aerobatic airplanes, and I had done many spins, so I felt pretty comfortable with that. Had I not had that background, that spin endorsement was not worth the ink it took to write it.

Unfortunately, that is about it for many budding CFIs. Don't get me wrong; there are many excellent programs out there that take spin training seriously, and kudos to them. But there are plenty of CFIs out there who have spin "afraidance"; students pick up on this and never get comfortable nibbling at the edges of the flight envelope.

After I got my CFI, I started thinking about what to do with it. I thought if I got the right airplane, maybe I could help feed and water it by doing some instruction on the weekends and my half-day afternoon. I had owned a Decathlon and a Zlin 526F previously, and I found a nice Super Decathlon with not much time on it. N97LK became my business partner, and we are still friends over 17 years later.

I had no idea who would show up for flight instruction, or if anyone would. Not being internet savvy in 2003, I made up some flyers, introduced myself at a few local airports, and waited for the phone to ring. It was three months before I got my first paying customer, which gave me ample time to get comfortable with the airplane and repolish my rusty aerobatic skills.

The word apparently started to get around, and people started coming. By 2008 I was instructing about 150-plus hours a year, pretty evenly split between tailwheel and aerobatics. I taught spins as part of my basic aerobatic course, but didn't really have a full spin program. I was never particularly comfortable with inverted spins, so I went to see John Morrissey in Kansas City. Unfortunately, the wind was howling about 35 knots, so we didn't fly his Pitts Special S-2A that day, but we had a long and enjoyable aerodynamic lesson in his hangar.

BEING A PRETTY CONCRETE THINKER, I TRY TO BREAK EVERYTHING DOWN INTO BITE-SIZED PIECES IN TERMS OF LEARNING. AERODYNAMICS SEEMS TO BE A BIT OF A BLACK HOLE OF MYSTERY FOR MANY PILOTS.

I subsequently got the opportunity to fly with another Pitts guru, retired Navy admiral and dentist Bill Finagin, in Annapolis. Bill is a superb instructor; after his spin course, I felt confident to start pushing the edges of the envelope and develop my own program. It has been refined some over the last few years. I am now retired and last year moved my airplane down to Clearwater, Florida, where I am affiliated with a local flight school. The spin course seems to have caught on; since last July I have signed off 38 CFI spin endorsements. I get to fly usually two to three days a week, which suits my lazy retirement lifestyle.

First, we will go over my ground brief, and then cover the flight sequence.

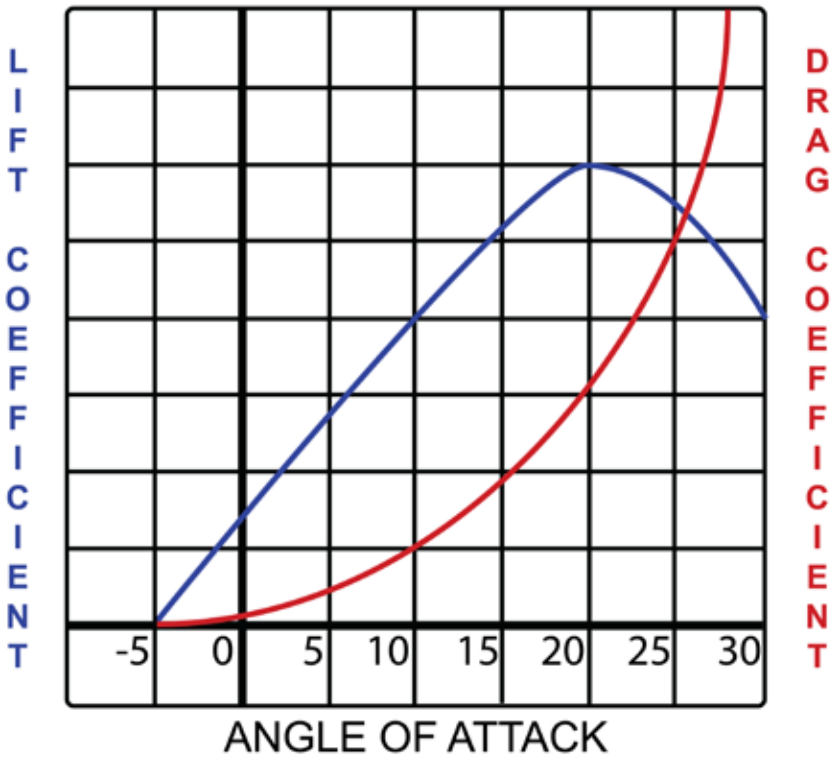
Being a pretty concrete thinker, I try to break everything down into bite-sized pieces in terms of learning. Aerodynamics seems to be a bit of a black hole of mystery for many pilots. I start ground school with a basic discussion of lift production, chord line, angle of attack, and camber. I work with a whiteboard and markers, a large model airplane, small wooden propeller, and my favorite teaching tool, a 12-inch bicycle wheel on a handle cut off from a broomstick.

LIFT, DRAG, AND ANGLE OF ATTACK

Drawing a lift-drag curve showing lift versus AOA and induced drag gets us to critical (stalling) AOA, lift production beyond critical AOA, and the exponential increase in drag at high AOA. Many pilots assume that once the wing stalls, it quits producing lift. Once they realize that lift production continues on the "dark side," the first light goes on.

The next step is understanding the effect of changing camber on angle of attack; dropping or raising the trailing edge of the wing moves the chord line down or up, increasing or decreasing AOA (and also induced drag). As a side benefit, we see the difference between a cambered (most GA wings) and a symmetrical wing. My drawn Lift to drag ratio (L/D) curve approximates a Clark Y airfoil, which produces lift down to about -5 degrees, as opposed to a symmetrical one (like the semi-symmetrical one on my Decathlon), which only produces lift at positive AOA.

