



SPORT AEROBATICS

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

JULY/AUGUST 2023

► MAC 80
CELEBRATES
50 YEARS!
Page 16

► U.S. ADVANCED
GLIDER TEAM
Page 24

► THE PITTS
SPECIAL S-2A
Page 30

Bellanca Decathlon Project
ALL WORTH IT!



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



Para-Phernalia Inc.
Thank You!
Kelly R. Neil

At Para-Phernalia we are very proud that Softie parachutes were instrumental in saving four lives in 1999.

SOFTIE
EMERGENCY PARACHUTES
THE PROFESSIONALS CHOICE
from Para-Phernalia, Inc.

Toll Free: 800-877-9584
Intl: 360-435-7220
Fax: 360-435-7272
www.softieparachutes.com



CONTENTS



FEATURES

20 REBUILDING N719MW

It was all worth it!

By Lorrie Penner, IAC 431036

24 MEET THE U.S. ADVANCED GLIDER TEAM

Preparing to represent the United States!

Compiled by Shad Coulson, Glider Team Captain, IAC 440759

30 A CLASSICAL SYMPHONY

The Pitts Special S-2A

By Phillip Gragg, IAC 431292

DEPARTMENTS

2 PRESIDENT'S PAGE

By Jim Bourke, IAC 434151

4 EDITOR'S LOG

By Greg Principato, IAC 439996

6 LINES & ANGLES

By Duncan Koerbel, IAC 437649

10 LINES & ANGLES

2023 Officer Director Elections-Candidate Profiles

16 CHAPTER CHATTER

Midwest Aerobatic Club Chapter 80 Celebrates 50 Years!
By Lynn Bowes, IAC 14305

42 FLYING FIGURES

Building *G* Tolerance at a Nice, Even Pace
By Steve Johnson, IAC 20081

44 SAFETY SERIES

The Gap
By Brian Lloyd, IAC 438403

52 TECH TIPS

Not Again! Seemingly designed to fail
By Dave Watson, IAC 26557

58 LINES & ANGLES

2023 AV Forums Schedule

60 CONTEST HIGHLIGHTS

East and West Lead the Way

64 FLYMART

COVER

ON THE COVER:

Mel Williams, IAC 440849, flies his beautifully rebuilt 1979 Bellanca Decathlon.

ABOVE:

During the restoration of Mel Williams' Decathlon, he changed the tail number from N5549K to N719MW, which is the birthdate and initials of his son's name. Photo by Carlos Jimenez. Photo ship pilot Andrew Lafollette.

Publisher: Jim Bourke, president@iac.org

Executive Director: Stephen Kurtzahn, execdir@iac.org, 920-426-6574

Editor: Lorrie Penner, editor@iac.org

Contributing Authors: Cecilia Aragon, Jordan Ashley, Robert Armstrong, Jared Bachman, Doug Bartlett, Jim Bourke, Lynn Bowes, Alan Cassidy, Michael Church, Shad Coulson, Andrew Dever, Joe Gerner, Mike Gallaway, Mike Goulian, Phillip Gragg, Rob Holland, Steve Johnson, Duncan Koerbel, Christian Ledet, Brittanee Lincoln, Brian Lloyd, Mallory Lynch, Aaron McCartan, Jared Parker, Lorrie Penner, Greg Principato, Hector Ramirez, Peggy Riedinger, Nathan Ruedy, Jon Vanderhoof, Dave Watson.

Senior Copy Editor: Colleen Walsh

Copy Editors: Jennifer Knaack, Bryant Shiu

Proofreader: Tara Bann

Print Production Team Lead: Marie Rayome-Gill

IAC CORRESPONDENCE

International Aerobatic Club, P.O. Box 3086

Oshkosh, WI 54903-3086

Tel: 920-426-6574 • Fax: 920-426-6579

Email: execdir@iac.org

ADVERTISING

Advertising Manager: Sue Anderson, sanderson@eaa.org

MAILING

Change of address, lost or damaged magazines, back issues.

EAA-IAC Membership Services

Tel: 800-843-3612 • Fax: 920-426-6761

Email: membership@eaa.org

EAA® and SPORT AVIATION®, the EAA Logo® and Aeronautica™ are registered trademarks and service marks of the Experimental Aircraft Association, Inc. The use of these trademarks and service marks without the permission of the Experimental Aircraft Association, Inc. is strictly prohibited. Copyright © 2023 by the International Aerobatic Club, Inc. All rights reserved.

The International Aerobatic Club, Inc. is a division of EAA and of the NAA.

SPORT AEROBATICS (USPS 953-560), copyright © 2023 by the International Aerobatic Club, Inc., is published bimonthly and owned exclusively by the International Aerobatic Club, Inc., EAA Editorial Department, 3000 Poberezny Road, Oshkosh, WI, 54902. Periodicals postage is paid at Oshkosh, WI, 54901, and additional mailing offices. U.S. membership rate for International Aerobatic Club, Inc., is \$45 per 12-month period, of which \$18.00 is for the subscription to *Sport Aerobatics*.

POSTMASTER: Send address changes to EAA MEMBERSHIP SERVICES, P.O. Box 3086, Oshkosh, WI 54903-3086. CPC 40612608

IAC STATEMENT OF POLICY: The International Aerobatic Club, Inc. cannot assume responsibility for the accuracy of the material presented by the authors of the articles in the magazine. The pages of *Sport Aerobatics* are offered as a clearing house of information and a forum for the exchange of opinions and ideas. The individual reader must evaluate this material for himself and use it as he sees fit. Every effort is made to present materials of wide interest that will be of help to the majority. Likewise we cannot guarantee nor endorse any product offered through our advertising. We invite constructive criticism and welcome any report of inferior merchandise obtained through our advertising so that corrective measures can be taken.

EDITORIAL POLICY: Manuscripts submitted for publication become the property of the International Aerobatic Club, Inc. Photographs will be returned upon request of the author. High-resolution images are requested to assure the best quality reproduction.

Encouraging New Pilots, Cheering on the Team, and Checking Out Helmets

BY JIM BOURKE, IAC 434151



Success in Borrego

I must begin this column with my compliments to IAC Chapter 36 in San Diego, California, and particularly to Bryan Jones for its amazing growth. At the recent Borrego contest, there were 54 competitors!

Perhaps the most exciting aspect of Chapter 36's success is that it had 13 Primary and 16 Sportsman competitors!

Bryan tells me the most productive strategy the chapter has found is to reach out to flight schools. I suggest that all our chapters follow his advice and make regular contact with schools in their area. Encourage new pilots to fly

aerobatics, help them find training, and share your enthusiasm with them. Tell them that competing in aerobatics is a great way to build piloting skills that will last (it's true!).

With this strategy, the chapter went from drawing in two or three Primary competitors per contest to *over a dozen!* And with a few years behind it of having a wide field of Primary pilots, it now is reaping the rewards in Sportsman with 18 pilots in that category.

Focus on flight schools and new pilots.

I want to add, on a personal note, that Borrego would have had 55 pilots if I had an airplane ready to fly. Instead of competing I took time to do some coaching and to explore the Borrego Springs area. It is a scenic desert valley full of blooming flowers, some cool metal sculptures, wildlife, slot canyons, oases, mountain springs, and some good golfing. Also, a whole lot of sand, but that can be fun, too, if you have the right vehicle. If you are within 1,000 miles of Borrego Springs, you should try to attend sometime.

U.S. Advanced Team

After a successful first camp in Keystone Heights, Florida, with many team members enjoying the Snowbird Classic contest that followed under the careful stewardship of Hector Ramirez, the team met most recently in Union City Tennessee.

While there I got the opportunity to fly Marco Bouw's Sukhoi 31, the pinnacle of Russian aerobatic aircraft design. That was a real treat. It flies just great with no bad habits or weirdness, just a nice flying airplane with tons of excess thrust. Sometimes I think about our sport and how unfortunate it is that there is so much sameness. It's nice to see a radial engine at a contest, and even better if you are sitting behind one feeling the rumble in the seat pan as you tractor your way around the box. The picture I've provided came from Marco's camera. Thanks, Marco!

An Alternative to Helmets

Helmets are a fantastic idea, but many choose not to wear them. I can't use one in my Extra because at 6 feet 2 inches I barely fit in the airplane as it is (the inside of my canopy is covered in greasy headprints after a flight). In my new MX Aircraft MXS there is enough room, so I'll be putting that fancy carbon fiber shell to use again this year. I really believe in helmets even though I've spent most of my aerobatic career doing without one. I've seen many times where they have saved lives, and I know of some crashes where a pilot may have been saved if they were wearing one.



Still, there are a bunch of reasons why it is hard to get people to wear them. Besides a lack of noggin room in many cockpits, they are also expensive, and many people complain of neck pain after aerobatics with a helmet.

I've come across a less effective but inexpensive and light-weight solution that might help many of you. It's called a "bump hat." It doesn't offer much protection, but it seems better than nothing. You can find them online and probably at many worker safety stores. It's basically a ball cap but with a hard shell inside. Bonus: Many of these look like normal ball caps, just a bit thicker. If you've given up on helmets, maybe give one of these a try.

Tech Inspections

At the beginning of this contest season, the IAC adopted a new approach to technical inspections. This new way of doing things makes it clear that pilots are liable for their own aircraft. To ensure that there is no confusion about this, the IAC has removed the requirement that our volunteers must sign off on inspections. Instead, volunteers simply witness that they have observed the competition pilot inspecting their own aircraft.

Some contest directors and safety-minded people have wisely pointed out that it's still a very good idea to have knowledgeable people check over aircraft. And this wisdom is surely doubly true

if the pilot is a new competitor. These people are, of course, perfectly correct.

To be clear: There is no IAC policy that prevents anyone from helping new pilots learn about their aircraft, nor any policy that prevents contest officials from grounding an unsafe aircraft at a contest. It's just as essential as ever that everyone in the IAC follows and encourages the following of safe practices. But it is still important for all of us from a liability perspective that no one is taking responsibility away from the pilot, as they are the ones who ultimately make the decision to fly their aircraft.

Closing Thoughts

That's all for me this issue. I hope you enjoy our special double-sized summer edition of *Sport Aerobatics*. Please as always reach out to me with any comments, questions, or concerns about the IAC at president@iac.org. **IAC**

BUTLER
HIGH SPEED - CUSTOM FIT

SEE YOU AT
EAA AIRVENTURE
OSHKOSH 2023
Booth # 3085

888-235-3280
sales@butlerparachutes.com
www.butlerparachutes.com

GUEST EDITORIAL

Keep your commitment to expand the reach of aerobatics

BY GREG PRINCIPATO, IAC 439996



FOR THE PAST SIX and a half years it has been my honor to serve as president and CEO of the National Aeronautic Association (NAA). NAA is the oldest national aviation organization in the United States and is also a founding member of the Fédération Aéronautique Internationale (FAI). Our mission is to promote the art, sport, and science of aviation. We certify aviation records and have custody of many of aviation's highest awards. We are also designated by the FAI to oversee air sports in the United States, much of which we delegate to organizations such as the International Aerobic Club (IAC).

As leader of the NAA, it has been my honor to serve on the IAC board of directors since 2016. Though I cannot fly upside down, I have tremendous admiration for each and every one of you who fly aerobatics. What you do not only defies the imagination, but also has served to inspire generations of young people to become involved in

aviation in all its aspects. Over the years I have met airport directors, airline pilots, aircraft mechanics and manufacturers, and so many others in our industry who were first inspired by an air show or an aerobatic competition they witnessed as youngsters.

Aviation faces a tough challenge these days. We need more people entering our industry at all levels. All of us must work to inspire young people, of all backgrounds, to become interested in aviation. In so many aspects of aviation, for example, women are woefully underrepresented, in large part because of an unfriendly culture. One of the great things about aerobatics is that there are so many highly accomplished pilots and judges who are women. Names like Patty Wagstaff, Julie Clark, Debby Rihn-Harvey, and Vicky Benzing inspire just as much as names like Bob Hoover, Sean D. Tucker, and Rob Holland. We need to keep that momentum going and show young people from all walks of life that aviation will welcome them and that they can thrive throughout an aviation career.

One thing that has characterized the IAC board since I joined, through three different IAC presidents, is that there has always been gender diversity. Indeed, among the aviation-related boards of which I am aware, the IAC board is among the most diverse. This brings differences of viewpoints and experiences that add richness to the conversation and debates. I think this is something in which to take great pride.

There has also always been passionate discussion of important issues, discussions that have yielded good results for the membership. Please don't lose that. And please keep your commitment to the twin goals of expanding the reach of aerobatics through all levels, as well as fielding the best possible teams on the global level at FAI competitions. Both are necessary and important.

For me, the time has come to yield the CEO position. I will be retiring on September 15. The NAA board has hired Amy Spowart, former president and CEO of the National Aviation Hall of Fame, as the new NAA president and CEO. Amy will begin upon my retirement. She shares the same passion for building and inspiring a new and even better future for aviation in all aspects. At the National Aviation Hall of Fame, she worked closely with aerobatic legends such as Bob Hoover, Patty Wagstaff, and Sean D. Tucker. She will be an amazing leader for NAA and will add so much to IAC board discussions in the years ahead.

Once again, thank you all for allowing this nonpilot to share in your world. I know our flight paths will cross again in the future, and I will look forward to that. **IAC**

► 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.

Unsurpassed Quality at a Price you can Afford

MACHINE SHOP CUSTOMERS QUALIFY FOR NEW PARTS DISCOUNTS

We strive everyday for the highest quality of service possible. All new high precision equipment and people with years and years of experience set the stage, then numerous quality inspections and highly refined processes, including an all new computerized Nitriding process insure the highest quality re-machined parts! Insist your engine overhaul provider use the highest quality services in the industry.



We Recommend
CamGuard



1-800-826-9252

Check Progress of Parts 24/7 www.AircraftSpecialties.aero

2860 N. Sheridan Road, Tulsa, OK 74115 Phone: 918-836-6872 Fax: 918-836-4419

**AIRCRAFT
SPECIALTIES
SERVICES**

FAA DD2R764K & EASA.145.6513 Certified Repair Station



You Never Know Where Life Takes You

News from Extra Aircraft

BY DUNCAN KOERBEL, IAC 437649

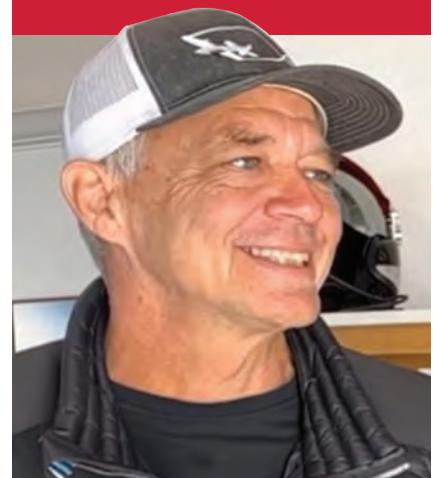
I AM NOW IN DeLand, Florida, and happy to be at what will be my last job in my 40-something-year aerospace career. I may have just saved the best for last. Located at DeLand airport (KDED) in Florida, Extra Aircraft USA LP opened the hangar doors for business in November 2022. We are the distributor for all things Extra Aerobatic Planes in North America.

One of the funniest parts of the job is to see the looks on the truck drivers' faces when they finish removing the customs

dongle with their bolt cutters and open the 40-foot container door. There are usually two shiny new Extra Aircraft assembled and flown at the factory a month earlier in Hunxe, Germany, inside waiting to be delivered to their new owners. These drivers deliver a lot of cargo, but according to them, this is the coolest kit they haul. Who can argue with that conclusion?

The Extra factory has been producing the finest single- and two-seat aerobatic aircraft in the world for over four decades. A large percentage of these aircraft spend their life in the United States.

Mr. Walter Extra has had his hands and fingerprints on every one of these designs. The latest is the next-generation



carbon fiber Extra NG. There is more to come, so stay tuned. The next generation of the Extra family is also with us and fully onboard. Walter's two sons – Eric and Marcus – are entrenched in the business in Germany. With an eye toward the next several decades, Extra Aerobatic Planes decided they would like to have a company-owned U.S. distributorship.

They say the harder you work, the luckier you get. Or maybe you just know Dagmar Kress! Dagmar is a longtime Extra customer and a friend of the Extra family. She gave me my first real aerobatic ride, which for sure has cost me over \$400,000 since that flight eight years ago; she took Dave Watson, IAC power and glider competitor, for a similar ride 20-plus years ago and has cost him three times my addiction. Like Dave, I can't thank her enough! I have had my Extra 300L for eight years and have a thousand hours in the back seat.

Dagmar told me that the above plan for the Extra factory direct dealer was being hatched, and at the same time I was coming to an end with MD Helicopter company, which then was in Chapter 11 bankruptcy. All you need is a moving truck and a patient

The world of aerobatics is a unique group of people. I think we all agree that flying aerobatics at any level makes us a better pilot. Who doesn't want to be a better pilot?

wife. Thank you to my wife, Susanne. Now I have a new 5,000-square-foot office, and my airplane is inside as well.

The Extra facility in KDED is right next door to MT-Propeller USA Center of Excellence. Our mission is to help our current and future Extra Aerobatic Plane customers with all their Extra related needs. Our U.S. sales director is Chad Graves, and he will help anyone purchase



a new or used Extra. With the specs set for a new aircraft, the factory in Germany will make sure everything gets built as desired. The aircraft are test flown by Marcus or Walter and then disassembled for shipment to Florida, where we surprise the truck drivers. We reassemble the aircraft, get the FAA ticket hung, and then test fly them before delivery.

Over 800 Extra aircraft have been

delivered in the last 40 years, and a large percentage call somewhere in North America home. We are here to serve all of these customers as well. We will do any maintenance you need but focus on annuals

and the 1,000-hour inspections. We have a growing stock of spare parts in DeLand. We are tied directly into the company's material requirements planning system in Germany, so if we don't have the part, we will help find it and get it. We also provide all the necessary customs support along the way. This includes helping

Over 800 Extra aircraft have been delivered in the last 40 years, and a large percentage call somewhere in North America home.

pilots get recently purchased used Extras located outside of the U.S. imported and reassembled.

In addition to this fun in Florida, 2023 will be a special year for competitive aerobatics in the United States because we are also conducting the 15th FAI World Advanced Aerobic Championships in Las Vegas, Nevada, from October 24 through November 4. See WAAC2023.com.

We are fortunate enough to have the support of several leading aerobatic original equipment manufacturers such as the Extra family, the team at MX Aircraft, and the people who

power these aircraft at Lycoming and MT-Propeller. We have several other donors, but special recognition goes out to Nick and Kerry Martin at BVLA custom jewelry and former NFL standout Jimmy Graham, the founder of the Jimmy Graham Foundation. Without their generous support, there would be no WAAC.

We expect 50 of the world's best aerobatic pilots and their families, friends, and coaches in Las Vegas.

We expect teams and pilots from Canada, Brazil, Japan, South Africa, France, Guatemala, the United Kingdom, Ireland, and of course the United States. All proceeds will go to the Figure 1 Foundation co-founded by AJ Wilder and Chris Olmstead. Figure 1 grants the appropriate funding, guidance, and access to the highest-quality flight training across the United States to people who otherwise may not have the means. To date, \$280,000 has been raised and 30 scholarships have been awarded.



The world of aerobatics is a unique group of people. I think we all agree that flying aerobatics at any level makes us a better pilot. Who doesn't want to be a better pilot? So, if you are just starting, or are already knee deep into this sport, I encourage you to check out what we're doing at Extra Aircraft and in Las Vegas later this year. Forget the hard zeroes and expense, just go have some fun. You won't regret it ... just ask anyone who has flown with Dagmar. **IAC**

Duncan Koebel has been an IAC member since 2015. He is an Advanced category competitor averaging four to five contests each year. Since 2017 Duncan has served as the contest director for either or both the Ben Lowell and High Planes Hotpoxia contests in Colorado for hosting Chapter 12. In 2019 Duncan served as CD for the IAC Open West Championships to pave the way and test out the airport and facilities in Jean, Nevada, for the upcoming WAAC.



LIFT AVIATION
LIFTAVIATIONUSA.COM

A white flight helmet with "LIFT" branding is shown in the lower-left corner. In the upper-right corner, a red and white Extra 330SC aerobatic aircraft is performing a roll maneuver against a blue sky with white clouds. Below the aircraft, the text "AV-1 KOR" is displayed in large, bold letters, followed by "STRONGER | LIGHTER | VENTED". To the right of the text is a QR code.

2023 Officer Director Elections

Candidate profiles

VOTING FOR THE 2023 officer/director candidates began on June 28 and will close at 6 p.m. CDT on July 25. All votes must be cast via electronic ballot. The ballots will be tabulated by the IAC ballot certification committee chair, and the

results will be announced at the annual meeting of members, which will take place at 8:30 a.m. on July 28 in the Vicki Cruse Educational Pavilion at the IAC Aerobatic Center during EAA AirVenture Oshkosh.

Following are abbreviated profiles of the candidates. For full profiles, please visit IAC.org/2023-board-election.

DOUG BARTLETT FOR VICE PRESIDENT

I have been a member of the IAC for 20 years and am currently a director and president emeritus. I started with IAC Chapter 1 in Chicago. It was there that I ran contests in Aurora and Peru, Illinois, and served the local chapter as treasurer. I later served as chapter president.

When asked to become active at the national level, I ran for treasurer and served in that position for three years. At the untimely passing of then-President Vicki Cruse, I took over as president, serving the balance of her term and later being elected to serve two additional years. After I'd stepped away from the leadership role for several years, in 2018 the board of directors asked me to be vice president in support of President Robert Armstrong. I was reelected to that position and served two additional years. I served as the contest director for the U.S. National Aerobatic Championships in 2007 and 2021. I also supported the 2022 championships this past year.

As a competition pilot, I worked my way up the ranks from Sportsman to Unlimited, but those days have passed, and I last competed in 2018. I am passionate about grassroots aerobatics and understand they are the foundation of our club. Further, I believe safety is job one at the IAC. The IAC Policy and Procedure Manual, rules, and historic protocols have made the club a cohesive and

safe organization over its first 50 years. I understand that the best way to incentivize future world-class competition pilots is to encourage fun and safe activities along with competition at the local level. The stronger we make the base of the pyramid, the stronger the top will be. Both levels are important to our success.

High-end competition pilots and our national teams are well represented on the board by the abundance of Unlimited and airshow pilots in director and leadership positions. The aerobatic enthusiasts and grassroots members (over 90 percent of our members) are still not sufficiently represented on our board, resulting in a widening gap between the top of the IAC pyramid and the base of the club. Last year's elections began to address that issue, as more grassroots activists were added to the board. I am asking you to support not just me, but all the grassroots candidates in order to complete this rebalancing. Normally only about 200 members vote for our representatives. Let's get the 3,500-plus grassroots members involved and voting this year! Thank you for your support.



ROB HOLLAND FOR VICE PRESIDENT

Members of the International Aerobatic Club,

I am thrilled to announce my candidacy for reelection as vice president of our esteemed organization. I am deeply committed to supporting and growing all aspects of our sport, from recreational and upset training, to competition aerobatics from the grassroots level all the way up to our national teams, and everything in between. Having had the privilege to serve as your vice president for the past term, I am eager to continue contributing to the advancement of our shared passion for aerobatics.

One of the core principles I firmly believe in is that it takes all kinds of individuals to create a strong and engaging club. From beginner pilots to seasoned experts, and from dedicated volunteers to everyone in between, each member brings unique value and ideas to our organization. By embracing and nurturing this diverse range of talents and perspectives, we can ensure that our club continues to flourish and evolve.

Throughout my time in the aerobatic community, I have been actively involved in numerous events and initiatives, constantly striving to promote the sport on both local and global levels. My extensive background includes competing in national and international aerobatic competitions, performing in air shows, and providing aerobatic training, upset training, and coaching to pilots. As an

active member of the International Aerobatic Club, I have dedicated myself to not only supporting grassroots and our teams, but also fostering an inclusive environment for all aerobatics enthusiasts.

Supporting all aspects of aerobatics, I am committed to elevating the visibility of our sport through innovative marketing and social media efforts, ensuring that the broader public appreciates the talent and dedication of our community.

As your vice president, I will continue to be an accessible and open-minded leader who values the opinions and ideas of every member. I firmly believe that our collective experiences and perspectives are vital in shaping the future of our club and the sport of aerobatics.

Thank you for considering my candidacy for reelection as vice president. I look forward to the opportunity to continue serving you and our club, ensuring that the International Aerobatic Club remains a vibrant, supportive, and inclusive community for all who share our love for the thrill of aerobatics.



JORDAN ASHLEY FOR TREASURER

Hello! My name is Jordan Ashley, and I have been privileged to serve as IAC's treasurer for the past three years, serving my first year leading the IAC financially through the COVID-19 pandemic. In the past two years, I have introduced many *IAC Policy and Procedure Manual* revisions to bring greater depth and transparency to P&P 207 and the financial position of the IAC. I am now running for my second full term as treasurer in the upcoming election.

I have been a dedicated volunteer for the IAC since 2009 (EAA since 2008), when I began volunteering with Jim Taylor, parking airplanes during AirVenture. In 2011, when Jim retired, I moved into the role of aircraft coordination chairman for AirVenture. Beginning in 2022, I was unanimously elected as AirVenture convention chair, leading the IAC's presence at AirVenture. I am pleased to report that 2022 was one of the most successful years for the IAC in recent history. In the fall of 2022, I was again unanimously elected to serve as AirVenture convention chair in 2023. I am looking forward to making AirVenture 2023 even better. Additionally, I have served as chairman of the Collegiate Program since 2015, which has grown by over 33 percent in that time.

The IAC has been an important influence on my life, personally and professionally. I was an active

competitor in the Midwest region with Chapter 124 during my time as a student at Purdue University and am currently a member of Chapter 12, having recently moved to Colorado to be the director of Wings Over the Rockies Air and Space Museum's Exploration of Flight campus. While at Purdue, I became a CFI and spent much of my time providing aerobatic instruction to students. I am looking forward to getting back into teaching aerobatics in Colorado and rejoining the contest season with Chapter 12 very soon.

This past year, 2022, was not easy, financially speaking, for the IAC. The organization has faced unprecedented levels of inflation and material costs that have been reported in IAC financial reports as well as the national news over the last year. Despite this, I remain committed to the financial health and stability of the organization and continuing to strengthen our relationship with EAA to ensure a strong overall financial future.

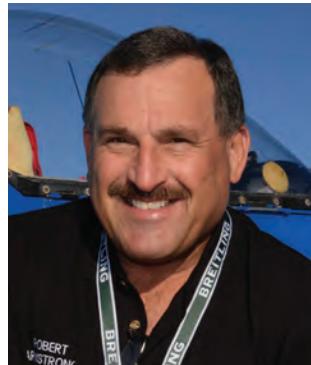
Thank you for your consideration and your vote of support in this year's election.



ROBERT ARMSTRONG FOR DIRECTOR

I find the process of writing a bio to introduce myself for a director position a bit humbling. As a past president, I have speaking privileges at all IAC meetings. However, some of the actions taken by the board since my departure have been rather disturbing.

Speaking without a vote has been frustrating. I want the IAC to prosper, so I feel like I need to have a vote again. As a longtime member, I feel compelled to bring institutional knowledge back to the IAC board to help prevent them from repeating past mistakes.



I have been active on the board as a member, vice president, and president. I am willing to return as a director to represent the IAC members with no personal goals. I have been on 10 world teams. I have a collection of CIVA flight medals that I am proud of. I have enjoyed the view from the awards podium. I have been a national champion in two categories. I have been inducted into the IAC Hall of Fame. I enjoyed the past and now want an IAC that responds to all its members, not an organization that's concerned with just a few.

You have the power of the vote. With the election of four board members and the vice president, you have an opportunity to return the board to a properly functioning, membership-guided organization.

I ask for one of your director votes. Please look at the other candidates as well. There are others who are willing to give their time to you and benefit the entire membership of the IAC. Not all actions result in sudden correction, but this election cycle holds great promise for the future.

MIKE GALLAWAY FOR DIRECTOR

Fellow IAC members, I am officially running for a seat on the board of directors. My motivation stems from a 25-year history with the IAC and a passion for this amazing sport. I vow to listen to the concerns of our members and to promote this club from the grassroots to the U.S. teams.

I joined the IAC in 1997 after purchasing my first plane, a Citabria 7ECA. Like everyone, I began by flying



the Primary category and learning from my fellow IAC members. I was told back then that the club offers the best education and training to those who want to pursue their dream of aerobatic flight – and, boy, was that true. Since I joined the club, I have moved up through the categories one step at a time, ultimately flying Unlimited.

I have been fortunate to participate in 22 U.S. National Championships and four World Championships (two Advanced, two Unlimited). I've judged three World Championships and am currently your CIVA U.S. delegate.

I respect every member and will do anything I can to help each and every one of you pursue your dreams. I would be honored to serve you as a member of the board of directors.

PHILLIP GRAGG FOR DIRECTOR

I have been a member of the IAC for 20 years, served on the government relations committee from 2008 to 2016, and was the central and West Coast regional co-representative of the committee during that time.

I am running because I do not believe that the current board proportionally or adequately represents the full spectrum of interests and values of an organization that must support team efforts as well as grassroots competitors (including flight schools and colleges), chapters, and local contests. While it is important that the IAC continue to support U.S. team efforts, I believe the foundational health of the organization lies in the strength of its membership base.

Member feedback and opportunities for engagement are important hallmarks of a healthy organization. My values are consistent with the goals of greater clarity and consistency in how we solicit, evaluate, and follow the organization's own rules. Leadership must be an act of service to the whole.

I am particularly concerned with the future of aerobatic competition when it comes to the large fleet of aerobatic airplanes that have long stood as standard-bearers of lower categories.



As I wrote in a letter to the board last year regarding proposed changes to the club rules:

"As a grassroots organization, larger participation and inclusiveness begs for high participation among as many aircraft types as possible, including well-established legacy aircraft."

"Let me be blunt: The club cannot hang its future on half-million-dollar airplanes. Increase in participation must be built as EAA was built on the passion and pursuit of dreams by people of more moderate means. There are literally hundreds of Pitts types, Great Lakes, Van's, Stardusters, Acrodusters, and Skybolts waiting to be rediscovered and flown."

I've been fortunate each of the last two years to compete in three different IAC regions and at the U.S. Nationals. I have enjoyed flying at some of the largest and smallest regional contests in the country, and I have set a goal of flying a contest in each of the IAC regions.

I flew my first contest in a rented Decathlon, previously owned an S-1S, and currently own an S-2A. I have flown a variety of ACA aircraft, Extras, Great Lakes, Pitts variants, One Design aircraft, and aerobatic gliders. I competed from 2009 to 2012 and started up again in 2021. I am privileged to be able to fly with so many talented pilots who have found their passion in the IAC.

I am an associate dean and professor of law at a San Diego law school. From 2005 to 2006, I served on a committee to oversee an overhaul of the bylaws and SOPs at the Tucson Soaring Club. These revisions created clearer governance structure and enhanced safety and membership engagement.

I have contributed a number of articles to *Sport Aerobatics*. Check out the three-part series I wrote about the Zlin 526 Trener: "Czech Out: Flying the Grand Dame of Modern Aerobatic Competition," March-May 2020.

Thank you for your support!

BRITTANEE LINCOLN FOR DIRECTOR

My name is Brittanie Lincoln. I have served on the IAC board of directors for the past two years and look forward to the opportunity to serve the membership going forward.

I have been a member of the IAC and flying aerobatics for five years. I began competing in 2019 in Primary in a Super Decathlon and am now flying an Extra in Advanced. I have competed in more than 20 regional contests and the past two U.S. National contests. I volunteer as a judge and chief judge assistant, both at regional and the U.S. National contests. I served as the IAC Chapter 38 Northern California president for four years. I value the importance of our IAC pilots



further developing their skills and being recognized, and volunteered as the IAC Achievement Awards co-chair for two years. I am still an active competitor and a member of the 2023 U.S. Advanced Aerobic Team.

I am passionate about this sport and the IAC. Among many things, the IAC offers a format for camaraderie, education, and opportunity to improve one's pilot skills with a focus on safety. I believe we can continue to further boost membership and increase participation through mentorship, sharing our sport and our passion for it, and supporting new and upcoming competitors.

I am asking for your vote, as I want to continue to serve and represent the membership. Through attending regional contests across the country as well as the U.S. Nationals, I feel that I am actively connected to the sport and our members. I communicate well and openly with our members and listen to their needs. I solicit input and feedback from chapters and readily share their viewpoints with the board. Thank you for your vote and your support.

PEGGY RIEDINGER FOR DIRECTOR

It has been an honor and a privilege to serve the membership of the IAC for the past six years, and I look forward to continuing as a director.

My path to the board of directors was not the typical one. I joined the IAC back in the early 2000s as a nonflying volunteer, and I support and encourage other nonflying volunteers. Volunteers make our organization run. Our many activities, especially contests, cannot occur without them.

I have served as judge or chief judge at many contests across the country, judging both power and gliders, as well as at the U.S. Nationals. I was awarded the Robert L. Heuer Award for Judging Excellence in 2015, the Harold E. Neumann Award for Outstanding Contribution as a Chief Judge in 2018, and the Paul Tissandier Diploma, an international award for serving the cause of sporting aviation, in 2022.

On the local level, I recently served as Washington IAC Chapter 67's president for eight years and am currently the



secretary. Our chapter is very active, hosting two contests and an aerobatic camp each year in Ephrata, Washington, and co-hosting the Can-Am Championship in Cut Bank, Montana. My husband and I are also members of Chapter 77 in Oregon and Chapter 62 in Southern Arizona.

Internationally, I've been the U.S. assistant judge at several World Aerobatic Championships, judged at the British Senior Nationals (Advanced and Unlimited, not old pilots), and in 2022 served as the U.S. judge at the World Glider Aerobatic Championships in Issoudun, France. We were surprised to learn there hadn't been a U.S. judge at a World Glider Aerobatic Championships in almost 20 years, and I'm really happy to help the United States get back in the game. I'm Judge No. 8 (out of seven, pending confirmation) for the World Advanced Aerobatic Championships in Jean, Nevada, this fall. Even if I'm ultimately not chosen to be a judge, I'll be there volunteering wherever they need me.

Thanks for reading this far. ...

If reelected to the board of directors, I will continue to stand for all those spouses and significant others who support their pilots by volunteering. We all know that contests don't happen without volunteers. Whether they are on the judging line or running into town to pick up bottles of water and lunches, either sitting out in the hot sun all day or cooped up in an office doing paperwork, all volunteers are important and should know they are valued.

NATHAN RUEDY FOR DIRECTOR

My name is Nathan Ruedy, and I'm running for a director position with the IAC.

I learned to fly at the University of North Dakota. In my third year there I decided to branch out from the commercial aviation syllabus and pursue a tailwheel endorsement because all the coolest planes are tailwheels. As luck would have it, the normal trainer, a Piper Cub, had ground-looped just as the ground school course ended. This allowed me to train in a Super Decathlon. Needless to say, we didn't just practice landings on grass strips. I was hooked.

After college I went to work for a flight school that is now called Lake Elmo Aero. It's located just outside the Twin Cities in Minnesota. I instructed for what I assumed would be a brief period, but it turned into 17 years. During that time, we got certified as a Part 141 flight school and grew into a thriving business with 12 airplanes and 10 instructors. While running the flight school, I started flying for the first of what is now four different airlines, for which



I have served in a multitude of roles, from first officer and pilot recruiter to sim instructor and check airman.

The aerobatic bug never left me, so finally in 2015 I bought the best plane that has ever been produced, my 1992 American Champion Decathlon. It still teaches me every time I fly it. I have been active in the IAC for eight years and have competed in both Sportsman and Intermediate. I am also a current regional judge. In 2021 I had the privilege of making it to five separate contests spanning from Sawyer, Michigan, to Coalinga, California, and along the way I met some of the best people from every walk of life involved in this amazing sport. Most recently, I placed third in Intermediate at the U.S. National Championships.

I promote the IAC with everything I do, whether it's teaching my instructors spins and UPRT techniques or hosting judges' school for our local chapter, which includes the UND aerobatic team. I am now the contest director for the Spencer, Iowa, contest that gave me my start in aerobatics.

As an IAC director, I will engage with the membership I represent through emails, phone calls, and visits. I will be transparent, and I will listen. I recognize that my ideas are not always right, but by surrounding myself with the knowledge and experience of other IAC members and the board of directors, I will help guide the IAC in the direction you want it to go.

Thank you so much for your consideration, and I look forward to losing to you in Advanced someday soon.



An Aura Aero Fleet Designed with Passion and
Know-How for a more Sustainable Environment



CONTACT

Aeropost de Toulouse-Francazal,
135 avenue du Comminges, Toulouse, F-31270,
Cugnaux, France

Telephone +33 5 82 99 12 68

Media Contact +33 (0) 6 22 08 86 23
Caroline Brown email: caroline.brown.rp@gmail.com

Email contact@aura-aero.com

Web www.aura-aero.com

FOLLOW US ON:



@auraaero



@aero_aura



AURA AERO



@aura_aero



AURA AERO

Midwest Aerobatic Club Chapter 80 Celebrates 50 Years!

BY LYNN BOWES, IAC 14305

Five-Plus Decades

In the Midwest Aerobatic Club IAC Chapter 80, the exact year of beginning starts with the articles of incorporation. These tell us officially "when," but because the original group of pilots was active for some time before the "when," there was a lot more of the "what" of aerobatics going on before the "when" made it real. Building the back story of a chapter most often is a simple word-of-mouth narrative, and the stories can become distorted with time passing. But that's not quite the case for MAC80. We were lucky. We had a box full of photos that made telling the story real.

MAC80, as we call it, began as a sort of "Why not?" between the first members, Earl Sanford and Jim Danbom. In 1970, IAC had formed, but it wasn't until

October 1973 that a local informal organizational meeting took place at the Council Bluffs airport in Council Bluffs,

Iowa. Pilots already were active, but the idea of forming as a chapter under the IAC umbrella was interesting. The reaction among local sport flyers was favorable. Interest spread quickly among the Lincoln, Nebraska, and eastern Iowa airstrips. A week later, MAC80 was born.

In November 1973, there were four officers/directors and 20 members signed up. By the summer of 1974, there were 60 members with 11 airplanes. However, they measured progress in more than mere membership growth. The MAC80 success story was in an active membership. In short order,

there were judging schools, skydiving, fly-in and fly-out breakfasts, play days for flying and judging, and the first four-category contest along with a Fourth of July fly-in at the Council Bluffs airport. Remember, the Basic category was not yet created, so all contests were four-category.

The first contest was set for the summer of 1974, and what a gathering of pilots! Remember, Basic, or Primary as it became known later, did not exist, meaning that the starter category was Sportsman. So, Sportsman was a full category with 19 pilots, including Harold Neumann and Giles Henderson. Intermediate held seven competitors, including Betty Everest Stewart, who would later become a member of the U.S.

Aerobatic Team and the first woman to win a world champion title at two consecutive events. In 1980, she won three individual gold medals and the title of Women's World Aerobatic Champion. The MAC80 Advanced pilots numbered two, with one being Dr. Chuck Carothers, who was the 1974 U.S. Advanced Champion. This was a total competitor count of 28 — pretty good for a first outing!