FIGURE 1



FLIGHT CONTROLS

Now we get into what the flight controls actually do for a living. Elevator is really a pure AOA control. Pull and AOA increases; push and it decreases. Every time. Ailerons produce differential camber and lift, usually causing bank in the direction of stick deflection — but not always, depending on where the wing is AOA-wise. More on this later.

The ailerons also have a side effect. Differential lift also causes differences in drag. The down-going aileron increases angle of attack, and also increases induced drag. This will cause the aircraft to yaw in the opposite direction (adverse yaw). Thus, we need the rudder to compensate. Rudder always does the same thing: Left rudder drives the nose left, and vice versa. Every time. Then the question arises: Which one actually makes the airplane turn?

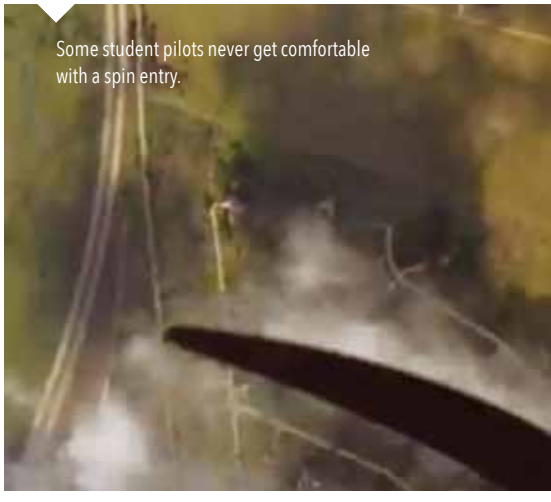
About 50 percent say ailerons, 30 percent say rudder or both, but very few say elevator. But it is the horizontal component of lift that actually makes the airplane turn. No lift, no turn. We can bank the airplane as hard as we like, but it won't turn until we pull. The aerobatic competition turn is a perfect demonstration of this, and I show them when we go flying.

TURNING AND STALL SPEED

Turning gets us into thinking about *g*-loading, the need to increase lift in a turn to account for the increased weight due to inertia. The aircraft is trying to go straight; to overcome inertia, we have to pull it offline. The analogy of a kid spinning a bucket of water is helpful — the water is trying to go straight but the bottom of the bucket is in the way (Newton's first law of motion).

We are also trading some of our vertical lift (which keeps the airplane level) for horizontal lift (which makes the airplane turn). To increase lift, we generally have to increase AOA, which takes us closer to critical angle, which is why stalling speed increases with bank angle. With increased AOA comes increased induced drag, so we either have to add thrust or we slow down.

Most pilots know that 60 degrees of bank will produce a 2*g* load and 40 percent increase in stall speed, but very few have any idea what the numbers are for 30 or 45 degrees (8 and 18 percent, respectively). To keep it simple, I say to think 10 and 20 percent. Many pilots are afraid to bank much steeper than 25-30 degrees in the pattern because they have been told that stall speed increases and that is dangerous. But when we break it down to real numbers, if you are approaching at 1.4 V_S, a 45-degree bank still leaves a good margin above the stall. Military pilots routinely use 60 degrees of bank in the pattern. What is far more dangerous is a shallow bank trying to yaw the airplane around with rudder (more on this later).



Some student pilots never get comfortable with a spin entry.

ILLUSTRATIONS BY **ALYSSA ENGESETH**

IT IS THE HORIZONTAL COMPONENT OF LIFT THAT ACTUALLY MAKES THE AIRPLANE TURN. NO LIFT, NO TURN. WE CAN BANK THE AIRPLANE AS HARD AS WE LIKE, BUT IT WON'T TURN UNTIL WE PULL.

P-FACTOR AND GYROSCOPIC PRECESSION

The next question is, "Who understands P-factor and gyroscopic precession?" Short answer: Not too many. These are poorly understood by many pilots, and frankly, have been poorly taught. The FAA lists both of them in the *Airplane Flying Handbook* as "left-turning tendencies," which they sometimes are, but not always.

A simple demonstration with a model propeller shows the effect of thrust line versus relative wind on blade angle of attack. Pitch up for a climb, and blade angle on the down-going blade increases while the up-going one decreases — thus, more lift (thrust) on the right, causing yaw to the left. But get the thrust line below the relative wind and the aircraft will yaw to the right. Cruise descent in a C-182 will leave one with a tired left leg if rudder trim is not used; a lot of pilots know this but haven't really thought about (or been taught) why.

PHOTOGRAPHY COURTESY OF **TONY JOHNSTONE**

Similarly, gyroscopic precession is simply demonstrated with the little wheel on a stick. Spin it up and pitch it up or down; it will go left or right. The amount of movement depends on the mass of the gyroscope and the speed at which it is moved. Move it fast and you get a big move; slowly, not so much. As a side issue, I point out that also works in yaw, causing the nose to pitch up or down (which is why we need forward stick and right aileron on the pivot hammerhead to the left).

I like to have a little fun with talking about rotary engines from the early days, which have massive gyroscopic effect. Every time you move the nose, the airplane goes somewhere different (no wonder so many pilots got killed trying to fly them!). That little wheel sure beats trying to decipher "resultant force is 90 degrees in the direction of rotation," which leaves most folks scratching their heads.

In Part 2 of "Spin Training," we will look at dynamics of a stall, the character of a spin, and stall/spin recovery techniques. *IAC+*

TONY JOHNSTONE is a two-time Master CFI-Aerobatic. He has been flying since high school in 1967. He has given over 2,000 hours of dual in his Super Decathlon. He is a FAASTeam rep with the Tampa FSDO and a retired general surgeon who practiced in Canada and then Kansas for a total of 30 years.