A tradition with the Midwest Aerobatic Club has been to thank the airport operators and towns where contests were held with a Fourth of July air show, and 1974 began that custom at Council Bluffs. Among those first 16 (!) performers were Harold Neumann in his Monocoupe, Chuck Carothers, Jim Lacey and Earl Sanford, and Jim Danbom, all in Pitts Specials.

Additionally, performers from other chapters were Verne Jobst in his Pitts, Mike Heuer in his Acro Sport, and Tom Adams flying a Pitts, all for a little fun and entertainment for spectators.

Let's talk for a second about how "good" the good ol' days were when it came to getting information to the masses. Truth: It was not an easy job. Early newsletter editors were the heroes of any chapter. I was the newsletter editor for Kansas City Chapter 15 in the '80s, and I know so well how hard it was to get monthly news from chapter members, get that newsletter typed on a manual typewriter, laid out if you wanted to include grainy black-and-white photos, copied at an office supply store, folded, stapled, addressed by hand, stamped,



Dr. Carothers and Harold Neumann



Giles Henderson

and in the mail every single month. Harold Neumann once thanked me personally for the work and said something I've never forgotten, and it's the absolute truth. "The newsletter is the lifeblood of the organization." Truer words were never spoken. As I go back through the old MAC80 newsletters, I can't say that any louder. Do not dismiss your chapter information person. Without them, you are dead in the water.

Not only is the newsletter editor part of what makes a chapter tick, every chapter needs a "spark plug" to get pilots wanting to learn more. The first spark plug in MAC80 was Earl Sanford. If there were people wanting to learn to fly, there was Earl. Learn to improve skills and fly upside down, there was Earl. In fact, the story is that every afternoon, Earl was at the Council Bluffs airport giving instruction until dark. His black Pitts S-1 was ubiquitous and well used, but in 1981, Earl lost his life at an air show in Dodge City, Kansas. His wife, Lee, continued to stay active in MAC80 and was a valuable organizer when it came to keeping contests running and running well.

The Midwest Aerobatic Championships annual contest would move from time to time, depending on where the membership was concentrated, until we finally hit on Seward, Nebraska, where it stuck. It began life at the Council Bluffs airport, and from there it moved to Harlan, Iowa, then Clarinda, Iowa, a time or two in Wahoo, Nebraska, and finally Seward.

Sportsman-only contests were a season opener for MAC80 for many years and were the most relaxed and fun competitions. Think "play day" with scores that count. For those of you who are unfamiliar and thinking you are not welcome if you fly Intermediate through Unlimited, not true. Two groups of competitors were formed at registration, with those pilots in the Sportsman category grouped with other true Sportsman pilots, and pilots who had flown Intermediate through Unlimited grouped with others in that skill level. All pilots flew the same Sportsman sequence. One of our regulars was a pilot flying an aerobatic Bonanza as well as Harold Neumann in his Monocoupe. Starters were not required equipment at this time, and there were entrants not equipped with starters, so it was not unusual to hear engines sputter during the simple Sportsman sequences, and hand-proping was the norm.

Over the years, MAC80 has annual contests with excellent attendance. In 1980, a total of 36 pilots flew in four categories (still no Basic category), and 30 to 40 was the norm. We have been fortunate to be in the center of the United States, with neighboring chapters in Kansas, Colorado, Oklahoma, Texas, Iowa,



Minnesota, and Missouri, where participation could be counted on every year. We also have been fortunate to draw competitors like John

Morrissey, Debby Rihn-Harvey, Todd and Jo Peterson, Betty Everest Stewart, Harold Neumann, TJ Brown, Linda Meyers-Morrissey, and so many others who went on to do great things in aerobatics.



Ed Bowes hand-props Linda Meyers' Pitts



Earl Sanford



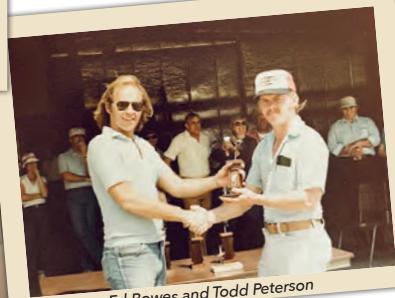
Many gatherings held at the Harry Barr hangar



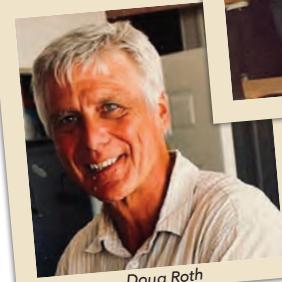
Betty Stewart



John Sorenson(left) Debby Rihn (center) and Eion Harvey (right)



Ed Bowes and Todd Peterson



Doug Roth



Ed and Lynn Bowes



Harry Barr



2022 MAC80 contest group. PHOTOGRAPH BY LORRIE PENNER

Scrapbook

Here's where we got lucky. Jeanette MacArthur was one of those early "spark plugs" in MAC80 who participated in contests by taking hundreds of photos. Jeanette shared those photos from time to time and certainly gave many away, but in the early 2000s, Jeanette gave the box to MAC80. To me, it only made sense to create a giant chronological scrapbook that everyone could enjoy, so I did. Ed Bowes made a checker plate and aircraft wheel stand for it, and we placed it in Harry Barr's hangar at the Seward Airport. I can't tell you the number of longtime IAC members who have pored over every page, pointing out people and airplanes and remembering those early years.

MAC80 50th Anniversary Harry Barr Memorial Championships, June 2022

Which brings us to June 2022 and our MAC80 50th Anniversary Harry Barr Memorial Championships. Possibly a year early, but who's counting? We had a great time celebrating with our old friends and newish familiar folks. And wouldn't you know it? We hosted 22 pilots, which is nearly the same number of pilots as our first contest!

Here's why this contest was a good reason to celebrate:

1. Thanks to some generous donations and sponsorships, we were able to make this event totally free for everyone. Zero entry fee and nothing out of pocket for volunteers. Free.
2. We were able to celebrate the life of Harry Barr with our friends. Harry passed in 2020, and with COVID-19 inserting itself and bad weather in 2021, this was a good time to honor and remember Harry as Harry always wanted — a free contest for everyone.
3. People still talked about Harry setting out box markers with his helicopter!



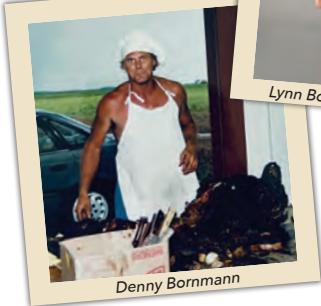
Butch Atherton and John Morrissey



Howard Nitzel



Lynn Bowes with a Mann Lamp

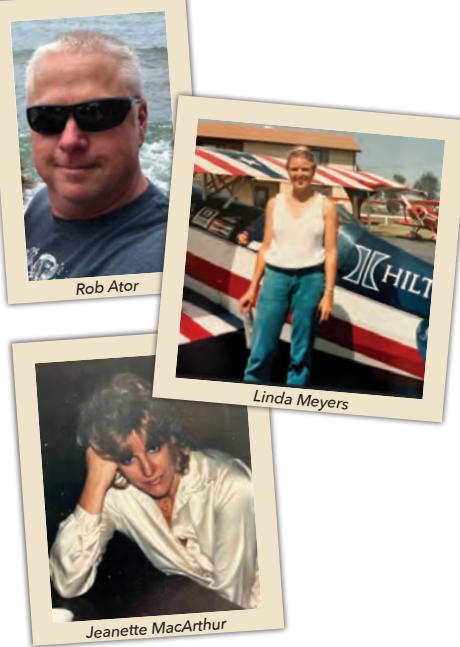


Denny Bornmann



Dale Byrkit

FLY GREEN - FLY MT



4. John and Linda Morrissey served as chief judges, and with Debby Rihn-Harvey and Rob Ator returning, and Lorrie Penner and her mom visiting, we felt like we were hosting celebrities for the weekend.
5. Another safe contest in the books: <https://iaccdb.iac.org/contests/788>
6. We cleaned the hangar.

2023

2023 and I add another section to the TOP SECRET scrapbook. I'm not a scrapbook person, with all of the stamps and strings and whistles and bells, so I've managed to keep it true to what it is: a retrospective collection of memories, thoughtfully organized. I add pages every year, so when the 60th anniversary rolls around, there still will be stories to tell. **IAC**

Lynn Bowes has been an IAC member since 1985. She is the 2019 recipient of the Frank Price Cup, which is awarded to an IAC member and volunteer who contributes the most to the sport of aerobatics. In her 35 years of volunteerism, Lynn has served the IAC in many capacities, including IAC director and secretary, executive and finance committees member, IAC Policy and Procedure Manual working group, and the planning team for EAA AirVenture Oshkosh and the U.S. National Aerobatic Championships. She was the team lead on development for two new awards, the Director Emeritus Awards and American Champion Aircraft flight medals.



Available for almost every aerobatic aircraft, for custom built airplanes like Lancair, Velocity, Glasair, RV and for more than 220 certified aircraft types.

- 62 service centers worldwide
- 30 certified propeller models
- More than 220 STCs worldwide
- More than 87,000 blades in service
- 180 million flying hours
- More than 26,000 MT-Propeller systems flying
- OEM supplier for more than 90% of the European Aircraft Industry as well as 30% of the US Aircraft Industry.

MT-Propeller USA, Inc., Florida

Phone: (386) 736-7762
Fax: (386) 736-7696
info@mt-propellerusa.com

MT-Propeller Headquarters, Germany
Phone: +49-9429-94090
Fax: +49-9429-8432
sales@mt-propeller.com



mt-propeller

www.mt-propeller.com

Rebuilding N719MW

It was all worth it!

BY LORRIE PENNER, IAC 431036



FEBRUARY 18, 2023 – “Wow! I can’t believe that I’m typing this, but today was my first flight in N719MW!” Mel Williams said in his Instagram post. This day, the day he flew his refurbished Bellanca Decathlon — white with neon green and black detailing — was over a year in the making. “Thank you to everyone that contributed to this project. All the work and time was worth it!”

Although it only took a year and a half to complete the total overhaul, the inspiration began five years earlier when Mel began to search for some aerobatic instruction. After a couple of recommendations, he finally found Citabria owner Kevin Harper and CFI Mike Fitzpatrick who were willing to give him some training. During Mel’s first aerobatic flight in the Citabria, he found that he loved flying upside down, doing loops and rolls.

After some more aerobatic training with Mike, Mel went through a tailwheel endorsement and spin training with IAC member Tom Lake, IAC 432400, in Tom’s Decathlon. Mel was so inspired by aerobatic flight that he set some goals for himself: 1) to purchase a Decathlon, 2) get in plenty of practice, and 3) get into competition.

In September 2020, Mel realized his first goal — to purchase a 1979 Bellanca Decathlon, tail number N5549K, which had a white paint job with red detailing. He knew the airplane would be a project when he purchased it. The previous owner let him know that the time would come when Mel would have to re-cover and repaint it at a minimum.

His second and third goals were achieved as he continued to practice regularly and entered competition at the 2021 Snowbird Classic in March where he finished in second place in the Primary

category. That May he competed at the 2021 Mark Fullerton Memorial Bear Creek Bash where he finished 4.5% points behind the third-place winner. Both experiences continued to fan the fire to pursue aerobatics.

His contest experience and successes also inspired him to move forward with a new goal — to become an air show pilot. With that goal in place, he realized the time had come to rebuild the

Decathlon. “I didn’t want to have this old-looking plane,” Mel said. “I wanted to have a real good-looking machine.”

In October 2021, Mel took the Decathlon offline. He had earned his CFI and was training in it at the time, but the day had come to tear the Decathlon apart so he could realize his goal of becoming an air show pilot. “At the beginning of the project, there were a lot of times when things weren’t moving as fast as I thought they should be,” he said. “I wondered, ‘What have I done? And would I be able to get it finished?’”

“After I started my project on the Decathlon, I did talk to Leigh Hubner about his experience with his Extra rebuild,” Mel

said. Leigh’s project was a complete restoration of Patty Wagstaff’s Extra 300S, tail number N328PW, the airplane that she had flown at the 1993 U.S. National Aerobatic Championships to win her third U.S. National Aerobatic Unlimited Champion title. The airplane had been sold in 2001, and the new owner had disassembled the aircraft for paint and upgrades. Leigh had accidentally discovered the project still in pieces through a listing on Barnstormers.com. Starting in 2020, he spent over 12 months removing 20 years of dust off the relic, disassembling, sanding, and engaging knowledgeable neighbors and professionals to advise on everything from painting to inspecting the engine, pulling cylinders, and replacing hoses and brakes.

“I thought it was just his (Leigh’s) unique experience,” Mel said. “I thought that it would somehow be easier or faster for me. I didn’t know exactly how long the rebuild on the Decathlon would take, and my expectations didn’t match the reality.” Because of COVID-related supply chain issues, the overhaul of the engine was stalled in November 2021 and finally came out of the shop in April 2022. Mel is thankful for the work done on the overhaul by Twin Aircraft Engines in Georgia and its persistence in getting parts needed to complete the work on his 150-hp Aerio 320 E2B Lycoming engine.



Justin Tidwell, previous owner, and Mel Williams, day of purchase 2020.



Justin Tidwell and Mel Williams with the 2023 rebuilt Decathlon.

Much of the disassembly of the airplane was done by Mel. “I removed the wings and had some help taking the fabric off them,” he said. “All the rest, I removed the internal parts out of the cab. Stripped down the frame. If someone asked me about this kind of project, I’d tell them to be patient. It will take longer than you think.”

There is a long list of things that were overhauled or replaced on the airplane. Here are some:

- **Smoke tank** – 3.5-gallon horizontal tank from Smoking Airplanes Smoke Systems
- **Instrument panel** – Avidyne helped with the full panel – Avidyne 540 transponder
- **Engine monitoring** – Electronics International
- **Gauges** – Overhauled; air speed indicator, vertical speed indicator, and g-meter
- **Instruments** – Keystone Instruments, Lock Haven, Pennsylvania
- **Floor** – A composite/graphic floor replaced the old wood floor. American Champion Aircraft.
- **Wings/spars** – Rebuilt by American Champion. Metal Spars, great customer service. “Jerry, Chad, and Dale (at ACA) were incredible about answering questions and getting parts when I needed them,” Mel said. “At points along the way, I was calling them a couple of times a day.”
- **Lightweight starter** – Sky-Tec
- **Alternator** – Plane-Power
- **Vacuum pump** – Removed. There is no directional gyro or attitude indicator.
- **Landing gear** – Same steel spring gear was blasted, inspected, and primed and painted.
- **Fixed-pitch prop** – Sensenich Propeller Manufacturing Co. Inc.
- **Fuel tank gauge** – Previously there was only one gauge on the left side. Mel’s mechanic created another window on the opposite side.
- **Inverted oil system** – Christen Eagle. Previously it was the old trap door/flop tube system.
- **Fabric/painting** – “The wizard” BJ Elias a local (Atlanta area) freelancer. All paint done by hand, no vinyl on the airplane at all. Even the starburst on the tail!
- **Engine mount** – Pulled off original and sent for inspection by Mel’s mechanic to a company in Minneapolis.
- **Avionics** – Sam Nipper, On the Beam Aviation.
- **Inspection authorization** – Scott Gerken, annual inspection of the engine.

In addition to those businesses listed above, Mel is thankful to his sponsors: American Champion, Avidyne, Twin Aircraft Engines, Champion Aerospace, Lightspeed Aviation, Hooker Harness, Whelen Aerospace Technologies (WAT), and Jorga Peach Realty (a family friend and the first one to jump onboard with sponsorship).

The whole project wouldn’t have been possible without the love, support, and sacrifices made by his girlfriend and partner, Barbara. “While I was out at the hangar, she was home handling the household responsibilities and putting our son, Ace, to bed alone each night,” Mel said. “The project took valuable time out of our family life, but she picked up my slack.”

To further his goal of becoming an air show pilot in 2022, Mel took more aerobatic training with Greg Koontz, who was supportive not only during training but also during the project. “I called Greg and sent him photos of the project with lots of questions,” Mel said.



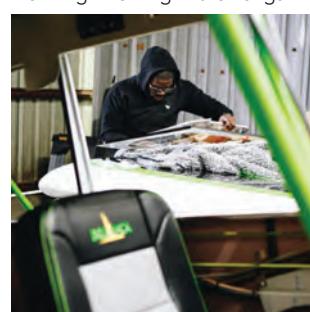
Tearing into it.



Contemplating the process.



Planning. Working in the hangar.



Sanding.



Putting on the wing.



Coolest engine around.

"Greg has been a beacon of light in my aerobatic journey, and for him to let me use his airplane to practice while my airplane was down has been pivotal!" Another air show pilot who was especially supportive of Mel's ambition was Mike Goulian. "Mike has been encouraging in all aspects of my aviation journey," Mel said. "He shared his experience

on a Pitts he rebuilt and the challenges that come with this sort of project."

It was fun to see the airplane in pieces to get a better idea how the machine works.

— Mel Williams



Avidyne audio panel GPS NAV COM Transponder.



Interior cab rebuild.



Stripped floor. New floor. Getting close, January 31, 2023.



Practice, practice, practice! The Mark Fullerton Bear Creek Bash contest in Rome, Georgia, was Mel's first time back in competition this May. He was fine-tuning the maneuvers to score well during the sequence for a couple of months leading up to the contest. "I'm still a bit uneasy with flying [the airplane] as I'm not fully settled in yet, but it gets better with every flight!" Mel said.

"Thanks to Leigh Hubner and Jared Hodge for their help and critiquing while I was in the box and their support." In addition to the Georgia contest, Mel hopes to compete in at least two more contests this year.

Looking back at the first flight in his rebuilt Decathlon now with its new tail number, N719MW, which reflects his son's birthdate and initials, Mel has pondered on the project. "The rebuild took longer than I thought it would," he said. "As long as you have the attitude to be patient, it won't drive you crazy. It was fun to see the airplane in pieces to get a better idea how the machine works. Aerobatics is a different type of flying so you really don't know what's under the skin [of the airplane]. When it is apart, you can see how things are laid out. Unless you are looking close like that, all the hidden workings are not obvious, and you wouldn't know if you have a problem. Now that everything is updated or replaced, I know everything is new, right, and safe."

"I'm getting back into the swing of things. It's definitely strange getting back into aerobatics. The timing, the muscle memory, and feeling the airplane all feels new to me again. Most importantly, I get to enjoy the love that comes from it, and there's no other way to fly an airplane!"

Melvin Williams, IAC 440849, is an aviation technician for Delta as well as a Boeing 737NG/MAX/C40 educator. He is a commercial pilot and flight instructor (ASEL, AMEL) with over 500 hours of flight time. Follow him on Instagram at [melthetraveler](#) and on his YouTube channel, "Mel the Traveler." **IAC**





Meet the U.S. Advanced Glider Team

Preparing to represent the United States!

COMPILED BY SHAD COULSON, GLIDER TEAM CAPTAIN, IAC 440759

EACH YEAR, THE FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE, which serves as the World Air Sports governing body, sanctions the World Advanced Glider Aerobatic Championships (WAGAC). This event allows nations to compete as teams and individuals in the amazing sport of glider aerobatics.

The WAGAC is being held in Torun, Poland, July 20 to August 5. For the first time in history, we are fielding a team of five pilots to compete at the WAGAC. We are extremely proud of the team and are working hard to ensure we are prepared to represent the United States well. Your 2023 U.S. Team

members are: Shad Coulson, Mallory Lynch, Joe Gerner, Jared Bachman, and Andrew Dever.

Although young, our team collectively has decades of national and international competition experience. We are also receiving coaching from some of the top glider and powered aerobatic competitors in the United States and abroad.

We will provide regular reports on the team's preparations, including training camps, practice sessions, and participation in regional contests leading up to the WAGAC. Additionally, we are providing daily summaries of the team's results and activities during WAGAC. You can follow the team on social media, such as Facebook (Facebook.com/USGAT) and Instagram ([U.S.GliderAerobicTeam](https://Instagram.com/U.S.GliderAerobicTeam)).