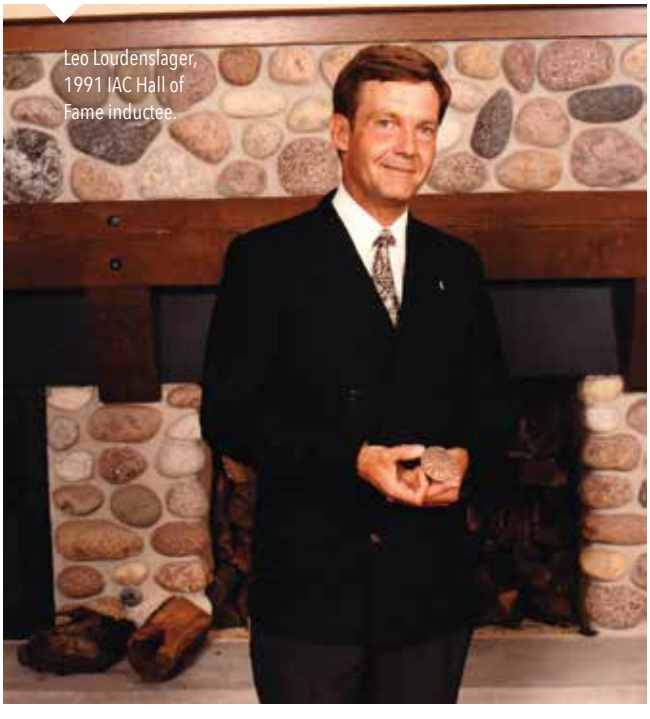
New Award

The National Point Series Championship

BY BOB FREEMAN, IAC 8532

INTRODUCING "THE LEO." There are very few people involved in aerobatics in the United States at any level who don't know the name Leo Loudenslager. As a seven-time U.S. National Aerobatic Champion and the 1980 World Aerobatic Champion, Leo inspired many of us.

Sometime within the past couple of years, I started thinking about the possibility of creating a new National Point Series Championship (NPSC), patterned along the lines of our existing regional championships (and some of our state-specific championship point series, like Texas and California). When I started working on this national-level trophy project, it was an obvious choice for me to name the new award after Leo Loudenslager. So, I contacted Kelly Loudenslager Goodpastor, Leo's daughter, to inform the Loudenslager family of the point series trophy, our desire to name it after her father, and to seek approval for the use of her father's name. She expressed gratitude, excitement, and absolute approval to do so. Thus, the new trophy is called The Leo, for the winners of the U.S. National Point Series Championship. After some thought, finding the right and appropriate trophy became clear. Rather than creating another prestigious trophy with an eagle poised in flight, a majestic and regal lion seemed more original and more appropriate.



Leo Loudenslager, 1991 IAC Hall of Fame inductee.

In short, this is a national point series competition in which a competitor's results from three different regions (as we define the IAC regions) are accumulated to rank pilots nationally in Sportsman, Intermediate, Advanced, and Unlimited. The first-place winners in the point series in each category will have their names engraved on The Leo trophy, which will be on permanent display in the IAC Pavilion at Oshkosh. Winners will be recognized as the U.S. National Point Series Champions. To be clear, the winners of this point series *are not* the U.S. National Aerobatic Champions. Those titles are earned and bestowed upon the category winners of the U.S. National Aerobatic Championships. In addition, first-place winners in each category will receive their own Leo-based trophy. Second- and third-place winners will be announced and will receive stickers that can be displayed on their aircraft.

IAC Policy & Procedure 203 documents the process and requirements for the creation of a new trophy of this kind. The criteria, process, and method of award for the trophy winner must be defined, the funding source must be identified, and the IAC board of directors must approve. In this case, the funding of the trophies and stickers for this new point series will be provided by director and past team member Bob Freeman, director Tom Rhodes, and former director and team member Tim Just.

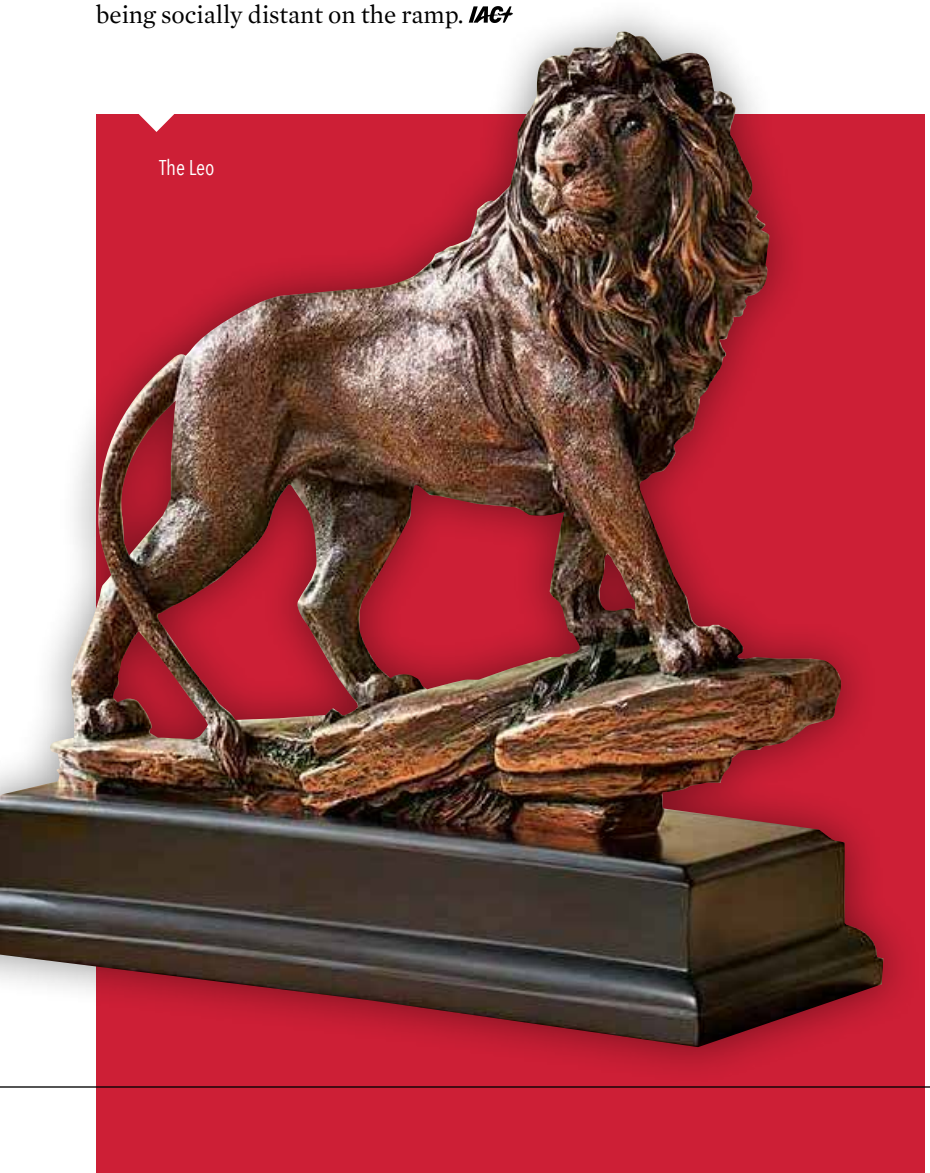
The process for identifying the winners is really pretty simple. A competitor must fly contests in at least three different regions (Nationals could be used as a South Central contest based on being held in Salina, Kansas). The best performance in three different regions will be used to accumulate NPSC points. Championship points will be earned at each contest based on a percentile ranking method for each contest flown, rather than by straight score percentages. Percentile ranking is commonly used as a method to normalize results across large data sets (think SAT, ACT, etc.). Significant thought and analysis went into choosing this process. Pilots will earn championship points based on how they ranked against other pilots who flew that very same contest, in the same weather, with the same judges, with the same conditions (high-density altitude, crosswinds, etc.), and with the same (or without) boundary judges. Using a straight score percent sum approach would not account for the contest differences and judging across multiple regions. The objective is simply to determine which pilots ranked the best with respect to their direct competitors over the three contests.

There is no requirement to provide paperwork to be entered into the point series. Scores will be extracted from the IAC contest database after the last regional contest of the year, and then compiled to determine the final ranking of eligible pilots for the season. Any pilot who has contest results from three different regions (in a given category) will be automatically qualified and ranked.

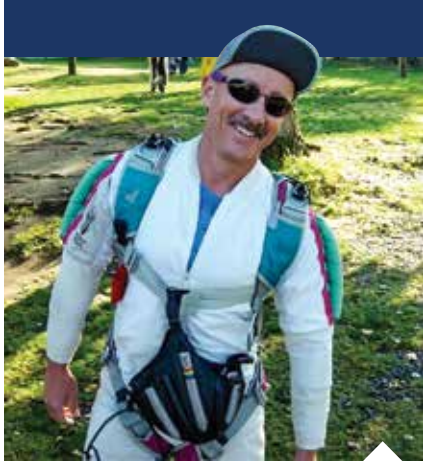
PHOTOGRAPHY COURTESY OF **IAC ARCHIVES**

Part of my motivation for instigating the NPSC is to incentivize more participation in our regional contests, especially at the Unlimited level. Many, if not most, of our Unlimited pilots are highly motivated and focused, hoping to contend for a spot on the U.S. team and to have the opportunity to represent the United States in the world championships. The financial and physical challenges of Unlimited are creating a decline in participation at the Unlimited level. Regional contests compete for time and money with training camps. With fewer Unlimited pilots, from my experience, it is very difficult to identify regional contests where there will be other Unlimited pilots, and thus it's tough to plan on contests to attend. My hope is that this new trophy will carry enough prestige to foster interest at the Unlimited level in identifying more regional contests in advance that will have Unlimited competitors. A good outcome of this new point series would be to create discussion among those pilots to coordinate and identify contests where there will actually be an Unlimited category.

My original hope was to have this point series commence in 2020, but as we have all dealt with COVID-19 and the significant number of contests canceled, we will initiate the point series in 2021. Fly safe, have fun, and I look forward to the days we will all be back in the box on a regular basis and not being socially distant on the ramp. ***IAC+***



The Leo



Parachute Nomenclature

BY ROBERT MARSHALL, FAA-CERTIFICATED PARACHUTE RIGGER

MARK TWAIN famously said, "The difference between the almost right word and the right word is really a large matter—'tis the difference between the lightning-bug and the lightning." His words emphasize the importance of nomenclature because rigger and pilot need to be on the same page with respect to terminology and descriptions used in the aviation field. We don't want to be like a guy who called me the other day for a repack; when I asked what kind of parachute he had, he said it was green!

What you put on your back prior to flying is called a *rig*, an *emergency parachute*, or *PEP* (pilot emergency parachute). Most often, we use the word *parachute*. The emergency parachutes we use in our airplanes come in two types: *backpack* or *seat pack*. And just as important as knowing your exact product is knowing that your parachute rigger must be *type rated* to pack one or the other or both. For parachute information, refer to your owner's manual, available at the manufacturer website. The manual contains useful information, so spend an evening with it until you become familiar.