Those wishing to support the team financially can donate online: IAC.org/donate-to-the-us-aerobatic-glider-team.



SHAD COULSON – TEAM CAPTAIN



SHAD WAS BORN IN COLORADO SPRINGS, Colorado, in the shadow of the Air Force Academy. He regularly attended academy football games with his grandfather, which were well known for their amazing pregame flyovers in the '90s. These games likely contributed to his early fascination with aviation and led him to a 12-year nonflying career with the U.S. Air Force.

Although unable to fly in the military, his passion for aviation never waned. He began pursuing various facets of general aviation in 2008 to include paragliding and powered aircraft. In 2017, he stumbled upon gliders and glider aerobatics after taking an aerobatic ride with Arizona Soaring. He was immediately captivated and dove into the sport headfirst.

Living in Arizona, Shad competes primarily in the Southwest region and attended his first IAC contest in the fall of 2019. He was the 2021 Intermediate Glider National Champion, placed third in Advanced at the 2022 U.S. National Aerobatic Glider Championships, and won the Advanced title at the 2023 U.S. Glider Nationals this past February.

Shad was a member of the 2022 U.S. Advanced Glider Aerobatic Team, which competed at the 12th WAGAC in Issoudun, France. Shad competes in either a Swift S1 or the MDM Fox-1P.

"It is an incredible honor to be selected as a member of the U.S. Advanced Team, and I look forward to representing the U.S. and the IAC community at the upcoming World Championships."

MALLORY LYNCH – TEAM MANAGER



GRANDPA MAL, AS HE IS KNOWN BY HIS SECOND family at Williams Soaring Center (WSC), does not recall having a set life goal, such as being a pilot. Most of his life was a series of opportunities to learn, which he often chose to do with tenacious enthusiasm. After graduating the lowest in his high school class (lack of attendance), he joined the Navy. There he learned discipline and teamwork and true friendship/mentorship. That choice not only changed his life but also might have saved it, as it was during the Vietnam War and the draft. Thanks to the GI Bill, he graduated from college, the highest in his class, and then attended graduate school and became a psychologist. He spent 40 years in private practice sharing life's passages with others, from births to deaths and all in between.

It was the search to fill the void left by the loss of loved ones that led him to hang gliding/para-gliding and eventually to cross-country sailplane flying. On one of his healing sojourns into nature, he came across a hang-gliding pilot leaping off a mountain ridge and thought, "Yep, that ought to do it." To him, there is still nothing closer to flying.

However, the body can only take so many bounces, so when offered the chance to learn to fly gliders, he quit leaping off cliffs and started being towed to launch altitude. Tucked under a cumulus cloud and perched over a lenticular in such peaceful quiet that demanded full awareness, he found home. In sailplanes, he was mentored by some of the greats, and in his quest for chasing hawks, he flew thousands of miles throughout the West Coast. "Without an engine but never without the support of friends, my wife, and my pets," he recalled.

WSC had an ASK-21 and a great instructor that taught him his first real aerobatics. "Yep," he thought, "that ought to do it." Later, it was his friends at WSC that invited him into a partnership to own the MDM-1 Fox aerobatic glider. With unwavering support by WSC and the coaching by world-class aerobatic pilots, he competed in two Advanced Nationals contests and then the WAGAC in Torun, Poland. It was the first U.S. Advanced Aerobatic Glider Team in decades. He was part of the team that went to the WAGAC in Issoudun, France. He has flown in the Nationals at Denison, Salina, and Estrella and just finished a regional contest in Borrego Springs.

He adds that none of these experiences would have been possible without the people who have given so much to him and others, and who live according to the most important lesson he continues learning: "being kind."

JOE GERNER



CAPT. JOE GERNER IS AN AIR FORCE PILOT who first slipped the surly bonds of earth at Tehachapi, California, soloing at the age of 13 in a Schweizer 2-33. He attended Embry-Riddle Aeronautical University in Prescott from 2010 to 2012, and then the U.S. Air Force Academy from 2012 to 2016. After commissioning in 2016 with a Bachelor of Science in aeronautical engineering, he was first assigned to Sheppard Air Force Base (AFB) to attend Euro-NATO Joint Jet Pilot Training qualifying first in the T-6 and thereafter T-38 before graduating in 2017. He was then assigned to Tinker AFB and is currently serving as both a flight commander and E-3 aircraft commander at the 960th Airborne Air Control Squadron.

Joe first got a taste of aerobatics in 2009 flying an MDM-1 Fox belonging to a family friend in Hawaii, and he was determined to make the skill a part of his being, not simply a one-off experience. With the support of his father and other members of the Black Forest Soaring Society of Kelly Airpark in Colorado, Joe completed his certificated flight instructor-glider (CFI-G) rating. And with the purchase of a new MDM-1 Fox, the father and son duo began their competition training in 2015. They competed at their first IAC Nationals in 2019, where Joe took first in all Intermediate rounds. Encouraged by this success, he competed again in the 2021 and 2022 Nationals, earning first in Advanced for 2022 and a spot on the U.S. team for the 12th World Advanced Glider Aerobatic Championship. Having earned his spot on the U.S. team again at the 2023 Nationals, Joe is looking forward to improving the U.S. team ranking this year at the 13th WAGAC.



Between his private and professional flying career, Joe is grateful to have flown a wild range of aircraft from supersonic jets to 707s to even his body as a competition skydiver. Nevertheless, he continues to regard aerobatic soaring as the most liberating form of flight and enjoys the controlled harmony of his family's Fox *Vicki*, saying, "she just likes to play ... and so do I."

Joe looks forward to mentoring the new members of the U.S. team this year as they transition to flying the MDM-1 Fox in pre-competition training. His hope — and prayer — remains as it always has been and has served him so well since his first competition in 2019: "Lord, let me just finish all my maneuvers in the right sequence, in the right direction, and relatively inside the box."

JARED BACHMAN



JARED IS HONORED TO COMPETE for Team USA in the Advanced glider category!

His journey into aerobatics is completely due to the enthusiasm and generosity of other IAC members. Though he grew up enamored by air shows and biplanes, his journey into the aerobatic community truly began at EAA AirVenture Oshkosh 2017. He was a 17-year-old student pilot with less than five hours of Cessna 150 time in his logbook when a chance encounter allowed him to meet Doug Partl of IAC Chapter 1. Realizing they only lived minutes apart, Doug graciously offered Jared a ride in his Pitts S-2B. As Jared reminds Doug, he “ruined me for life” with that ride and set the course of his flying ambitions for the rest of his life.

Shortly before Jared reported to the Air Force Academy in 2018, Doug helped him complete his private pilot certificate and tailwheel endorsement in Jim Klick’s (a Chapter 1 member and a name many readers will recognize) beautiful Aeronca L-16. “I simply wouldn’t be flying upside down if it weren’t for Doug and Jim.”

Cadets at the Air Force Academy are assigned a “sponsor family” during their four years that helps provide support to make it to graduation. As luck would have it, Jamie Treat of IAC Chapter 5 became Jared’s sponsor father. Though cadets cannot often leave the base, Jared spent

every possible weekend he could at Jamie’s hangar, working on airplanes and watching him practice in his SS-300 biplane.

While a cadet, Jared was honored to be selected for the Academy’s Aerobic Glider Team, allowing him to finally compete in IAC contests. While in the Academy Glider Program, he was lucky enough to learn glider aerobatics from Coach Mark Matticola, working his way from Sportsman up to the Advanced level.

After earning a pilot slot and graduating from the Air Force Academy in May 2022, Jared learned he would have a two-year delay between commissioning and beginning U.S. Air Force pilot training. Since graduation, he has been working his dream job as the officer in charge of the academy’s Glider Aerobatic Team. “I spend my days at ‘work’ as a CFI-G, instructing cadets in Primary through Advanced aerobatics.”

Jared feels he will never be able to repay his mentors for what they have taught him, but he is able to do something even better – pay it forward. Thanks to his mentors, Jared has been also able to purchase and compete in a Pitts S-1E and plans on moving up to Intermediate this season.

Aerobatic flying is Jared’s life passion, and he considers himself extremely fortunate to have discovered this passion and take part in these opportunities at such a young age (23). He looks forward to the opportunity to compete for his country on the world stage and apply what he has learned from his incredible mentors while doing so. Look up, see down!

ANDREW DEVER

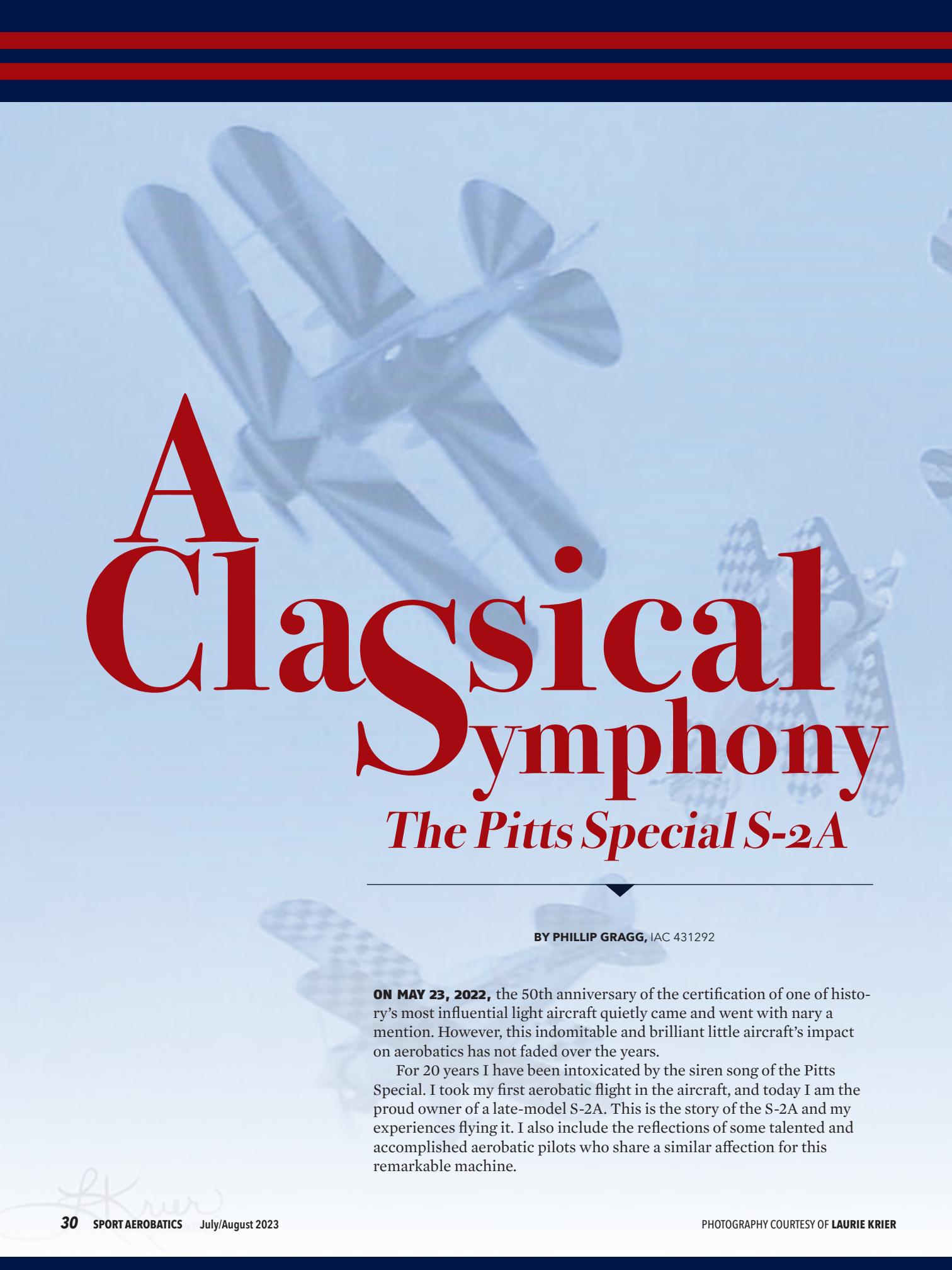


ANDREW GREW UP IN SANTA CLARITA, CALIFORNIA, with a passion for aircraft and aviation. He got the opportunity to fly at the U.S. Air Force Academy as a member of the glider aerobatic demonstration team and an instructor in the mighty TG-16. Andrew has greatly enjoyed his time competing and boundary judging at IAC-sanctioned contests. He is looking forward to participating on the world stage.

As a newly minted second lieutenant, Andrew will be attending Euro-NATO Joint Jet Pilot Training after spending a year at the Air Force Institute of Technology, earning a graduate degree in aeronautical engineering. Andrew is excited for his career as a pilot in the U.S. Air Force. **IAC+**

An advertisement for the GB1 GameBird aircraft. The top half features a bright green and black biplane in flight against a dark background. The text "GB1 GameBird" and "Fly Without Compromise" is displayed. The bottom half shows a close-up of the aircraft's cockpit and engine. Text on the right side reads: "FAA Certified", "200 knot cruise", "1000nm range", "+/- 10g", and "Made in the USA". The bottom left corner contains the GameComposites.com logo and contact information: "GameComposites.com" and "Info@GameComposites.com".





A Classical Symphony

The Pitts Special S-2A

BY PHILLIP GRAGG, IAC 431292

ON MAY 23, 2022, the 50th anniversary of the certification of one of history's most influential light aircraft quietly came and went with nary a mention. However, this indomitable and brilliant little aircraft's impact on aerobatics has not faded over the years.

For 20 years I have been intoxicated by the siren song of the Pitts Special. I took my first aerobatic flight in the aircraft, and today I am the proud owner of a late-model S-2A. This is the story of the S-2A and my experiences flying it. I also include the reflections of some talented and accomplished aerobatic pilots who share a similar affection for this remarkable machine.

FIRST FLIGHT

At the end of my first year of graduate school in 2002, I looked up a list of aerobatic instructors on the IAC website and discovered that a former U.S. Unlimited Aerobatic Team coach trained pilots in an S-2A. Soon thereafter, I headed to Kansas City and met John Morrissey and the S-2A for the first time. *Little Brutus*, he called it. The airplane stood confident and alert, poised and pugnacious. It was covered in white paint, with white-starred blue stripes and a red accent.

“Do you want to have a look inside?” John opened the long bubble canopy of the two-seat aircraft, which featured individual cockpits in tandem — one forward, one aft. It did not strike me as small, but rather as compact and purposeful — resolute in its mission. Each cockpit was deep, almost dark. As I leaned in, I got my first whiff of one of those indelible smells that becomes emblazoned upon one’s memory. It’s now a familiar, joyful smell. Much like my grandfather’s garage, which smelled of sweet cut grass, chemical fertilizer, and various bottles of HCL and other chemicals, the aircraft had a distinctive and unique, but not unpleasant, odor. The smell of a Pitts is the smell of oil, avgas, fabric, sweat, adrenaline, and butyrate dope (the finishing system the factory uses to paint its fabric skin). It is sweet to the senses, and unlike the off-gassing of the vinyl-and-plastic interior of a Cessna from the 1970s, it is a satisfying and warm smell.

After being briefed on basic maneuvers, the plans for my first flight, and safety and emergency egress, I was shown how to enter and exit the airplane and was custom-fitted to the aircraft with a series of cushions. We then proceeded to strap into the parachutes and the seven-point harness, which consists of a five-point harness and a “red belt” (they are not always literally red, but many are). The red belt is a simple lap restraint that covers the five-point harness latch and attaches to a different part of the airframe to provide redundancy. I



John Morrissey in his Pitts S-2A

was in the front seat, with the mixture and trim being the exclusive domain of the back seat pilot.

I could see nothing forward except what was visible through two small triangular windows left and right of the fuselage. The wingtips — at 20 feet, the S-2A’s wingspan is almost half that of a Cessna — seemed to be nearly within reach. With an empty weight two-thirds that of a Cessna 172 — and with 40 more horsepower than the C-172, a constant-speed propeller, and four substantial ailerons — I wondered what I was in for.

After we were belted in and the canopy was closed and locked, John fired up the engine. The torque twisted and shook the entire airframe to life. We went from dead silence to cacophony, and the effect was all the more pronounced because the fabric fuselage does nothing to suppress the sound of the engine. The ancient David Clark headsets seemed to provide little in the way of noise attenuation. This was a serious machine.

To put the power differential into perspective, a Cessna 172 at full gross weight hauls between 14.3 and 15.6 pounds for each unit of horsepower the engine produces. A Pitts S-2A has a power loading of 7.5 pounds per horsepower. A single-seat S-1S can achieve a power loading of below 6 pounds per horsepower (quite a bit lower if the pilot is light), and the current crop of Unlimited aerobatic monoplanes achieves around 5 pounds per horsepower.

We taxied out to the runway. Anyone’s first takeoff in a Pitts is going to be exhilarating. Any time compression, or tunnel vision, that would have resulted from the high performance of the Pitts was enhanced by the fact that the Grain Valley Airport (3GV) is only 44 feet wide and sits in a depression. As we accelerated down the runway, it wasn’t until we were 10 feet above the ground that we departed the trough and truly parted from the Earth. To a pilot who had up to that point only flown a Cessna 172, Aeronca Champ, and a Super Cub on floats, this was a rocket ship.

“Wow! The climb rate is fantastic!” was the only response I could muster.

“You should try it solo,” came John’s confident reply.

"I will!" Now this was flying. I've merely been putting around the skies, I thought.

We flew out to the practice area, and I might as well have been sitting in a single-seat fighter with the afterburner lit. I was on top of the world. We looped, rolled, spun, twisted, and danced in the sky, and for the first time I got a taste of a machine that provided total three-dimensional control of the flight envelope. Remarkably, I did this with the safety of dual instruction and in a fully FAA-certified airplane (more on this later). My knowledge and understanding of flight had been completely shattered and would need to be rebuilt. This was better than I could have imagined. Few things in life live up to the hype. Your first aerobatic flight will change you forever.

When we returned, the canopy was opened, John got out, and I took a moment to breathe and soak in the experience. John's son Matt, an accomplished aerobatic pilot who'd flown with the Red Baron Squadron, had just arrived and walked up to where I was sitting in the front cockpit. He knew it was my first flight in a Pitts.

"What do you think?"

I paused for a moment. There were so many things to say. "I think ... this is going to cost me a lot of money."

RISE OF A LEGEND

The story of Curtis Pitts has been told many times. What started as a small single-seat biplane designed for Pitts' own amusement and to take advantage of the



The prototype S-2, currently on display in the EAA Aviation Museum. Courtesy of EAA.org.

"new" lightweight Continental engine (it also had a big power-to-weight ratio with performance-exceeding military surplus and barnstorming-era aircraft) was quickly modified into a world-beating, 180-hp, symmetrical-wing aircraft (designed to fly well inverted or upright) capable of winning world championships

CURTIS PITTS DEVELOPS THE S-2A

As the single Pitts (S-1) evolved during the 1960s, its performance envelope further outstripped that of available two-seaters of the time. This created a problem — and an opportunity. As early as the mid-1960s, Curtis began to develop the concept of a two-seat aerobatic trainer capable of flying all the advanced aerobatic maneuvers as a fully type-certified aircraft that could be operated by a flight school for hire. Up to this point, the single-seat Pitts were all rated as "Experimental" in the Special Airworthiness Certification. The S-2 would be over 2 feet longer and have a 3-foot longer wingspan. This was not an enlarged S-1 but a whole new airplane. Certifying a new aircraft might not sound like a difficult task, but as author and long-time Pitts instructor Budd Davisson points out in his book *Pitts Specials* (Motorbooks International, 1991), the year was 1967 and the FAA was used to certifying transcontinental jet aircraft, not fabric-covered wood and metal tube airplanes that looked like something out of the 1930s! (Airbum.com/pitts.html)

The prototype S-2 debuted at the 1966 EAA fly-in convention in Rockford, Illinois, and the original can still be seen in the air racing and aerobatics section of the EAA Aviation Museum in Oshkosh.