Round parachute development has not changed much in the past 20 to 25 years; nonetheless, parachutes have operating parameters to which we must adhere. Although pilots jokingly call our parachutes expensive seat cushions, today's modern parachute has been proven in use over decades and decades and has been refined into a reliable lifesaving device. *If used properly*. And to use it properly, one must have a good understanding of how it works. I know skydivers with thousands and thousands of jumps who have never had a parachute fail to work properly. Partly the reason is because of a parachute's simplicity; it is made of nylon and metal hardware — components that essentially make up the entire rig. And it works on the simple principle of drag. There are no magnetos, fuel systems, temperature limits, electronics, or any of the components that seem to fail so often on our mechanical airplanes. Parachutes do need proper maintenance, however, and it is not always just a simple inspection and repack. If your rigger calls to tell you your parachute needs repairs, be thankful because she is watching out for your safety.

A *pilot chute* is one of the components within the parachute assembly, and it is spring-loaded. Essentially, the pilot chute is a small parachute, which when the *rip cord* is pulled, launches into the airstream, becoming an air anchor that pulls the real parachute out of the container. Speaking of which, the primary components of this *rig* are the *harness and container* (separate but considered one assembly), the parachute itself (referred to by riggers as the *canopy*), and the lesser components such as *rip cord, pilot chute,* and *diaper*. And we might also add *closing loops, lines stows, bands*, and *keepers*. Some pilots use the term *shroud lines*. I know what my customers are referring to when they use the term; they mean the *suspension lines*. But I have never heard a rigger or a skydiver use that term, so that dark language should be eliminated.

An easy way to examine the entire rig is to work our way from the bottom up, starting with the *harness/container* upward to an open *canopy*. The main lift web (MLW) is part of the harness and is considered the *spar* or *load-carrying* device of the parachute assembly. The MLW is what you adjust for your height. Softie uses *thread-through-shoulder adapters* to accomplish height differential, and Strong most often uses a *fully adjustable harness* with several adjustment straps. The *risers* are an extension of the MLW.

Above the *risers* coming off your shoulders with *steering toggles* attached to them are the *suspension lines*, followed by the *canopy* and the (now useless) *pilot chute* on top of all that. Every modern parachute is *steerable*, either by using the *steering toggles* or by pulling on the *rear risers*. Steering toggles make turning the parachute easy because of their mechanical advantage and their grip, but parachutes can be steered using the *rear risers* as well. Keep in mind that steering using the rear risers requires more strength.

IF YOU ARE NOT SURE WHETHER YOUR PARACHUTE IS SIZED PROPERLY FOR YOU, ASK YOUR PARACHUTE RIGGER. YOU DON'T WANT TO THROW INTO THE MIX OF WHAT HAS ALREADY BECOME AN EXTREMELY BAD DAY BY POTENTIALLY OVERLOADING YOUR PARACHUTE.

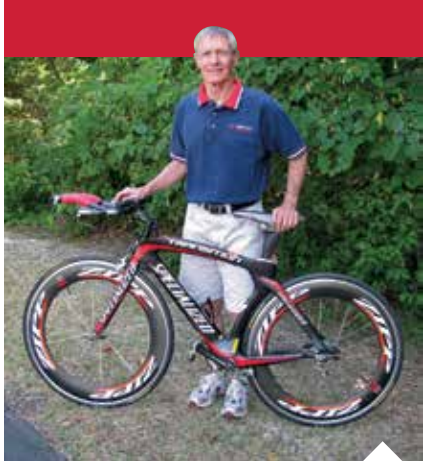
Another aspect of parachute nomenclature is the *packing data card*. It is the "logbook" for your parachute and will identify the serial numbers of the harness and container, as well as the model of the parachute inside. In addition, it will list the *date of manufacture* (DOM) of each component as well as the repack history. You should become familiar with your packing data card. In addition, every parachute considered for use today needs to have a *deployment device*. There are several types of deployment devices, but for the emergency parachutes that we use, it is always a *diaper*. Do not consider buying or using a parachute without a deployment device. What the deployment device does is it *stages* the opening so that you have *line stretch* prior to *inflation*. Proper staging of parachute deployment is essential for reliability. And steps need to occur in the proper sequence and with a defined time interval between each. If you have *inflation* prior to *line stretch*, it is called an *out-of-sequence deployment* and could result in parachute malfunction.

To illustrate, imagine pulling the *rip cord* and following the *stages of deployment*: first, we have *pack opening*, followed by the *pilot chute launch* into the airstream, then *parachute deployment*, *line stretch*, *inflation*, and finally, *opening shock*. All of these things are designed and tested to occur within 3 seconds under various loads and speeds. I am often asked, "What's the lowest I can open?" And my answer is always, "It depends." Read your owner's manual and consider this: Terminal velocity of a skydiver is 174 feet per second. That is almost 600 feet in 3 seconds and *begins* at *pack opening*. In skydiving, the *hard deck* for emergency parachute deployment always has been considered 1,000 feet. *Opening shock* is that sudden *deceleration* that occurs once you have *full inflation*, and it is measured in *g*'s. Probably more than 5*g* and fewer than 10*g*. However, it is instantaneous rather than sustained, so it is manageable. Opening shock likely will elicit a big smile across your face. The sequence above can be influenced by a series of variables but primarily by the *load* placed upon the parachute. The load is determined by your weight and your opening speed. Our primary concern when choosing or putting on a parachute is the *load rating* and the fit. Most parachutes are rated for around 220 pounds at 150 knots. If you are not sure whether your parachute is sized properly for you, ask your parachute rigger. You don't want to throw into the mix of what has already become an extremely bad day by potentially overloading your parachute.

To wrap up nomenclature, know your equipment, know what it is called, and know that it is strapped to your back for an important reason. The technical term for what you strap on your back is a *decelerator* because it will slow your descent to a safe landing speed in an emergency. So let's all work to become that person who, when he calls his parachute rigger for a repack and is asked what he has, says, "Well, it's a beautiful yellow (insert brand) seat pack decelerator that I sometimes sleep with at night."