The type certificate for the Aerotek-Pitts S-2A was issued five years later, in May 1971, with the first two airframes going to air show legends Marion Cole and Art Scholl, respectively. Some changes had been made to the prototype in the intervening years — most notably a fuel-injected, 200-hp, angle-valve Lycoming; a Hartzell constant-speed propeller; and an inverted fuel and oil system able to run without limitation.

Between 1971 and 1982, 272 Pitts S-2As were manufactured, and many were exported overseas. Seventy-six of the aircraft are currently listed on the FAA registry as residing in the United States (three N-numbered aircraft reside in the United Kingdom). The model



1972 U.S. Unlimited Aerobatic team won gold flying the S-1 models. Charlie Hillard was the first American to win the World Aerobatic Championship flying his Pitts S-1S, tail number N442X.



The author out on a training flight at Krier Field. Courtesy of Laurie Krier.

would see few changes in its production run. A 2-inch wider fuselage and tall landing gear were introduced in November 1979, and symmetrical ailerons were added to the wing in June 1980. Meanwhile, a two-piece nose bowl and front-mounted propeller governor would ease maintenance in later models.

EVOLUTION

The S-2A would eventually give rise to several subsequent models and further expand the aircraft's aerobatic footprint. Pilots snapped up S-2As with vigorous enthusiasm, particularly abroad, where certified aircraft were the norm and experimental and homebuilt aircraft were not as common, or not permitted at all. The S-2A gave pilots their first opportunity to experience the full range of positive- and negative-g aerobatics with two on board in a certified airplane a CFI could fly for hire.

Its size and the other advantages it had over the S-1 made it a natural air show performer. As time went on, the Pitts factory, now out of the hands of Curtis himself, wanted to develop an S-2 with increased performance, so the factory started slowly incorporating the wider fuselage, tall gear, and symmetrical ailerons that would appear on the S-2B.

My S-2A is serial No. 2254, one of the last 18 built, and incorporates what are now commonly called "the B mods." Tall-gear S-2As have benefited from the need for greater ground clearance on the B, which has a larger prop and engine. Yes, they are more blind on landing than the short-gear aircraft, but the higher deck angle (12 degrees versus 9) means they can touch down at a slightly lower speed. As with all things in aviation, there is a price to pay. Tall-gear S-2As tend to be heavier and slightly draggier, and as a consequence the earlier S-2A can outrun the later model in formation flight. Beauty hurts!

Two years after acquiring my S-2A, I've been able to fly in contests in six different states and twice at the U.S. National Aerobatic

Championships. The S-2A is still competitive in the lower categories and never fails to bring joy to those who fly it. While the S-1 is the result of Curtis Pitts' brilliant vision, the S-2 was the springboard for a safe introduction to aerobatics and has also thrilled millions of air show fans.

In the hunt for outright performance, monoplanes have dominated for decades now, but many of our top performers and competitors have a fondness for the Pitts, and the S-2A in particular is unrivaled among the many great airframes.

If you're new to aerobatics, your first flight in a Pitts will turn everything you know on its head. Yes, there is an intimidation factor — even some old wives' tales about its handling — but once you adapt to it, you'll find it to be one of the most harmonious, responsive, and communicative airplanes you will ever fly. It is a mirror — without the cross-wise reflection. It sees you as you are, for better or worse. When pushed hard it will perform and be with you every step of the way, but it can also be flown gracefully and slice through the air in harmonious splendor.

If you are not an IAC member, I hope you will join our ranks. If you are at EAA AirVenture Oshkosh 2023, come over to the IAC Aerobatic Center at air show central and join us! Or join IAC at IAC.org. Aerobatics will make you a better and safer pilot, and you'll have a blast flying some of the most iconic light aircraft ever made! **IAC!**

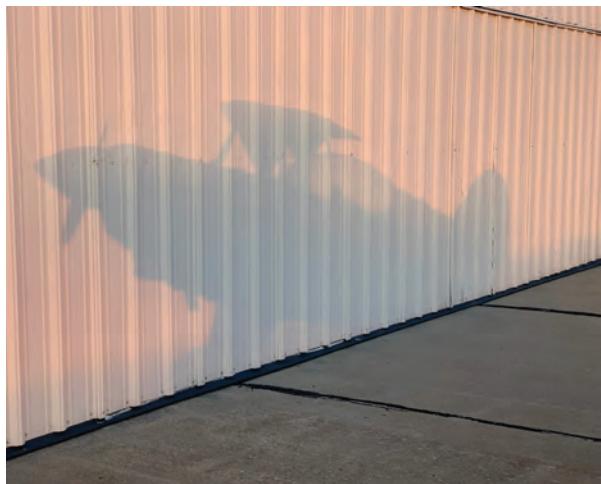


Aviat medal for highest-scoring biplane.

Phillip Gragg is the recipient of the 2022 L. Paul Soucy Trophy, which is awarded to the pilot with the highest-scoring percentage at three or more contests in one season (the best scores are averaged together). To qualify, one of those contests must be part of the U.S. National Aerobatic Championships. He is the first Sportsman category pilot to earn "The Leo" (the IAC's new National Point Series Championship), which requires the competitor to fly in three different regions.



Dan Williams, Kansas City



The shadow of the Pitts looms large.



The author is partial to the more aggressive stance the tall gear provides.



The prototype S-2, currently on display in the EAA Aviation Museum.



THE *Pitts* SPECIAL S-2A IN THEIR OWN WORDS

FOREWORD BY PHILLIP GRAGG, IAC 431292

When it comes to any masterwork, at some point the creator loses ownership and it becomes a part of other people's narrative. The Pitts Special is no different in this regard. While this started as an article about the development of the S-2A and my perspective on learning to fly it, I wanted to broaden the scope of that somewhat, and so I reached out to a number of IAC members and asked for their reflections on the S-2A.

I asked for photographs and short descriptions – no more than two or three sentences – and what I got back was paragraphs and picture albums! And so, because I can say it no better, I thought it was appropriate to let the IAC membership tell this story. I thank everyone for their contributions.

Aerobatics will make you a better and safer pilot, and you'll have a blast doing it while flying some of the most iconic light aircraft ever made! But don't take my word for it ...



My First Flight in a Pitts in 1987

BY CECILIA ARAGON, IAC 14098

U.S. Unlimited Aerobatic Team member and author of *Flying Free: My Victory Over Fear to Become the First Latina Pilot on the U.S. Aerobatic Team*, Blackstone Publishing, 2020

I learned basic aerobatics in a Super Decathlon — a wonderful machine for training — but in 1987 most competition pilots were flying Pitts Specials. At the time, I couldn't afford the \$40,000-plus to buy one of these beautiful machines, and there were none available to rent where I lived.

I heard about a two-seat Pitts for rent an hour and 15 minutes away in Santa Rosa, California. It was available to instructors like me for solo checkout, so I decided to schedule a lesson. I desperately wanted to fly a Pitts in competition, and that required being able to solo.

My soon-to-be instructor, Louie Robinson, a scrawny and vibrant 70-year-old with thin white hair, had sounded a lot younger on the phone. He spent some time drawing diagrams of each of the maneuvers we'd do on the whiteboard. "For the hammerhead, you'll dive to 160 mph and pull to vertical. Hold the vertical upline until it's time to pivot 180 degrees and transition to the vertical downline." He squinted at me. "Which plane have you been flying?"

"A Super Decathlon." He smiled.

"Ah, most transitioning Decathlon pilots pivot too early in the hammerhead." I nodded, making a note to myself that I'd prove I was better than "most pilots."

I was eager to fly, and worried that we'd run out of time for the lesson since we were spending so much time on the ground, but he refused to be hurried. "If the plane isn't adjusted to you, you won't be able to land well. You might blame yourself, but it's your environment that's setting you up for failure." After the thorough ground briefing, we walked out to the aircraft.



Cecilia Aragon at the 1988 Delano, California, contest.

The flight went well until Louie asked me to do a hammerhead. His comment about Decathlon pilots kicking too early was still ringing in my head. I pulled up to a vertical and held it. Up and up and up. The wind got quiet, and all at once I realized that the airplane was doing something unexpected, something that I hadn't told it to do — or so I believed. It tipped over on its back, sidled to the left, and then with a roar and a whoosh we were slammed flat on our backs, whirling at full power, the nose tracking the horizon in a demented circle. Confused, I glanced at the altimeter, only to see I was losing altitude at a horrific rate. It hit me with a shock of adrenaline: This was the dreaded inverted flat spin!

For a second I froze on the controls. The ground rotated at a crazy rate. I was beyond disoriented, lost in a world that had become a complete blur. All I could think was, "This is how pilots die."

Then my training came back to me. Emergency spin recovery in the Pitts: Throttle to idle, hands off the controls, and full rudder opposite the direction of rotation.

The instant I took action, the airplane recovered; the wings snapped level and the whirling stopped. The airplane settled into a steep dive, wings level and steady, nose pointed straight at the ground. We still had 5,000 feet above the vineyards — plenty of altitude. I slowly pulled back on the stick, bringing us to horizontal flight, and fed in throttle, breathing rapidly, my heart pounding faster than the Pitts' rotation rate, my hands tight and sweating on the controls.

Louie's voice floated back to me, calm: "Good recovery, though you waited so long I almost had to take over."

After we'd landed, I realized he had totally set me up for that spin entry with his warning about Decathlon pilots, playing on my ego, ensuring I'd hold the upline far longer than I should have. Setting up students to make their most dangerous mistakes while the instructor is still in the cockpit is one of the hallmarks of a great teacher.

Thank you, Louie Robinson!



Ahh ... the S-2A!

BY ROBERT ARMSTRONG, IAC 6712

IAC president emeritus and U.S. Unlimited Aerobatic Team member

I had been flying my Pitts S-1 for several years and was active with IAC Chapter 3 in Georgia. Waiting in a hangar at the old Bear Creek Airport was a 1978 S-2A that had sat for several years, unloved, with only 145 hours on the engine. Two friends who had a great interest in it convinced me to become a partner, and we purchased the airplane for the mighty sum of \$45,000.

What they really wanted was for me to teach them to fly the Pitts. My first flight was to deliver it to its new home in Athens, Georgia. One of the partners was a CFI who took only a few flights for orientation and then was on his own. The other had around 300 hours of total time and absolutely no conventional gear time.

This Pitts, then N31439, serial No. 2171, was manufactured in 1978. It had a short gear with Frise ailerons. By today's standards, the S-2A was under-powered, but for those with no experience in aircraft with a comparable power-to-weight ratio, it seems incredibly quick in almost all modes of flight.

The -A is a much lighter airplane than the later -B and -C variants. With the much lighter engine up front, the pitch forces are light, and some maneuvers such as snap-rolls are much easier.

As for the "introduction to the Pitts experience," I lost track of how many rides I gave over the years — in my airplane and several others. My goal was always to leave my trainees wanting more. One memorable passenger, a young lady who was learning to fly, actually questioned why we were going back to land. My honest answer was that we were getting very low on gas.



What's better than two Pitts S-2As? Three!

Most rewarding to me was the fact that no one ever got sick! So my efforts were rewarded!

One of my Pitts co-owners was free only on weekends, so I decided to train him myself. The first problem was that my partner didn't think of his legs as necessary tools for flying, and flights with a lot of yaw were typical. (There was limited understanding of what the rudder pedals were for.) This prompted me to mount a "ball" instrument on the canopy frame so that it was in sight at all times.

After a great deal of work, I moved to the front seat, allowing my partner to have the rear. We attended an IAC meeting at the Bear Creek Airport. Upon leaving, I decided that I would handle the takeoff, as the runway was only about 20 feet wide. This did upset him a bit, but he relented and off to Athens we went.

In Athens, we planned to make multiple takeoffs and landings. All were to be full-stop events. The first landing occurred without much fanfare, and we stopped on the center.

The next takeoff was one of the most exciting I have ever experienced! Within a few seconds we made two turns, a 90-degree left followed by a 180-degree right, and we stopped short of running off the edge of the 150-foot-wide runway! If I had been told that this could be done without scratching or bending something, I would not have believed it. But I rode through it! That ended the day's flying.

This S-2A was later sold to a Delta pilot who had flown some competitions before life got in the way, and he then sold it to a former Navy commander and Vietnam POW in St. Augustine, Florida, who eventually sold it to an overseas party. (The airplane is now F-GGTR in France. — PG)

Premier Acrobat

BY ALAN CASSIDY, IAC 18506, UNITED KINGDOM

Past chairman, British Aerobatic Association, international aerobatic competitor, coach, and instructor

Author of *Better Aerobatics, Freestyle Aviation*, 2003



I am confident in saying that of the many training aircraft I have flown and competed in, the Pitts S-2A is the best for bringing new pilots into aerobatics, and an ideal aircraft for helping them further develop their skills and understanding. There are, of course, limits to what the aircraft can do, but it is capable of showing all the necessary aerodynamic consequences of all control inputs. Of course, other, more recent two-seat training aircraft are available, but none I have flown have the same 3D handling response as the Pitts.

Naturally, all thoroughbred aerobatic training aircraft are extremely maneuverable; they all have power, lift, drag, etc. That said, there's one way in which the Pitts S-2A rises above all the other makes I have taught in. That is the rarely discussed matter of "fuselage lift."

All aircraft generate wing lift, and many do so inverted as well as upright. The S-2A is an especially good trainer when it comes to what I call "flat turning" — that is, changing one's heading and track solely through use of the rudder. To successfully flat-turn, the aircraft's fuselage must produce the horizontal turning force ahead of the center of gravity in response to a rudder input from the pilot while the wings are held parallel to the ground with opposite aileron. This is fuselage lift in horizontal action.

The two-seat CAP-10 and my first ever aerobatic trainer, the de Havilland Chipmunk, will flat-turn, albeit less eagerly than the Pitts. Very few of the other aerobatic training aircraft I have flown will flat-turn; instead, they yaw and then slide forward on something close to the original track.

Fuselage lift is thus a key factor in making any aerobatic aircraft capable of more advanced tricks such as "knife-edge" flight and "flat" or "rolling" turns. As a result, one of my early tests when flying a type that's new to me is to fly straight and level at a relatively low speed (90 to 110 knots) and apply rudder (combined with opposite aileron to keep the wings level). The slip ball will dash off to one side, and the aircraft's heading should change continuously. The key word in the last sentence is "continuously."

All aircraft yaw in response to the rudder, but many then just "slide" with a steady but low angle of yaw along a path close to the original track rather than actually flying around in a most useful "flat circle."

I think this says enough to get my point across, so I will stop here for now. Not exactly short, but I could have written a book about it!



Balance and Harmony

BY AARON MCCARTAN, IAC 433420

Two-time U.S. National Advanced Champion
and 2022 U.S. Unlimited Aerobatic Team
member

You can ask many veteran pilots or current jockeys of the latest carbon creations, and they will all tell you that they fondly recall their time in the Pitts. Few aircraft have the balance and control harmony of a Pitts Special. Arguably the finest iterations in that respect were the S-1S and S-2A.

My first foray into the Pitts realm involved a checkout in N8PB, a well-known S-2A, with Budd Davisson in Arizona. I was under 700 hours of total time, but most of that had come in tail-draggers. The S-2A left a big impression, and once Budd taught me to harness it, it reshaped my aviation goals. Few airplanes can move a person like this.

I went home and promptly purchased an S-1S, then began my journey in aerobatic competition under the tutelage of John Morrissey in his S-2A, N187PS. As my résumé grew and I became more active with the IAC, I had opportunities to fly several S-1Ts, a few S-2Bs, and two S-2Cs, and I ultimately came to own an S-2S. They were all fantastic in their own right, but the original S-2A will really capture your heart with its unbelievable control harmony.

More recently I took on a protégé in my home state of Iowa and helped him explore the flight envelope of his father's Steve Wolf-restored, short-gear S-2A. No matter how many Christen Eagle, Staudacher, Laser, Panzl, Giles, Extra, or XtremeAir variants I see, the S-2A keeps drawing me back. If I could have a hangar to collect all of my dream aircraft, one of the first additions would be a factory-built Pitts Special S-2A.



Aaron with his Pitts S-2S.



The author, in the white Pitts S-2A, flies formation with Aaron McCartan on the way to the 2021 Spencer, Iowa, contest.

THE *Pitts* SPECIAL S-2A

Engineering Sweet Spot

BY CHRISTIAN LEDET, IAC 13873

Sportsman category competitor. Placed first and second at the 2022 Doug Yost Challenge and the MAC80 contest, respectively.

The S-2A is truly special. It represents the engineering “sweet spot.” The engineering sweet spot is that perfect balance between power, weight, and performance that is represented by a design perfection that is rarely achieved. The 1970 Porsche 911S. The Supermarine Spitfire. The Norton Commander motorcycle. These are engineering sweet spots.

The Pitts Special S-2A is not the “most” of any one thing that you would consider that an aerobatic airplane should be.



Christian Ledet's S-2A. A perfect rebuild by Steve Wolf. Courtesy of Christian Ledet.

However, it has more of each of the elements than any other airplane ever built for aerobatics. The control harmony is perfect in all three axes, and this is matched by the weight-to-horsepower ratio. The design is simply brilliant, and there is nothing quite like it. It is difficult to explain but easy to demonstrate to anyone willing to strap it on and go for a flight to experience the harmony that can join a man and machine.



The Aussies, flying “upside down,” down under! Courtesy of the Red Baron Team.

Dazzles Thousands

BY JARED PARKER, SYDNEY, AUSTRALIA

As part of the Red Baron team, I have operated VH-FFF, a 1979 Pitts S-2A, as its flagship aircraft since 1992.

The two-seat configuration of the S-2A has allowed us to dazzle thousands of passengers and train many new Pitts pilots over the past 30 years.

Affectionately called *Triple Fox* because of its registration, our Pitts is well recognized by Sydney-siders, as they have seen the little red biplane flying overhead Sydney Harbour and performing dazzling aerobatics at Bondi Beach.

RedBaron.com.au



Mike Goulian with his first Pitts S-1C. Courtesy of Mike Goulian.



Mike paid \$12,500 for his first aerobatic mount. Courtesy of Mike Goulian.

Second to None

BY MIKE GOULIAN, IAC 11878

U.S. National Aerobatic Champion, air show pilot, and co-author of *Basic Aerobatics* (1994) and *Advanced Aerobatics* (1996) with Geza Szurovy, McGraw-Hill.

I received my Pitts checkout in an S-2A. It will always have a special place for me. Even to this day, I would say that the S-2A along with the S-1S are the two best flying Pitts Specials you will ever fly. The control harmony is simply second to none.



Omaha, Nebraska

JON VANDERHOOF, IAC 22456

John flew in the Advanced category through the 2000s in a Pitts S-1S. In more recent years, he has flown in the Intermediate category in his Pitts S-2A. John has been an aerobatic judge through 2021 and is a longtime member of MAC80 (aka IAC chapter 80).



Jon Vanderhoof's gorgeous single-canopy option S-2A. Courtesy of Aaron McCartan.

IAC

Building G Tolerance at a Nice, Even Pace

BY STEVE JOHNSON, IAC 20081



EVERY YEAR WHEN SPRING finally breaks here in Tennessee, I am chomping at the bit to try the new year's sequences! When I first start flying again, my g tolerance is low, so I just practice individual figures from the new Known sequence. I typically start with figures I'm familiar with, try to get the rolls properly placed, and work on my g tolerance.

Last year the 2022 IAC Advanced Known started with an N-figure from the Y-axis (see page 43). The 45-degree downline had a full snap roll on it. We want the snap centered on the judges, so my early practice includes how and where to enter the box to put the snap in the center. Once I get this figure where I want it, I will add the next figure or two, keeping altitudes and box placement in mind. Early in the season, I'm still getting my g tolerance back, so figures may not yet be pretty, but the cockpit views and muscle memory are starting.

As a new season is beginning, I practice new figures and more complex figures individually until I can fly them cleanly, and then I add them to the sequence. I will continue in this manner until I can fly the sequence correctly and relatively well placed in the box. Then I get my ground coach to start fine-tuning my flights, both in individual figures and the whole sequence. With a ground coach, I can get better information about altitude at the low points, since our altimeters typically have some lag in them. I prefer to fly lower in the box, but not anywhere near getting low calls. I also adjust my power to try to top out at around 2,500 feet, and I try to not go higher as I get better in the sequence. My floor in

Advanced is 200 meters or about 650 feet, so I plan my flights with a floor around 800 feet to prevent low calls.

As my coached practice flights move later into the spring, I try to practice with stronger headwinds and crosswinds to learn what is needed to hold my position in the box, both left and right, and my distance from the judges. I don't want to be too close or too far away from the judges. I have learned that being 25 percent to 50 percent deep in the box from the judges is about the optimum viewing distance for the judges.

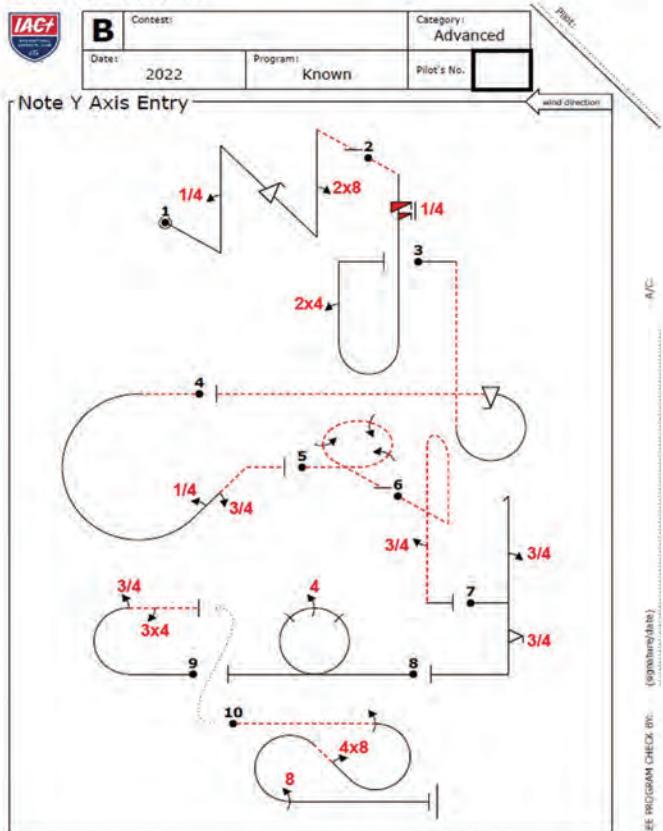
As flying a sequence becomes more normalized, and muscle memory is helping, I try to start looking much more closely at the box markers during each flight. Our contests are at different airports, with different visual cues, some good and some bad. The box markers are the only constant at each contest, so I try to get more focus on the markers themselves instead of local landmarks. Those landmarks won't be the same at the next contest! Each flight focuses on the figures, the figures in the sequence, and positioning of the figures in the box.

Once the contest season starts, I will review each judge's scores and comments for each figure. As I see common comments, those are the figures I will work on in the next flights and back home in the practice box. If judges give me both steep and shallow comments for the same 45-degree line, I can expect it was probably just fine. However, if the majority of judges all call me shallow, I need to work on that figure, especially if other 45-degree lines have similar comments.

Each practice flight and each contest flight should have some learning. Initially, it's how to fly a single figure, then how to fly figures within a sequence, then how to fly sequences with different wind and weather conditions. I try to learn where I can compensate for a strong crosswind without the judges seeing the correction. Also, how do different headwinds and tailwinds (there's not much time on a downwind line), affect a sequence; what is the lowest ceiling I can use without needing a break, or with an allowed break? During practice flights, I will compensate for a crosswind until my ground coach can see the heading or wing low issues. Working against crosswinds this way lets me know what the judges can and cannot see within different figures of a sequence.

Use of a ground coach helps a lot, especially early on the season. I can use the coach to assist with altitude issues when I'm still learning the sequence, as well as letting me know how figures and sequences

NOTE Y-BOX ENTRY



look from the judges' perspective. Coaches watching a flight can prevent developing bad habits within figures, so the bad habits don't get practiced into bad muscle memory. A good ground coach can also call out traffic that may try to fly through the box. More eyes always help!

I've found that starting with individual figures that are added together into a full sequence really helps me to learn a new sequence quickly, as well as building up my g tolerance at a nice even pace. I've never had the "wobbles," but I have given myself some sore muscles and itchy eyeballs from too much g too early. Start slowly, use a ground coach, learn the altitudes before going lower, and things will be easier and safer throughout the contest season. **IAC**

Steve Johnson has been an IAC member since 1993. He flies his MX2 in the Advanced power category and is an aerobatic judge. Steve has also been a member of the U.S. National Advanced Aerobatic Team and served as the chairman of the IAC's safety committee.

Aerobatics

Cheers to 70 Years



EAA® turned 70 this year! We're raising a glass to celebrate with an official commemorative beer. It will be available in 7 different, highly-collectible designs, each featuring a key piece of EAA and our 70-year history.



◀ Scan to view the full collection.

EAA.org/Cans

The Gap

Between most general aviation pilots and aerobatic pilots

BY BRIAN LLOYD, IAC 438403

"OKAY, WE'RE GOING to do a stall series. As long as we are climbing, let's go right into a power-on departure stall, okay?"

"Okay, sounds good."

The pilot pulled up the nose of the Mooney about 30 degrees. "Hmm," I thought, "this is going to be interesting." I am used to students/clients approaching the stall rather gingerly. After all, we are taught how dangerous stalls are, how we must respond before the stall actually happens, and how we should stay far away from the stall. That was not going to happen this time.

We blew right through the stall warning with the buffet coming very quickly after and still decelerating. The aircraft rolled briskly left, but then the pilot did something that surprised the heck out of me — he rolled in full right aileron. Before I could do or say anything, the Mooney fully departed controlled flight and was rolling faster left than I had ever seen a Mooney roll before. As I reached for the yoke, I glanced at the pilot. He was staring straight ahead, mouth open, yoke held back, with full right aileron. He wasn't moving or responding at all.

"I have the airplane!"

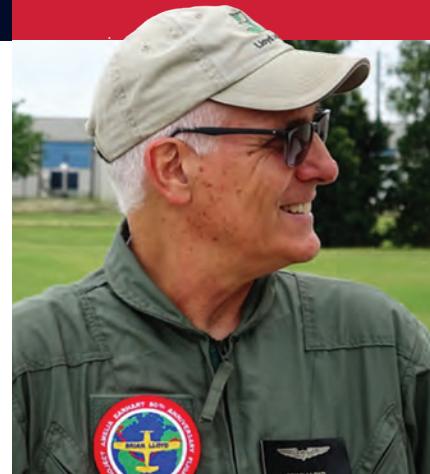
I shoved the yoke forward, rolled ailerons neutral, and stepped hard on the right rudder. The roll stopped. Bank angle was about 90 degrees, but now the wing was unloaded and flying. I reduced the rudder and fed in some right aileron to roll the airplane back upright. No big deal, I play this way all the time ... but in my CAP10B, not an M20F.

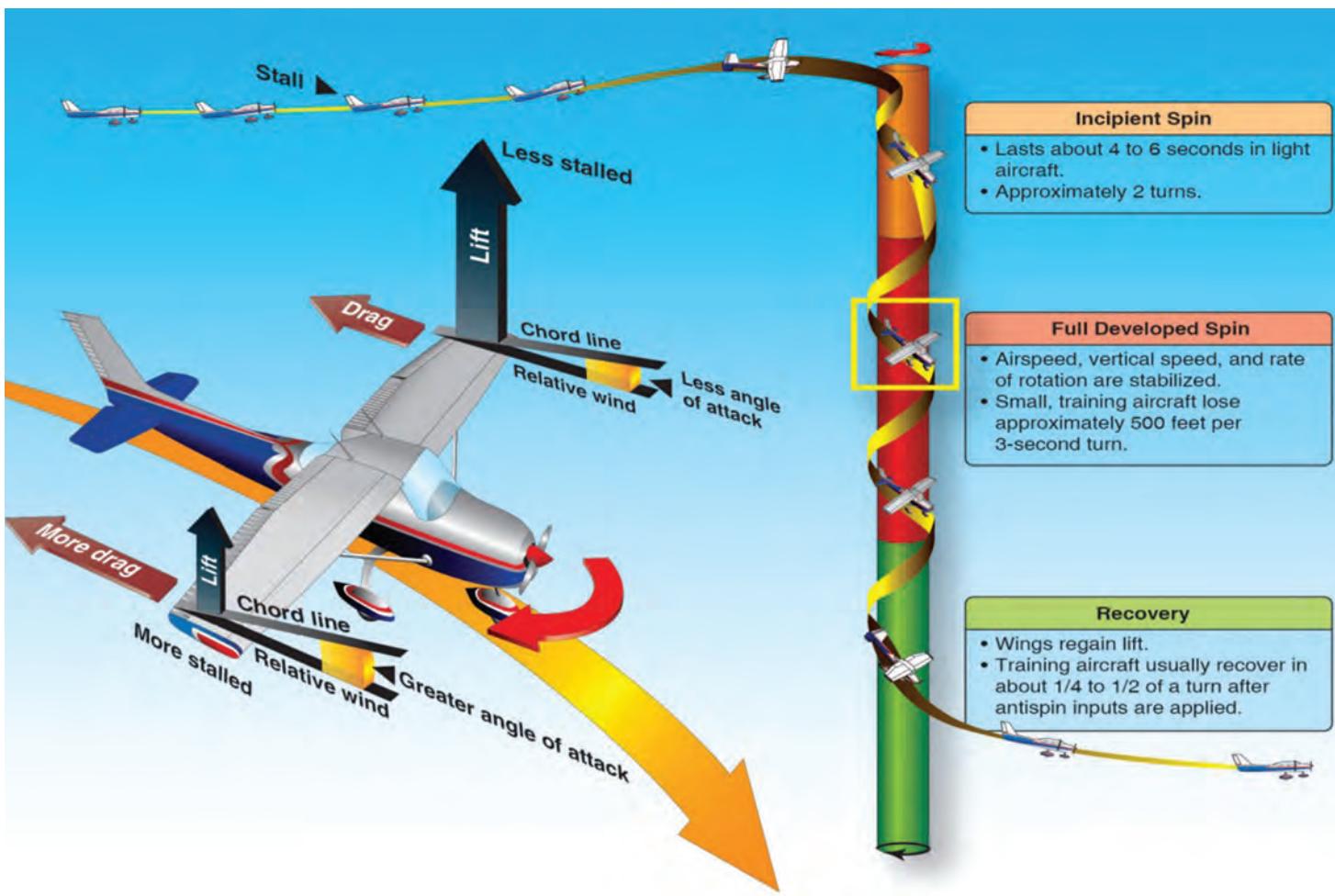
That is when I really felt The Gap — the gap between most general aviation (GA) pilots and those of us who do aerobatics. This departure of control didn't bother me a bit. I found it rather interesting. I had never tried that hard to get the wing of a Mooney to completely stall so that aileron control was effectively reversed. Oh, I teach that it will happen but, wow, it really does. Like I said, it was interesting, informative, and not the least disconcerting — to me.

He was surprised and stunned to the point of inaction.

I was more than a bit surprised by his reaction. This man was U.S. Air Force trained. He is a captain for a major airline. He and I had even discussed his recent upset prevention and recovery training (UPRT) in the simulator prior to going up in the Mooney.

We discussed what happened and moved on. We did a few more stalls with a more benign entry and progressed on to other aspects of the Mooney's handling characteristics. Still, that upset got me to thinking. What if I were just a regular CFI instead of being an aerobatic CFI who teaches UPRT? How would this scenario have changed? I like the Mooney. I do a lot of transition training with pilots moving into the Mooney. I am also very conscious that the Mooney is known for its limited ability to recover from a fully developed spin. I plan, practice, and teach not being a





"Spin Entry and Recovery" graphic illustrates the progression of a spin entry through the recovery phase.
FAA Airplane Flying Handbook. Chapter 5: Maintaining Aircraft Control: Upset Prevention and Recovery Training.

The aircraft rolled briskly left, but then the pilot did something that surprised the heck out of me — he rolled in full right aileron.

test pilot pushing back the boundaries of Mooney controllability. Regardless, unlike the airline pilot, I was fully aware of what the airplane was doing, how far it had departed from controllability (not very), and how to quickly get it flying again.

There's The Gap.

Loss of control in-flight (LOC-I) accidents have become the primary target for improving aviation safety. With the two very visible LOC-I

accidents in the Boeing 737 Max 8, it is clear that pilots who have come up in our present aviation training system, gotten all their ratings, and are flying passengers on the line do not fully understand how airplanes fly or how to effectively deal with LOC-I, even if they have received UPRT in the simulator. Yes, it was easy to blame Boeing, especially since its automation did fail and give conflicting information, but now even the NTSB has apportioned a significant proportion of the blame for these accidents to the flight crews. The question in my mind has been whether or not better training in upset recognition and recovery could have resulted in a different outcome?

If one reads the usual magazines and publications for GA pilots, we see an interesting approach to solving this problem: technology. The FAA and the alphabet groups are betting on smarter avionics suites and autopilots. Garmin offers us push-button landings ... if you have the money. Cirrus' solution is the CAPS parachute with the admonition to "pull early and pull often." When destroying a million-dollar aircraft becomes acceptable because the pilot is lacking in training, is it any wonder that our insurance rates are pricing people out of aviation?

So, cool computer boxes notwithstanding, as I see it, we already have the necessary hardware in every aircraft to solve this problem — the pilot. All we need to do is to close The Gap.

Of course, one of the first questions that comes to mind is, can we actually reduce the incidence of LOC-I accidents through training? Certainly, the success in reducing accidents in other areas and the lack of success in reducing LOC-I accidents suggests that this is a resistant problem and that "training" really isn't helping. The FAA wants to keep

us further and further from "stall speed" as a way to reduce LOC-I.

As a CFI, I am now supposed to teach stall recovery as soon as the stall warning activates, rather than going all the way to a stall, encountering the buffet, and then recovering, as we have done in the 54 years I have been flying. I suppose the concept is right in one respect, and that approach will certainly work until the stall is abrupt or the result of maneuvering is the sudden application of g-load to the aircraft.

In those cases, the time between stall warning and stall may be so short as to be inconsequential and that airspeed buffer insufficient. Only the recognition of the aircraft's behavior in the stall is going to be the clue, and the only way to recognize that and respond correctly is recognition and remediation through repetition.

I have described the problem, but what about its source? Clearly The Gap exists. Aerobatic pilots generally don't have LOC-I accidents, but nonaerobatic pilots do.¹ What is there that defines the difference? I have a hypothesis that it is part of our basic makeup as humans.

Humans have developed/evolved as creatures of two dimensions. Living on the Earth in a 1g gravity field has made us that way. We are used to moving about on relatively flat surfaces of only two dimensions. Motion in the vertical is disconcerting, because the result from falling from a height, well, hurts. So, from birth we are trained/programmed to avoid movement in the vertical. It requires a lot of repetition to be comfortable with a fear you have developed, like falling. If we strive to remain away from the nonhorizontal, we will never learn how to deal with upsets when they arise.

So, what happens to a human who suddenly finds themselves maneuvering in the vertical? The most obvious is the startle response. When we are startled a couple of things happen:

If one reads the usual magazines and publications for GA pilots, we see an interesting approach to solving this problem: technology.

- We pull in our arms toward our torso.
- We freeze.
- If we are pilots, we react by further pulling on the stick/yoke to try to return to level flight (this has been burned into us by repetition).

Now I want you to go back to the scenario at the beginning of this article. The pilot kept the yoke all the way back, ensuring that the airplane remained stalled, and rolled in full aileron opposite the roll, both of these actions ensuring that the airplane would fully depart from controlled flight. The startle response caused him to freeze (holding the yoke back), kept him from analyzing the situation, and prevented him from responding effectively. His natural reactions were going to lead him into a possibly unrecoverable spin.

On the other hand, I was not startled. I have been here before in other airplanes. I have trained myself to have different responses. I regularly experience rotation around the pitch and roll axes and entry into a spin. As a result, I was able to function and effect recovery without any discomfort at all.

**Yes, aerobatic pilots experience LOC-I, but it usually stems from an aggressive maneuver that results in an aggravated spin, and not from relatively normal positive-g maneuvers.*

There's *The Gap*.

*Brian Lloyd started flying at age 14 with his father, a retired naval aviator who flew fighters and bombers from carriers starting in World War II. Brian soloed at 16, earned his private pilot certificate at 17, and got his commercial certificate at 18. He is a CFI/CFI-I with more than 12,000 hours. Brian has flown more than 100 different makes and models of aircraft and is actively teaching spins, UPRT, and basic aerobatics. He has experienced, and recovered from, an extreme-turbulence upset while in IMC. **IAC†***

U.S. NATIONALS 2023

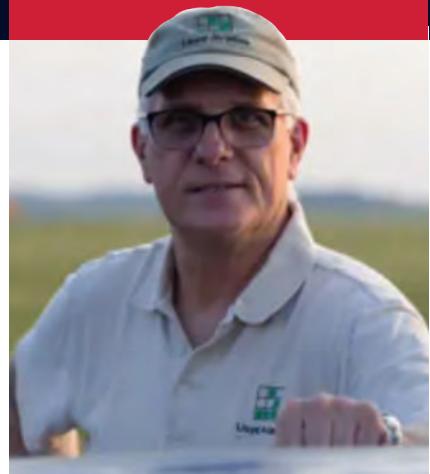
U.S. NATIONAL AEROBATIC CHAMPIONSHIPS 2023™

IAC†
INTERNATIONAL AEROBATIC CLUB
EAA™

Join us in Salina, Kansas • Sept. 24-29

Closing The Gap

BY BRIAN LLOYD, IAC 438403



AS AEROBATIC PILOTS WHO ARE used to maneuvering in three dimensions, there are things we in the aerobatic community can do to help our two-dimensional friends make a transition by closing the gap, and help them become better, safer pilots. You can take your 2D pilot friends flying with

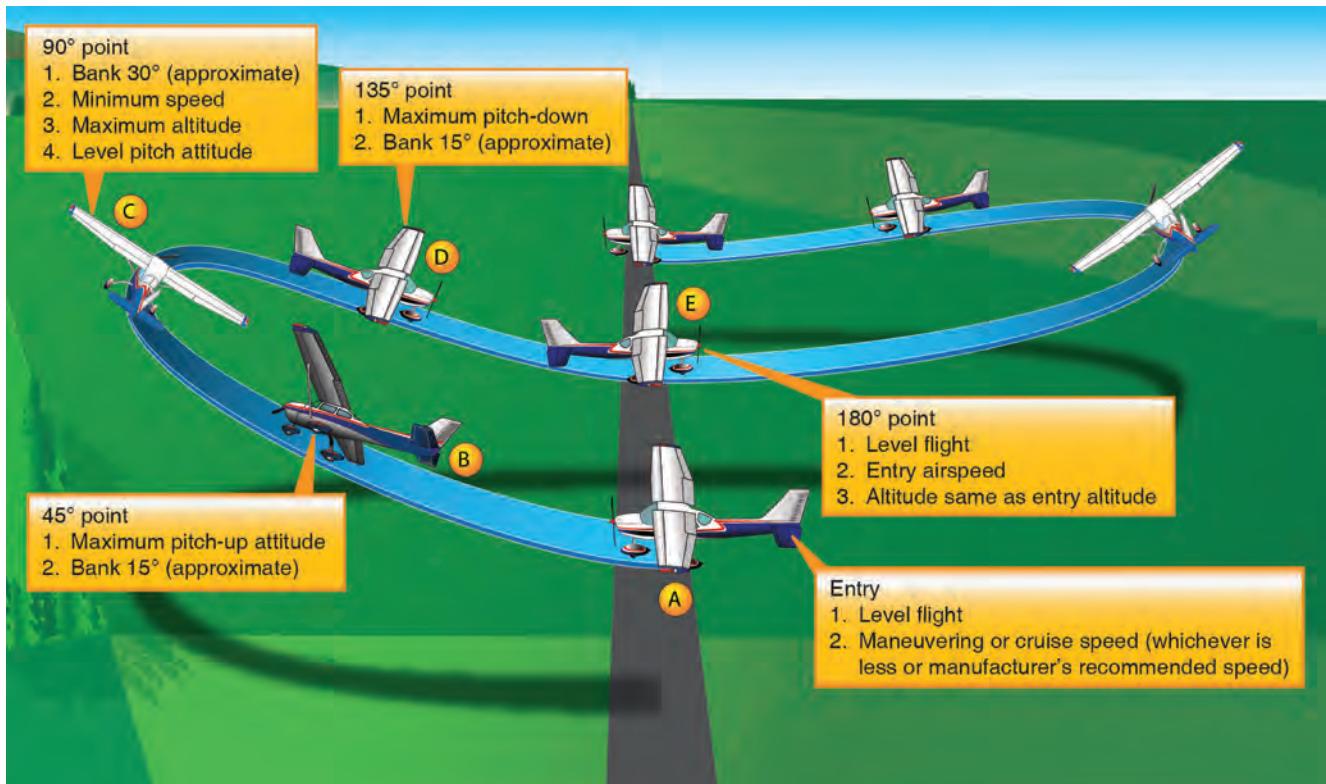
you and introduce them to the real three-dimensional world of aerobatic flying.