Stay safe out there. IAC+

ROBERT began his aviation career jumping out of perfectly good airplanes in 1978 and has since accumulated more than 3,600 skydives. He became a skydiving jumpmaster in 1998 and AFF free-fall instructor in 1999. At that time, he created Roberts Air to offer AFF skydiving instruction to the Southern California community. He graduated Parachute Riggers school in Boulder City, Nevada, and became an FAA senior parachute rigger in 2006 and has been a private pilot since 1998 accumulating more than 1,000 hours PIC. Robert attended Miramar College in 2005 to become a certificated A&P mechanic and added his inspection authorization in 2013.



Caffeine as Performance-Enhancing Drug

BY FRED G. DELACERDA, IAC 12474, AND **CO-AUTHOR LORRIE PENNER,** IAC 431036

SEVERAL YEARS AGO, I attended a seminar at the U.S. Olympic Training Center, Colorado Springs, Colorado. One of the sessions was by the U.S. Anti-Doping Agency. At the time, I was involved in bicycle racing. There were serious problems with endurance sports in the use of performance-enhancing drugs (PEDs); one was the sport of cycling.

Of course, there was major interest in what substances were classified as PEDs. And just how did the agency monitor for doping? It was done by testing blood and urine during and out of competition.

Having been an aerobatic pilot, I wondered if pilots used PED. I considered competition aerobatic pilots to be athletes. Sometime later at an aerobatic contest, the flying was grounded by weather, so I used the opportunity to question the pilots about drug use.

The answer was no, but some wondered if sports drinks used for hydration purposes might be something of a performance enhancer. The only way to find out what was being consumed was to read the labels, and this action usually was not much help.

Several pilots questioned if coffee came under the label of performance enhancing. Pilots admitted to use of caffeine, especially as a morning "wake up" and when needed for "lift" during the day. Others used caffeinated soft drinks. At the time, caffeine had not been tested to determine if it is a PED. Prior to the 2004 Olympic Winter Games, beginning in 1984, urine testing to 12 micrograms per milliliter of caffeine could see an athlete thrown out of competition, according to an article online at MensHealth.com. The rationale was that science supports the use of ergogenic aid in caffeine; in other words, it is a substance that enhances speed and stamina. Caffeine is well known to enhance endurance and to reduce fatigue. However, there were some pilots who felt caffeine was a diuretic and affected hydration level. In a study in *The American Journal of Clinical Nutrition*, comparing several popular beverages to the hydrating effects of water, coffee was found to be a mild diuretic. Unless you fail to drink more fluids after caffeine intake, you are not in danger of becoming dehydrated. Caffeinated beverages are consumed worldwide and probably have been consumed by many different cultures for many centuries, the purpose of this consumption being to increase human performance. This caffeine consumption was through a variety of tea, coffee, and energy drinks.

Caffeine, chemically known as 1,3,7-Trimethylxanthine[3], is found naturally in plant foods and is used to improve endurance by reducing the discomfort of fatigue and pain associated with endurance exertion.

Research has shown caffeine to have a direct effect on muscle tissue, but it also influences the nervous system. Yet it is still not known how it does so.

Not surprising, a variety of caffeinated drinks are used in athletic training and competition to improve performance. The drink may not have the presence of caffeine noted and almost never the percentage. While not noted, the content is usually about 80 milligrams to 120 milligrams, this being considered the "normal" amount consumed.

The number of energy drinks now available has led to efforts to make caffeine a performance-enhancing drug. This development has not gone beyond the consideration phase, or it would be difficult to enforce.

Just what does caffeine consumption have to do with aerobatic pilot performance? There is a strength component involved in the antigravity maneuvers, which are usually short in duration yet repeated. It is in the length of the competition contest, usually a couple of days to a week, that the stress associated with the contest leads to fatigue.

When giving aerobatic flight instruction, I noted that three flights in one day was demanding, with the students complaining about fatigue. It was a surprise when they could not fly a fourth flight. These moments were when the use of a caffeinated "pop" or sports drink was desired, but not carbonated drinks unless you wanted the drink all over the cockpit during flight!

RESEARCH HAS SHOWN CAFFEINE TO HAVE A DIRECT EFFECT ON MUSCLE TISSUE, BUT IT ALSO INFLUENCES THE NERVOUS SYSTEM. YET IT IS STILL NOT KNOWN HOW IT DOES SO.

Are there any health risks associated with the consumption of caffeine? There have been numerous studies and will continue to be, yet none have found any risks with normal consumption of 80 milligrams to 120 milligrams. It must be noted that more research was done with coffee having a content of 80 milligrams to 120 milligrams of caffeine as being normal according to an article online at Healthfully.com.

Now, what does caffeine have to do with pilot performance, particularly aerobatic pilots?

First, consider the effect of caffeine in a pilot's health. There has been considerable research and will continue to be, yet none has found any evidence of health risks with normal consumption.

There is nothing to suggest normal (80 milligrams to 120 milligrams) amounts of caffeine will result in kidney stones; there is evidence that they lower the incidence. However, it is not true for consumption of soda. In a study cited by the American College of Physicians, the research found that kidney stone patients who agreed to change their beverage habits and abstain from soda — specifically colas acidified with phosphoric acid — cut their risk of a recurrence by about 15 percent.

There is something that seems of concern to aerobatic pilots: that caffeine tends to increase urine output. Does it contribute to dehydration? In a 2018 *Time* magazine article, researchers have studied the question and found it is the amount of fluid you consume with the caffeine. Caffeine in itself does not appear to have major diuretic effects. It is the amount of fluid consumed with caffeine.