Perhaps you are thinking, “I am not a CFI. Is it OK for me to do this?” Yes. You are not training someone for a rating. From the point-of-view of the Federal Aviation Administration (FAA) or Canadian Air Transport Security Authority (CATSA) you are just taking a friend flying and having some fun. That the other person is learning something at the same time is immaterial.

Now, a word or two of caution. You may be flying with someone who has never experienced bank angles in excess

The author gives an introductory aerobatic ride in his CAP10B.





Lazy Eights as illustrated in the FAA Airplane Flying Handbook, Chapter 10: Performance Maneuvers.

of 60° , pitch angles of more than $+/-20^\circ$, or more than $2g$. Introduction to 3D maneuvering flight probably should not begin with the words, “Let me show you my Intermediate free routine,” immediately followed by a $6g$ pull to the vertical. If you are oriented toward competition aerobatics, for now it is time to stop channeling your inner Debby Rihn-Harvey or Mike Goulian and start thinking about being Bob Hoover in the Shrike Commander. The goal is smooth rather than crisp. Having to clean up the cockpit afterward is no fun, either.

So, start easy. Allow your friend to experience a gradual increase in g -loading, starting with a 60° level steep-turn at $2g$. Ramp it up gradually by increasing loading in the turn, until you are demonstrating what it feels like at $3.8g$, the positive g -limit for a normal category aircraft. (Remember to have enough airspeed so that the airplane will not enter an accelerated stall at $3.8g$.) Point out how the elevator is used to control angle-of-attack and g -loading. At $3.8g$ your friend will probably think they are pulling $6g$ and this helps them to understand what recovery from a seriously nose-down upset is going to feel like.

From there I usually progress to Lazy-8s. Now the aircraft is maneuvering in two axes concurrently. Gradually

increase the aggressiveness of your Lazy-8s until they progress to a wingover with a 90° bank at the mid-point. Talk them through it and show them how the bank angles need not be combined with high g -loading. This is the start of getting them to let go of their fixation on the horizontal plane.

After that I introduce aileron roll. This will most likely be the first time your friend has seen the world “upside down.” I try to make my introductory with moderate roll rates, ball in the center, and keeping as close to $1g$ as is reasonably possible. Now let your friend take the controls and execute the roll themselves. You may need to “help” a tiny bit with the elevator input to keep the roll from “scooping out” and ending

up too far nose down, thus requiring a higher-g pull back to level.

During this process keep an eye on your friend for signs that they have reached their limit. I make a point of telling people ahead of time that even experienced aerobatic pilots can make themselves uncomfortable after a long lay-off so there is no stigma attached to someone saying, "OK, I have had enough." If your friend suddenly gets quiet, is breathing rapidly, and starts sweating, it is

time to stop and let them fly the airplane straight-and-level back home. My experience is that people are less prone to airsickness when they are controlling the airplane.

When doing this, especially with another pilot for the first time, remember, the whole idea is to keep the experience from becoming scary. When you get back down and are putting the airplane away, you want your friend to say, "Wow, that was really great! When can we do that again?"

After a hop or two of relatively benign maneuvering you can expand the envelope. This is where we start doing stalls and still maintaining control of the aircraft. You can also introduce what loss-of-control looks like. If your friend is willing or even excited to experience more, you

Brian is with his Mooney M20K 231 with tail number N916BL. In 2017 he used this plane to fly the same flight as Amelia Earhart to circumnavigate the earth. He took off on May 31, 2017, and landed at the same airport, Spring Branch, Texas, on August 4, 2017.



can show them how the dreaded “base-to-final stall/spin” develops.

Once engaged in unusual attitudes where they see more brown than blue, your friend’s natural reaction is to pull until they see blue again. That behavior completes an example of the base-to-final loss of control inflight (LOC-I) where the aircraft would impact the ground vertically if it had occurred at low altitude.

Unlearning a behavior is difficult, much more difficult than learning a new behavior. You may have to work with your friend to get them over this kind of behavior before they can move on.

I find that most GA pilots ask about doing a loop and I usually oblige. I also like to demonstrate how a stall has nothing to do with aircraft pitch attitude, usually with a hammerhead. As the aircraft is vertical and approaching zero airspeed, point out that the wing is not stalled. Now, as soon as you have kicked it over and are established on the down-line, but before airspeed has started to build up again, suck the stick all the way back and stall the airplane. Now you can point out all the symptoms of a stall even though the airplane is pointed at the ground.

Yes, we have all been told that stalls have to do with angle-of-attack but for the 2D pilot, stall has always been nose-up and not stalled with nose down. This is a great demonstration that pushing on the stick or yoke is more likely to get you out of a bind than pulling on it, even if nose down.

Remember, YOU can help your friends to be better pilots and more resistant to LOC-I when things go badly. Of course, the final reward is when your friend says to you, “This has been really great. I think I want to learn to fly aerobatics.” Now you can point them at an aerobatic instructor (if you aren’t one) and encourage them to join the IAC. **IAC**

World Advanced Aerobatic Championships



**Oct 24-Nov 3, 2023
Las Vegas, Nevada**

**Cheer on
TEAM USA**

Come Join the Fun!

**Volunteer in Las Vegas!
www.waac2023.com**

Proceeds Benefit



Contact Duncan Koerbel 720-250-8442 for more information.

Not Again!



Seemingly designed to fail

BY DAVE WATSON, IAC 26557

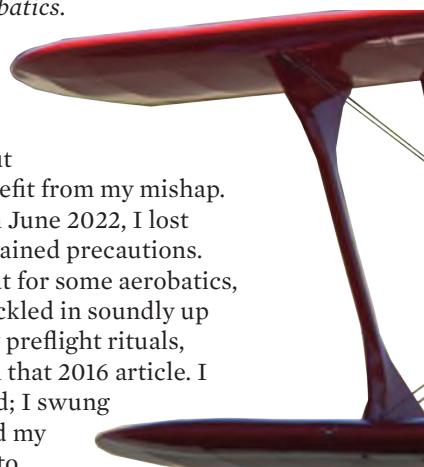
BACK IN 2016, I wrote an article about losing my Pitts S-2B canopy, my first lost canopy! I absolutely know I had latched that canopy, and I went through a significant amount of mental anguish to understand what, if anything, I could have done wrong at that time. After closely examining everything (except the canopy that I never recovered from the dense brush it must currently reside in), I found what I thought was a systemic “slow, creeping normalcy” that could occur as the canopy and latching blocks wear. I determined that, as my canopy aged and the fit to the aircraft frame got a little sloppier, the aft latch pins were able to misalign with the holes in the blocks (at the aft end of the canopy rails), and I concluded that the left pin likely engaged under the block instead of within it.

In that article, I showed some significant evidence that the pins had been striking the block off-center and that there were deep gouges in the acetal

plastic from the impact of the pins hitting the block before engaging in the hole. I still suspect that was the reason for that failure. See the August 2016 issue of *Sport Aerobatics*. IAC.org>magazines.

I made significant changes to my preflight canopy latching so that it would not ever happen again. And I wrote about it so hopefully others could benefit from my mishap. Well, wishful thinking, Dave! In June 2022, I lost another canopy despite my ingrained precautions.

Preparing to take a friend out for some aerobatics, I ensured my passenger was buckled in soundly up front, I got in, and vocalized my preflight rituals, including the steps described in that 2016 article. I gently eased the canopy forward; I swung the latch left to right and looped my trusty bungee around the knob to hold it to the right. I shook the canopy frame forward and backward twice, and then I pushed outward with force on both the aft corners of the canopy to make sure those pins had engaged in, not under, the plastic blocks.



Everything was fine. My passenger recalls hearing and feeling me do those things.

It was a crazy busy day in the tower-controlled pattern, and I was cleared for a no-delay right cross-wind departure out in front of three airplanes stacked on final and two in downwind. My passenger and I were enjoying the thrill of the steep departure, and at about 1,000 feet AGL just after completing the cross-wind turn, we were suddenly and violently in an open cockpit. The sudden blast of fresh air to my face took my headset (and the mesh helmet that was latched around my chin) halfway off my head. My glasses were dislodged, but they entangled in my headset helmet.

After a brief moment, I assessed the situation; passenger was fine, airplane was flying, and I was okay — time to land! I immediately recalled how busy the pattern was, so I bit the bullet and asked for a priority landing. I needed to get down, not tour the Livermore, California, area behind five student pilots in 60-mph Cessnas. The landing was uneventful except for the request to call the tower when able!

I made that call once in the hangar, and after 150 decibels of the engine and flowing air were no longer rattling my



head! The tower asked where the canopy departed because the airport had already sent out a crew to make sure it didn't pose any other issues. They also informed me the FAA and the NTSB would be calling me. That was okay, I assured myself. I did nothing wrong; my passenger and I were on the ground safely, and most of my airplane was reusable. We subsequently found the canopy right off the runway, and I looked it over for any evidence of its failure.

Let me digress. Next time you open a two-seat Pitts canopy and swing it wide, look at the bottom of the central latch mechanism. You will see the bottom side

of the latch mechanism. That latch rotates back and forth every time the mechanism is opened or closed; it has a fairly strong spring that creates an over-center feel in either the open or closed positions. When activated to the right, a pin that extends from the rotating latch moves behind the acetal plastic block on the instrument panel. That little pin behind the plastic block is the only thing that prevents the canopy from moving aft and thereby freeing itself of all the other pins that hold the canopy down. The latch pin is only 3/16-inch diameter and only engages the plastic block by about 1/4 inch in length. If you look closely, you will see the pivot for the rotating latch is simply a threaded stud (not shouldered for a smooth bearing surface), and the latch is (theoretically) secured with two jam-nutted thin-profile 10-32 nuts. That critical



The latch mechanism as recovered with my "safety" bungee present on the knob and the "impact crater" from the ball showing it was in the latched position when it hit.

pivot and these jam nuts are constantly subject to severe vibrations of the airplane from the pounding of the prop wash on the canopy.

I have not bothered to do the math, but as violently as I have twice witnessed the canopy as it departs, there must be hundreds of pounds of force on it (even at airspeeds as slow as 100 mph). With only 1/4 inch of line contact engagement between the latch pin and the plastic block, the surface area is minuscule, and the resultant contact pressure on the plastic (smooth slippery Delrin cap) and the bending force on that cantilever pin (and poorly designed pivot) must be somewhat substantial. Perhaps it's enough to explain why this occurrence happens so often.

My exasperation that it had happened again turned to anger when I noticed that my mangled canopy had only one nut, and it was loose. The spring I mentioned is strong enough that the slop that was present in my pivot arm was obscured to me when I latched it. However, the slop in that pivot probably allowed the pivot arm to flex significantly on the skinny 10-32 stud. That flexing most probably allowed enough angulation of the pin that when the air pressure on the canopy wanted to shove it aft, the pin just kept deflecting (angling) and finally said, "No can do." It happily slipped over the Delrin block, allowing my second canopy to again impact the lower wing, horizontal stab, and ultimately the ground, thankfully without impacting us first, on its final journey.

I have since looked at several other Pitts aircraft and found they all have jam nuts – some, however, with slightly thicker nuts than my aircraft's, but all just jam-nutted. I am a mechanical engineer, and my head is spinning. First, how does a certified aircraft have a design that uses jam nuts instead of a castle nut in a high-vibration, rotational environment? And secondly, how did I never notice this less-than-optimal design?

Lastly, how had I not noticed on that day that my latch now had only one nut, and it had loosened without the presence of the other nut, leading to the problem that I so had hoped would never happen again?

The next morning, I called to order a new canopy and was told it would be about eight months. It seems losing Pitts S-2 canopies is a pandemic, but perhaps, I hope, I just found a vaccination.

Over the next week, I had my meeting with the NTSB (phone call only) and a 45-minute meeting with three representatives from my flight standards district office (FSDO). I have to say they were really interested in the problem. I was not at all raked over

any coals, such as asking me for my flight plan, records of the weather briefing, annual inspections, etc. Of course, I had those, but they didn't seem to be interested in that; they were there just wanting to understand the problem. One of them was a past owner of his own aircraft maintenance facility. He had asked me if I "had any idea the reason why this happened" since I had been adamant that I had latched it properly. With nothing to fear, I showed him the missing nut. No blame was put on me, and he, too, was totally baffled why a castle nut had not been used in this design. I survived the experience, and dare I say I appreciated the attention to the situation and the way they were apparently not there to dig until they had something (if anything) to bury me with. Thank you, Oakland FSDO, for your pro-pilot approach to solving issues.

You know the adage "Fool me once, shame on you. Fool me twice, shame on me." This time I am not going to just put my head (potentially) in the way of this less-than-optimal design. I have discussed my plan for a "minor change" with my inspection-authorized (IA) mechanic and the FAA examiner that investigated this incident.

My plan is to drill that pivot stud and put a castle nut and cotter pin on it when I get my new canopy. I also plan to weld a washer on the bottom of that pin and shape it into the Delrin block so it acts as a hook in a groove. The pin then cannot easily ride up over the block.

I am fortunate to have a loaner canopy from Ray's Aviation in Santa Paula, so I am in the air while awaiting my replacement. I understand several other Pitts owners are also in the long queue for replacements. I have not modified Ray's canopy (as I intend to for mine), but included here are the photos of the parts I have made that include these minor mods described.

If you (or your IA) don't want to modify your canopy, I suggest at least that you make a ritual of looking at those two nuts and for security of the latch

(and the other canopy checklist items I identify in my checklist) every time you close your canopy.

Checklist Items

1. Reach over each shoulder with your opposite hand and push out firmly on the lower-aft corners of the canopy to ensure the canopy pins have engaged properly in the blocks.
2. Canopy closure - do not shove the canopy forward too firmly.
3. Pay careful attention to the condition of the aft face of the blocks. Note any evidence of off-center dings indicating that the pins are not perfectly in alignment; such evidence may be

Ramming it forward may give a false sense of security when it is heard to "hit home," but this forcible action could create the energy necessary for the canopy to twist out of alignment if any of the pins miss their corresponding hole. That extra slamming force may also mask the resultant feedback (the canopy would just stop short of full-forward) that would happen if the pin(s) misaligned at lower forces.



A welded plate (washer) was added on the end of the latch post and is shaped to easily slide though the opening in the latch plate.



An undercut groove is cut into the bottom of the arc in the latch plate so that the added head on the post will slide within it and cannot lift out.

the precursor to this failure, and canopy adjustment may be needed.

4. Check the means of securing the round bearings, which may also be a contributor to the misalignment potential. Those round acetyl bearings are supported on their attachment pins with tiny snap rings on both sides. If the outer snap ring fails, the bearing can simply fall off the pin, greatly increasing the canopy departure potential.
5. Pre- and postflight checks on the central latching block. There is a pin behind a “wall” in this block preventing the canopy from moving aft.

The pin that engages with the wall is only about 1/4 inch long. So once an aft pin fails and the canopy flexes enough to lift 1/4 inch, the canopy is gone! **IAC†**

Dave Watson is the IAC Achievement Award chair and the third recipient of the Mastery of Flight award. The award is presented to the pilot who has achieved 12 out of 19 possible achievement awards for Power and Glider categories. Dave is an Unlimited power category competitor who flies an MX2 aircraft primarily in the Southwest region.



The underside of the recovered canopy shows that this mission-critical latch is constrained by two jam nuts (not a castle nut), and one of mine (as shown) is missing and loose.



FACTS, FIXES & TIPS FROM THE PROS

DON'T LET GRIME...

DULL THAT SHINE!

Don't count on a rain shower to help wash away dust and grime from your vehicle. It's been exposed to so much more than a dusty road - UV light, temperature changes, pollutants and weather patterns- all contribute to any vehicle looking worn out and old before its time. Fortunately, NUVITE's aviation-certified CitriCut® Series of Cleaners & Degreasers provides solutions for any exterior surface including cars, planes, trains, boats, RVs & more! Know the facts... while rainwater can provide a light rinse, there's also a layer of grime that rainwater will not dislodge. Pollen and pollutants along with the dust that raindrops collect



dry on the surface. Organic matter like insect residue and leaves have an acidic effect that will effectively eat through paint and cause metal to rust. Add the sun to bake it all in, along with daylight exposure for ultraviolet rays to further oxidize, dry and fade exterior paint and your vehicle is just begging for relief.

NUVITE's CitriCut® Series is guaranteed to keep that shine! Rely on CitriCut® Concentrate, a citrus-based debugger, degreaser, and general wet wash cleaner, or CitriCut® Xtra, an exceptional cleaner that enhances glass and provides a hydrophobic sealant with UV protection. There's also CitriCut® Gel, a heavy-duty surface-cling cleaner for gears, wheel wells, flaps, cowling & more. Count on NUVITE to maintain that showroom shine.

THREE BIRDS - ONE STONE

Effectively clean dirt, carbon, grease, hydraulic fluids and more, while applying a protective sealant and enhancing your paint gloss. CitriCut® Xtra is a heavy-duty citrus cleaner formulated to address all three — Clean, Protect and Shine.



IN BETWEEN SCHEDULED MAINTENANCE?

PRO TIP!

A manual chemwipe using CitriCut® Xtra can carry you through. Use full strength or dilute with water depending on the extent of soiling and type. Agitate surface with a wash pad to loosen soils and hand buff dry. DO NOT allow work surface area to dry. It's the perfect in-between solution.

Full NUVITE Product Line Available at:



To Order: 877.477.7823 aircraftspruce.com

QUESTIONS? Contact our technical specialists with unique requirements or for product and equipment recommendations.

A DIVISION OF UNIVERSAL PHOTONICS®



2023 AV FORUMS SCHEDULE

EAA AirVenture Oshkosh 2023 will include a full roster of forums in the IAC's Vicki Cruse Educational Pavilion at the IAC Aerobatic Center. The forums are scheduled daily from Tuesday, July 25, through Friday, July 28, 2023, and run for approximately one hour and 15 minutes each.

A fantastic lineup of aerobatic and unusual attitude forums throughout the week are being planned. Everything from spins to the IAC Collegiate Program or exploring flying aerobatics in your homebuilt and of flying recreational aerobatics will be covered. Hear from IAC Hall of Famers, competitors and Master CFIs. There is something for everyone who has an interest in everything aerobatic!

TUESDAY, JULY 25

- | | | |
|-------------------------|------------------------|---|
| 8:30 a.m. - 9:45 a.m. | Speaker: Budd Davissón | Topic: Aerobatic Capability: How much is enough? |
| 10 a.m. - 11:15 a.m. | Speaker: Michael Lents | Topic: Tales from the Backseat: Learning and Instructing Aerobatics |
| 11:30 a.m. - 12:45 p.m. | Speaker: Dagmar Kress | Topic: Aerobatics and Aerodynamics |
| 1:00 p.m. - 2:15 p.m. | Speaker: Jim Gray | Topic: RV Formation Flying |

WEDNESDAY, JULY 26

- | | | |
|-------------------------|------------------------|--|
| 8:30 a.m. - 9:45 a.m. | Speaker: Todd Ashcraft | Topic: Eagle Bailout |
| 10:00 a.m. - 11:15 a.m. | Speaker: Bill Finagin | Topic: Spins, Planned or Accidental |
| 11:30 a.m. - 12:45 p.m. | Speaker: Nina Stewart | Topic: Collegiate Aerobatic Competition |
| 1:00 p.m. - 2:15 p.m. | Speaker: Nick Scholtes | Topic: Safely Exploring Aerobatics in Your Homebuilt |

THURSDAY, JULY 27

- | | | |
|-------------------------|----------------------------|---|
| 8:30 a.m. - 9:45 a.m. | Speaker: Gordon Penner | Topic: Safe Recreational Aerobatics |
| 10:00 a.m. - 11:15 a.m. | Speaker: Michael Church | Topic: The Possible Turn |
| 11:30 a.m. - 12:45 p.m. | Speaker: Brittanee Lincoln | Topic: From Super Cub to the Advanced Team |
| 1:00 p.m. - 2:15 p.m. | Speaker: AURA AERO | Topic: New Aircraft! Side by Side Aerobatics! |

FRIDAY, JULY 28

- | | | |
|-------------------------|-------------------------------|---|
| 8:30 a.m. - 9:30 a.m. | IAC Annual Membership Meeting | |
| 10:00 a.m. - 11:15 a.m. | Speaker: Duncan Koerbel | Topic: News from Extra |
| 11:30 a.m. - 12:45 p.m. | Speaker: Gordon Penner | Topic: Flying With Broken Flight controls |
| 1:00 p.m. - 2:15 p.m. | Speaker: MX Aircraft | Topic: What You Should Know About MX Aircraft |

Fly-In THEATER

Gather up your friends and family, pack your blanket or lawn chairs, and settle in to an outdoor movie experience that is one-of-a-kind! Relax and unwind while watching blockbuster and classic aviation movies on a five-story high screen.

Now Showing

SATURDAY

JULY 22

Top Gun
(8:30 p.m.)

SUNDAY

JULY 23

Top Gun: Maverick
(8:30 p.m.)

MONDAY

JULY 24

Tail Spin
(8:30 p.m.)

TUESDAY

JULY 25

The Great Waldo Pepper
(8:30 p.m.)

WEDNESDAY

JULY 26

Amelia
(8:30 p.m.)

THURSDAY

JULY 27

Flight of the Intruder
(8:30 p.m.)

FRIDAY

JULY 28

Devotion
(8:15 p.m.)

SATURDAY

JULY 29

Those Magnificent Men in Their Flying Machines
(8:30 p.m.)



Presented by



LYCOMING

Supported by Southwest Airlines

EAA AIRVENTURE
OSHKOSH 2023

East and West Lead the Way

Contest highlights

IMAGINE BASKING IN THE SUN and enjoying an exciting and fun-filled aerobatic contest the first quarter of the year! For most of the United States, that would be a rarity; however, Arizona, California, and Florida debut the first IAC-sanctioned aerobatic contests every year. This year was no exception. Following are snapshots from the Estrella Classic, Snowbird Classic, and the Hammerhead Roundup (aka the IAC West Open Championship).



PHOTOGRAPH BY LORRIE PENNER

Estrella Classic

BY LORRIE PENNER, IAC 431036

NEWLY APPOINTED U.S. National Aerobatic Championships Contest Director Shad Coulson organized a great contest for 32 glider pilots at the Estrella Classic in Maricopa, Arizona, February 16-19, 2023.

Estrella Sailport continues to be an excellent site for the contest, with wide open spaces, two towplanes, and experienced personnel working out of AZ Soaring flight school.

The new Primary Glider category attracted six pilots. Four of them were new to the sport. The other two were experienced competitors, Safety Chairman Keith Doyne and Achievement Award Chairman Dave Watson, who flew for a Stars patch.

The first day of competition was a beautiful, sunny, winter high-desert kind of day, with cool temperatures in the morning and warmer in the afternoon. All categories flew their Known sequences.

During day two, the wind and a giant dust storm hit. Everyone had to stand down for about three hours. By midafternoon, Mother Nature decided to give the organizers and competitors a break, and everyone set up to resume. The second and third flights were completed successfully.

This is the second year this contest was combined with the U.S. National Unlimited and Advanced Aerobatic Glider Championships. This year's championship saw a record of 12 competitors in the Advanced category!

The majority of the group was from the U.S. Air Force Academy, who had moved up from the Intermediate category.

According to coach Mark “Matty” Matticola, the aerobatic demonstration team wanted to show its commitment to engaging in ever more challenging sequences. The three civilian glider pilots were experienced competitors: Shad Coulson, Joseph Gerner, and Mallory Lynch.

PRIMARY

First place: Vivian Pfledger, 75.77%
Second place: Brian Izard, 74.02%
Third place: Daniel Kim, 71.86%

SPORTSMAN

First place: Dak Davis, 75.39%
Second place: Greg Borovykh, 74.71%
Third place: Robin Simmons, 73.35%

INTERMEDIATE

First place: Dave Watson, 78.84%
Second place: Gretchen Cox, 62.55%
Third place: Kelly Murphy, 59.67%

ADVANCED

First place: Shad Coulson, 78.36%
Second place: Joseph Gerner, 77.79%
Third place: Mallory Lynch, 68.00%

UNLIMITED

First place: Jason Stephens, 76.57%
Second place: Jim Bourke, 68.58%
Third place: Sasa Marvin, 66.85%



PHOTOGRAPHY BY LEIGH HUBNER

Snowbird Classic

BY HECTOR RAMIREZ, IAC 18975

FOLLOWING TWO BEAUTIFUL DAYS of contest flying, day three turned out to be a disappointment. The day started with dense fog and low ceilings, jeopardizing the completion of the Unknown sequences and the third flight for Sportsman/Primary.

There was a sense of resignation. The forecast was not encouraging, but at 1 o'clock a last-ditch weather flight was launched. Fingers were crossed. This was our last opportunity to finish what was otherwise a weather-perfect contest. The report came back – 3,000 feet – and the contest roared to

a start, the Advanced category launching for the box with a free weather interruption in their back pocket.

A quick turnaround at the judging line allowed enough time to get the Intermediate category flown. The Unlimited Unknown was canceled for lack of time, but a fabulous 4-Minute Free was flown by Craig Gifford – smoke on!

Unfortunately, with time expired, the Sportsman/Primary category had to be canceled. Almost, so close, but weather issues are always an unknown factor when it comes to contest flying. At least, with two Sportsman/Primary flights flown, their efforts could be put in the books as a completed contest.

Time to put up the chairs, take down the tents, and get ready for the banquet. In the spirit of team effort, Marty

Flournoy mustered Advanced team members and Ken Kopp into Foster Bachschmidt's pickup truck and darted to the infield to take up and put away the large, bulky box markers.

Marty's enthusiasm quickly turned sour as he tried to navigate the soft soil, ditches, and obstacles only to find himself in an impenetrable mud wallow. A sense of panic set in. "What if I won the last Unknown flight, and now I'm stuck in this field, unable to secure my trophy at the banquet?" As luck would have it, Scott Fryar, the airport assistant

manager, had kept a watchful eye and was there to extract the Advanced team from the bowels of 42J! Arriving a little late, Marty, Kyle, Matt, and Ken sneaked to their table just in time for the ceremony.

Allowing for great camaraderie and conversation, the Cedar River Seafood Restaurant warmly greeted the attendees and served an enjoyable banquet dinner. After acknowledging the contest's many sponsors and the great effort by airport management, the awards were distributed. Congratulations to the organizers and all the competitors on a safe, fun, and successful contest!

PRIMARY

First place: Adro Bedgrow, 82.47%
Second place: Kasey Campbell, 80.87%
Third place: Matthew Dunkel, 80.50%

SPORTSMAN

First place: Chris Rudd, 85.06%
Second place: Ethan Green, 81.21%
Third place: Thad Golden, 80.18%

INTERMEDIATE

First place: Leigh Hubner, 81.89%
Second place: Jerry Esquenazi, 80.75%
Third place: Nathan Zieman, 76.87%

ADVANCED

First place: Matthew Dunfee, 77.63%
Second place: Kyle Collins, 75.98%
Third place: Brittanie Lincoln, 74.74%

UNLIMITED

First place: Craig Gifford, 80.57%
Second place: Jim Bourke, 71.12%

The Hammerhead Roundup

BY MICHAEL CHURCH, IAC 12032

THE BIG PICTURE

Two days: 49 power pilots, five glider pilots, 162 flights, zero boundaries, a full complement of judges, and lots of volunteers! This was the largest Chapter 36 contest on record and the largest IAC regional contest anywhere in at least a decade.

A final crow: The contest was 75 percent the size of last year's Nationals, yet every pilot got three flights and we finished in 1.6 days.

GLIDERS

And there were gliders! Five pilots, two aircraft, and three categories. There were logistics questions, but Contest Director Bryan Jones and the starters had a workable plan: a separate holding area, and coordination with the chief judge's table whenever a glider pilot was at altitude and ready for release. A morning review of glider judging criteria briefed the grading judges, and we

were ready to go. There was one flaw: Gliders are sneaky; they make no noise, and it took concerted effort to spot each in time for judges to grade the first figure.

STAFF

The key positions were held by Bryan Jones, contest director; Alexis Nahama and Priscilla Marapodi, registrars; Michael Church, chief judge; Pawel Miko and Craig Jones, starters; Matt Sparks, volunteer coordinator; and Bill Hill, Cecilia Aragon, and Diana Aragon, scorers. Of course, there were scores of others: grading judges, judging assistants, recorders, airplane marshals, and assorted runners. If you were there and helped, we are grateful.

FRIDAY

Borrego was fairly kind to us (if you ignored the temperature). Winds at 10-15 knots and a balmy 100-plus degrees Fahrenheit. Concerned with cramming everything into our two-day window, we spun the first prop on Friday



PHOTOGRAPH COURTESY OF IAC CHAPTER 36 NEWSLETTER

at 07:44 — a chapter record — and didn't stop until 19:25. In essence, we used the entire NOTAM, start to finish. The longest pause between flight groups was never more than 20 minutes, and some stalwarts were on the judging line without a break all day. These efforts got us about 60 percent through the planned flights, in good shape to finish on Saturday in time to fly the 4-Minute.

SATURDAY

With more than half the flights already in the books, Saturday held the promise of an early finish. We wrapped up the remaining Free flights and launched into the Unknowns, arguably the best part of every contest. We finished by 15:00 and began to tear down the tents and tables. All three Unlimited pilots — Matt Dunfee, Rory Moore, and Dave Watson — were in line to fly the 4-Minute, and in short order all withdrew. Two days baking on the ground and in the air proved to be too much. You might have expected a chorus of groans from the rest of the group, but in truth, I didn't hear a single person complain. We were done.

PRIMARY

First place: Ruben Alconero, 82.58%
Second place: Steven Frasier, 80.99%
Third place: Michael Narodovich, 76.93%

SPORTSMAN

First place: Jake Carter, 84.32%
Second place: Phillip Gragg, 84.22%
Third place: Kevin Smith, 80.26%

INTERMEDIATE

First place: Ray Collins, 81.27%
Second place: Brooks Mershon, 80.40%
Third place: Josh Horwich, 79.99%

ADVANCED

First place: Alexander Huey, 76.87%
Second place: Chris Combs, 74.96%
Third place: Eric Moore, 74.37%

UNLIMITED

First place: Matt Dunfee, 77.18%
Second place: Dave Watson, 72.01%
Third place: Rory Moore, 67.23%

GLIDER SPORTSMAN

First place: Robin Simmons, 77.38%
Second place: Greg Borovyrkh, 74.19%

GLIDER INTERMEDIATE

First place: Jerry Riedinger, 73.37%

GLIDER ADVANCED

First place: Shad Coulson, 78.21%
Second place: Mallory Lynch, 71.49%

A complete set of scores for all contests can be viewed online at <https://IACcdb.IAC.org>.

★ Softie Pilot ★

Emergency Parachutes

by: Para-Phernalia

Many In Stock For Immediate Delivery

Details at:

www.SilverParachutes.com

- Largest Dealer for Softie Parachutes
- Great Deals on New & Used Parachutes
- S.M.A.K. Pak™ Parachute Survival Kits
- Bailout Safety Seminars Worldwide

Silver Parachute Sales & Service

Phone: 209-532-7070

Email: Allen@SilverParachutes.com

BOOKS

"To Look Upward: One Flight Instructor's Journey," Rob Mixon, Amazon



ADVERTISE WITH US

DISPLAY ADVERTISING

For more information contact
 Sue Anderson at 920-426-6127 or
sanderson@eaa.org

CLASSIFIED ADVERTISING

\$5.50 per 10 words,
 100 words maximum.



STAY CONNECTED with IAC's member benefits, and the world of aerobatics on the web, in our e-newsletter!

TO SUBSCRIBE:
WWW.EAA.ORG/NEWSLETTERS

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION (Required by 39 U.S.C. 3685). 1. Title of Publication: Sport Aerobatics. 2. Publication No.: 0953-560. 3. Filing Date: 7/14/2023. 4. Issue Frequency: Bi-monthly. 5. No. of Issues Published Annually: 6. 6. Annual Subscription Price: \$18.00 in U.S. 7. Known Office of Publication: EAA, 3000 Poberezny Road, P.O. Box 3086, Oshkosh, WI 54903-3086. Contact Person: Ron Lindgren, Telephone: 920-426-6571. 8. Headquarters or General Business Office of the Publisher: EAA, 3000 Poberezny Road, P.O. Box 3086, Oshkosh, WI 54903-3086. 9. Publisher: Jim Bourke, EAA, 3000 Poberezny Road, P.O. Box 3086, Oshkosh, WI 54903-3086. Editor: Lorrie Penner EAA, 3000 Poberezny Road, P.O. Box 3086, Oshkosh, WI 54903-3086. Managing Editor: None. 10. Owner: International Aerobatic Club, Inc., 3000 Poberezny Road, P.O. Box 3086, Oshkosh, WI 54903-3086. 11. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amounts of bonds, mortgages, or other securities: None. 12. Tax Status: Has Not Changed During Preceding 12 Months. 13. Publication Title: Sport Aerobatics. 14. Issue date for circulation data below: May/June 2023. 15. Extent and Nature of Circulation (Average No. Copies Each Issue During Preceding 12 Months/ No. Copies of Single Issue Published Nearest to Filing Date): a. Total No. of Copies Printed (4228/4158) b. Paid Circulation (By Mail and Outside the Mail): 1. Mailed Outside-County Paid Subscriptions Stated on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies) (3586/3533). 2. Mailed In-County Paid Subscriptions Stated on PS Form 3541 (Include paid distribution above nominal rate, advertiser's proof copies, and exchange copies) (0/0). 3. Paid Distribution Outside the Mails Including Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS (414/392). 4. Paid Distribution by Other Classes of Mail through the USPS (e.g., First-Class Mail) (1/1). c. Total Paid Distribution (Sum of 15b (1), (2), (3), and (4)) (4001/3926). d. Free or Nominal Rate Distribution (By Mail and Outside the Mail): 1. Free or Nominal Rate Outside-County Copies Included on PS Form 3541 (0/0). 2. Free or Nominal Rate In-County Copies Included on PS Form 3541 (0/0). 3. Free or Nominal Rate Copies Mailed at Other Classes Through the USPS (e.g., First-Class Mail) (0/0). 4. Free or Nominal Rate Distribution Outside the Mail (Carriers or other means) (0/0). e. Total Free or Nominal Rate Distribution (Sum of 15d (1), (2), (3), and (4)) (0/0). f. Total Distribution (Sum of 15c and 15e) (4001/3926). g. Copies Not Distributed (See Instructions to Publishers #4 (page 3)) (227/232). h. Total (Sum of 15f and g) (4228/4158). i. Percent Paid (15c divided by 15f times 100) (100/100). 16. Electronic Copy Circulation (N/A). 17. Publication of Statement of Ownership: Publication required. If the publication is a general publication, publication of this statement is required. Will be printed in the July/August 2023 issue of this publication. 18. I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties). Manager: Lorrie Penner, 7/14/23. PS Form 3526, July 2014.

OFFICERS

PRESIDENT

Jim Bourke

TREASURER

Jordan Ashley

VICE PRESIDENT

Rob Holland

SECRETARY

Sara Arnold

EXECUTIVE DIRECTOR

Stephen Kurtzahn

BOARD OF DIRECTORS

NORTHEAST REGION

DIRECTOR

John Ostmeyer

CIVA RELATIONS

Mike Gallaway

SOUTHEAST REGION

DIRECTOR

Marty Flournoy

COLLEGIATE PROGRAM

Jordan Ashley

MID-AMERICA

REGION DIRECTOR

Craig Gifford

CONTEST SANCTIONING

Jim Bourke

SOUTH CENTRAL REGION

DIRECTOR

Doug Jenkins

EXECUTIVE COMMITTEE

Jim Bourke

NORTHWEST REGION

DIRECTOR

Peggy Riedinger

GLIDER AEROBATICS

Shad Coulson

SOUTHWEST REGION

DIRECTOR

Brittanie Lincoln

GOVERNMENT RELATIONS CHAIR

John Smutny

INTERNATIONAL DIRECTOR

DIRECTOR

Dagmar Kress

HALL OF FAME COMMITTEE

David Martin

IAC HISTORIAN

Mike Heuer

JUDGES PROGRAM

DJ Molny

SEQUENCE COMMITTEE

Rob Holland

EAA REPRESENTATIVE

Mike Goulian

NOMINATIONS

Doug Sowder

NAA REPRESENTATIVE

Greg Principato

RULES COMMITTEE

Barrett Hines

ACHIEVEMENT AWARDS

Dave Watson

SAFETY COMMITTEE

Keith Doyne

ANNUAL AWARDS

Patty Anderson

TECHNICAL COMMITTEE

Tom Myers

The Tees are HOT- but you can shop in COOL comfort!



COOL comfort in our store

*Stop and shop in the
IAC Store in person at AirVenture
or find everything online at www.iac.org/shop*





© 2022 Experimental Aircraft Association, Inc.

A WHOLE NEW WAY TO ROLL



The EAA and International Aerobatic Club Aircraft Insurance Plan has all the special coverage options IAC Members require for recreational aerobatics, aerobatic competition and practice, airshow performances, and aerobatic flight schools.

Visit EAA.org/Insurance today for the right coverage at the best price for you.

Aircraft | Personal Non-Owned | Powered Parachute & WSC Trike | Accidental Death & Dismemberment | Flight Instructor | Hangar | Airport



Insurance Solutions

Administered by Falcon Insurance Agency, Inc.

EAA.org/Insurance | 866-647-4322

When you insure with the EAA Aircraft Insurance Plan you are helping IAC promote and enhance the safety and enjoyment of aerobatics.