Question: Does caffeine help or hurt an aerobatic pilot performance? A few liked the "hype" from the caffeine. Others did not like caffeine, as they preferred to be calm and relaxed before and during the flight. Some wanted to relieve fatigue. Some just wanted their coffee, particularly in the morning. Sport and soft drinks were mostly used for hydrating. Many pilots had a coffee habit but were afraid of dehydration.

Caffeine has good points and bad points. As with many other things, caffeinated drinks should be used in moderation and approved to the "why" it is being used.

Again from the 2018 *Time* magazine article, there has been no research evidence to support caffeine as being a diuretic. However, research studies have determined that drinks with more than 500 milligrams of caffeine proved to be diuretic. This amount is the equivalent of five cups (40 ounces or 1.2 liters) of brewed coffee per day.

Caffeine may have different effects on different people in different situations. It is the case with some persons in certain situations. I know some people believe caffeine is a diuretic, but it is more likely the amount of water in the coffee. IAC

2021 IAC CONTEST SEASON CALENDAR

IAC.org/Contests

DATES	HOST CHAPTER	NAME	REGION	LOCATION	AIRPORT
Mar. 25, 2021	89	Snowbird Classic 2021	Southeast	Florida	X60
Mar. 27, 2021	62	Estrella Classic Aerobatic Championships	Southwest	Arizona	E68
Apr. 20, 2021	49	Duel in the Desert	Southwest	California	KAPV
May 14, 2021	24	Lone Star Contests	South-Central	Texas	KGYI
July 10, 2021	88	Michigan Aerobatic Open	Mid-America	Michigan	2CM
July 17, 2021	12	High Planes Hotpoxia Fest	South-Central	Colorado	KFMM
Aug. 7, 2021	78	Doug Yost Challenge	Mid-America	Iowa	KSPW
Aug. 20, 2021	12	IAC West Open Championship	South-Central	Colorado	KSTK

PHOTOGRAPHY BY **KEVIN BROWN**

Savannah's World – To Look Up

BY ROB MIXON, IAC 4256

SAVANNAH'S WORLD had been a black and white world of only pleasing others. She was not allowed to have any feelings or needs of her own. She had been repeatedly scorned, first by her parents, then by her husband, and finally by her own children. Silence was a power that others could use against her.

Savannah climbed the yellow and white Citabria with its starburst paint design on the top of the wing and tail to 3,000 feet over the aerobatic box in Sebring, Florida. She looked below to make sure that she was within the four corners marked with their white L-shaped markers.

She lined up for her first maneuver. Lowering the nose of her plane, she rocked her wings with a "wing wag," indicating to the judges below that her aerobatic sequence was starting.

The engine roared as she picked up speed to 140 miles an hour. Then the loop was followed by 120 miles an hour for the next maneuver. After finishing the slow roll, she quickly checked the aerobatic box markers below. Flying outside of the box would determine a zero score.

I remembered her asking, "What if I make a mistake?" I replied, "You can't win flying against advanced planes and pilots, so making a mistake will make no difference." I was hoping to take away some of the pressure from her abusive past.

In the back seat, I acted as her safety pilot, not saying a word, with a knowing grin as if bragging to myself of her accomplishments. Her increased confidence had her mentally fixating on the success of her previous maneuver while planning for the next. Her adrenaline was pumped up as if she were flying in a World Aerobatic Championships.

She pushed forward on the control stick at the precise point to end her spin exactly at the point of entry with a perfect vertical downline. She returned to level flight, rocking her wings with another wing wag, indicating to the line judges that her aerobatic sequence was finished.

With the chirp of rubber meeting the pavement, Savannah landed the Citabria in front of the judges. She turned off the active runway and taxied to the tie-down area. We unbuckled our seat belts, shoulder harnesses, and parachutes. She turned around in the front seat to look at me as I sat there smiling at her.

Rob Mixon's 1980s aerobatic students, including Savannah Ann Cooper.

"I was so nervous. I didn't want to make any mistakes!'

"Great job. No mistakes."

"I wonder how I did."

"You don't have to wonder. Let's see if the judges have posted your score."

We walked behind the row of judges to the posting board. The results were printed in black ink on a long piece of plain white paper. Pilots' names, types of aircraft, and then how they placed.

The first airplane was a Pitts Special, second was an Extra 300, and then third was the name Savannah Ann Cooper flying a Citabria! Not only had she won third place, but she had also outflown two pilots who were flying superior aerobatic airplanes, a Pitts Special and an Extra!

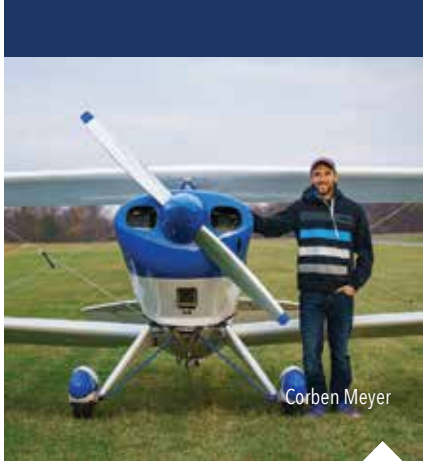
Savannah Ann Cooper stood taller, walking with wide steps, as she walked past the more advanced flying machines and their pilots. There was an inner sense of calm. For the first time in her life, she knew there would still be struggles, but she felt at ease with her accomplishments.

"Once in a while someone amazing comes along, and here I am!" she said, using a direct quote from Tigger of Winnie-the-Pooh fame and adding her huge grin.

"Savannah, does that mean you feel good about your accomplishment?"

"I feel awesome!" came her reply, indicating that everything was as it should be in her newfound world.

Five other student pilots flew that day in the Sebring contest. Savannah explained how she did a one-turn spin while demonstrating, and was signed off for Certificated Flight Instructor Precision Spins with only her student pilot certificate. IAC


Corben Meyer

Corben Meyer

Immersed in aviation from work to play

BY ZINNIA KILKENNY, IAC 437244

RESIDING IN ONE OF THE MOST desirable fly-in communities, Corben Meyer, from Lafayette, Indiana, is immersed in aviation from work to play.

The "why and how" of movement for all things flying fascinated him as a youth. His father would cultivate his interest in aviation through daily airplane modeling.

CORBEN MEYER

IAC: 441174

Occupation: GE Aviation Assembly and Test of the LEAP Jet Engine

ZK: YOU'RE THE FIRST AVIATOR IN YOUR FAMILY. WHAT INSPIRED YOUR CAPTIVATION WITH FLYING?

CM: As a kid playing soccer. The soccer field happened to be right next to the local Academy of Model Aeronautics field. It turns out, I cared nothing for soccer and only wanted to watch the model airplanes and learn more about them. My dad, being an engineer and involved in model trains, loved the idea of my getting into model airplanes.

Corben's white and blue Pitts S-1C. He restored the 12 years old Pitts; fabric work, paint, rerigging and a few other things were accomplished in 2020.

ZK: YOU'VE DESIGNED AND CONSTRUCTED AN ENVIABLE HANGAR HOME ON THE SAME LOT YOU FLEW RC PLANES AS A YOUTH. EVEN THE WALL ART FLIES.

CM: Timberhouse Aero Estates truly is one of the most beautiful settings here in the Midwest, and I'm willing to bet it has one of the nicest grass runways in the country. The wall art is comprised of flying model airplanes that get flown regularly.

ZK: TELL US ABOUT THE FULL-SCALE AIRPLANES IN YOUR COLLECTION AND WHAT LED YOU TO PURCHASE THEM.

CM: I purchased the Quicksilver MX in a pile of parts when I was still in college at age 24. It was all that I could afford. I also did not have my pilot certificate, so an ultralight was my only option. I learned a lot from restoring it.

My Cessna 120 is from 1947. My favorite professor at Purdue made me a deal on it when I graduated college. I have always had a soft spot in my heart for vintage aircraft.

I bought my Baby Great Lakes from a friend in Tennessee. It was complete but disassembled when I purchased it. I have always loved small aircraft and biplanes specifically. I thought it would be a great entry to aerobatics, and it was!

I purchased the Pitts just two months after buying the Baby Great Lakes. My Pitts is an S-1C, and it's the most fun I have ever had in an airplane. I found both for a great deal because they needed work. I just finished re-covering and painting the S-1.

I did not even know IAC existed when I purchased these two airplanes. I just have always loved the Pitts, and biplanes in general, since I was a little kid.

N14RN is Corben's 65-hp Baby Great Lakes. The plane is a scaled-down version of the 2T-1A Sport Trainer.

PHOTOGRAPHY BY **JOHN LUMKES**

ZK: IT'S A LUXURIOUS QUANDARY REQUIRING A HANGAR HOME FOR ALL YOUR AIRCRAFT — UNSURPRISINGLY REFERRED TO AS YOUR "TOY BOX." AND WHAT A GRAND TOY BOX IT IS.

CM: Here I am, a 26-year-old with an ultralight and 70-year-old Cessna, paying for hangar rent and a mortgage at a house in town with a 50-minute round trip to my rental hangar. A longtime friend and mentor invited me to keep my Cessna at his hangar home at Timberhouse. It was not long after that I was convinced I needed to buy a lot and start building my dreams. Two years later, I sold my house in town, moved home to my parents' (haha! for a few months during house planning/prep/build), and then started building. I had been designing and planning this for many years, so the design phase went quickly.

I focused more on the hangar than the house because I was so used to constantly being in my previous hangar with my airplanes. There is nothing like living with your airplanes, and you are never away from home to work on them. I started building in November 2018, and I moved into the home the following May.

Moving to Timberhouse has been one of the best decisions that I have made. The community has been an enormous blessing.

ZK: WHY DID YOU JOIN THE IAC, AND HOW HAS IT BENEFITED YOU?

CM: I joined because I have seen some of the best pilots in the world come out of the IAC. Those pilots are able to gain the most performance out of their aircraft, and they are also the safest pilots because they know how their aircraft operate.

The IAC has taught, and is teaching, me how to operate my aircraft more safely. Not just my aerobatic aircraft, but all my aircraft. I understand better how to recover and stay out of bad situations.

ZK: WHAT ARE YOUR AEROBATIC GOALS?

CM: Flying aerobatics is a skill set. Competent aerobatic pilots know how their aircraft handles in every axis. You also learn how to recover and handle any situation that you could get into. I used to race motorcycles in college, and my goal is to compete in the Reno Air Races. IAC will equip me with the skill set to be a safe and competent racer. I also love the thrill of aerobatics. IAC

CONTINUED FROM **PAGE 1**

Our new IAC legal counsel, Craig Fitzgerald, is helping out more than we have any right to expect. Among his many other contributions, I've asked Craig to review the IAC bylaws with me. I would like to see a provision that guarantees that all our IAC regions have board representation. This is an approach used by many organizations, including the Academy of Model Aeronautics. An update to the bylaws is not an easy thing to accomplish, but if we work together, we can do big things. Please reach out if you are interested in digging in.

I cannot talk about volunteers without showing gratitude for our government liaison, Bruce Ballew, who each month helps you with your contest waivers. I sometimes worry that the average IACer is not aware enough of the hard work Bruce does for everyone. I cannot overstate how vital this work is. Our sport is under constant assault, and Bruce is holding the line for all of us. Thank you, Bruce!

I look forward to your comments about this column or any aspect of the sport of aerobatics. IAC

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