



SPORT

# AEROBATICS

NOVEMBER/DECEMBER 2023

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

2023 IAC  
HALL OF FAME  
INDUCTEE

## LEWIS F. SHATTUCK

► ADVENTURES IN FLIGHT RECORDING  
Page 18

► SUPER STARDUSTER  
Page 26

► FIT TO FLY  
Page 36



**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](http://www.softieparachutes.com)



## CONTENTS



### FEATURES

#### 10 LEWIS F. SHATTUCK

IAC HALL OF FAME RECIPIENT

By Mike Heuer, IAC 4

#### 18 ADVENTURES IN FLIGHT RECORDING

By Bruce Mamont, IAC 432407

#### 26 PHOENIX RISING

REVIVED! SUPER STARDUSTER SS101

By Mark McKibben, IAC 18919

### DEPARTMENTS

#### 2 PRESIDENT'S PAGE

by Jim Bourke, IAC 434151

#### 4 EDITOR'S LOG

by Lorrie Penner, IAC 431036

#### 6 CHAPTER CHATTER

ACRO CAMP WITH A TWIST

by Alexis Nahama, IAC 441876

#### 24 U.S. NATIONAL AEROBATIC CHAMPIONSHIPS

#### 36 HUMAN FACTORS

FIT TO FLY  
ACHIEVING OPTIMAL HEALTH FOR COMPETITIVE AEROBATICS

By Joseph McMurray, IAC 441329

#### 42 CONFESSIONS OF A G JUNKIE

AN ADVENTURE IN TAILWHEEL LAND

by Tom Myers, IAC 16830

#### 44 PROGRAMS AND COMMITTEES

LATEST IAC ACHIEVEMENT AWARD RECIPIENTS

#### 47 2024 IAC CONTEST SEASON CALENDAR

#### 48 FLYMART



### COVER

#### ON THE COVER:

Hall of Fame Inductee Lewis F. Shattuck recognized for his service to our organization and our country, and as an outstanding pilot, mentor, and trainer.

#### ABOVE:

September 2022, after a couple of years of refurbishing his Super Starduster, Mark McKibben is ready to fly upside down for the first time since purchasing the project.

**Publisher:** Jim Bourke, president@iac.org

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

**Editor:** Lorrie Penner, editor@iac.org

**Contributing Authors:** Jim Bourke, Andy Cruce, Mike Heuer, Bruce Mamont, Mark McKibben, Joseph McMurray, Tom Myers, Alexis Nahama, Lorrie Penner

**Senior Copy Editor:** Colleen Walsh

**Copy Editors:** Jennifer Knaack, Bryant Shiu

**Proofreader:** Tara Barn

**Print Production Team Lead:** Marie Rayome-Gill

### IAC CORRESPONDENCE

International Aerobic 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 Aerobic Club, Inc. All rights reserved.

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

SPORT AEROBATICS (USPS 953-560), copyright © 2023 by the International Aerobic Club, Inc., is published bimonthly and owned exclusively by the International Aerobic Club, Inc., EAA Editorial Department, 3000 Pobereyny Road, Oshkosh, WI, 54902. Periodicals postage is paid at Oshkosh, WI, 54901, and additional mailing offices. U.S. membership rate for International Aerobic 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 Aerobic 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 Aerobic Club, Inc. Photographs will be returned upon request of the author. High-resolution images are requested to assure the best quality reproduction.

# Hall of Fame, the New Website, and Sustaining the IAC

BY JIM BOURKE, IAC 434151



## This Year's Hall of Fame Inductee Lew Shattuck

I WAS PLEASED TO see that Lew Shattuck was selected by the Hall of Fame committee to be this year's inductee. I understand we have a feature article on Lew this issue, so I won't try to add to the list of facts already presented there. But I do want to say that he is certainly eminently deserving of this award. Lew is a fun guy with a wry sense of humor and a tell-it-like-it-is attitude that I really enjoy. I was fortunate to receive some of my first aerobatic coaching from Lew at an IAC 77 camp in Ephrata, Washington. He has been flying aerobatics for longer than I've been alive, and people don't describe me as particularly young. He is a capable coach who knows how to instill confidence while simultaneously picking apart the challenges that hold his students back.

There are a lot of other qualities I like about Lew. He doesn't look down at his feet when he talks to you; you have his full attention. He offers a firm handshake. He is helpful. He corrects but doesn't condescend. If you solicit his opinion, he will tell you *exactly* what he thinks. In our culture today, not a lot of people are like that, and maybe not enough people value that. I don't meet a lot of people like Lew, but every time I do, I enjoy the heck out of them. If you know Lew, then lucky you.

## New IAC Website

By now you've seen the new IAC website, which is the culmination of a project we began June 8, 2022. The IAC website always has been a volunteer effort, but that could only take us so far. The site had become technologically outdated with poor support for mobile devices and security issues becoming more common. The effort to update the site was too large to expect any volunteer group to handle it. So, the IAC board heard proposals and enlisted the help of a vendor, Perficient, to get the job done.

I think everyone will agree that the new site looks much more vibrant and attractive than the old site. In addition to the obvious visual differences, the site also will be easier for our volunteers to maintain. We have a large archive of content on the website that they steward.

My thanks to everyone on the volunteer IT team for all the work they do: Tom Myers (Chair), "Bwana" Bob Buckley, Brennon York, and DJ Molny. Our members have come to expect a high level of results from this group of intelligent and entertaining folks. We can't thank them enough. I also want to thank Lorrie Penner for helping out with the transition with her editing skills.

Our new website offers a much simpler menu system that we think will be a lot easier for everyone to follow. We've put the most important stuff on top: Sign In, AirVenture, Nationals, and our Shop. Those are the items we want everyone to notice right away. Under them, we have our information organized according to what people want to do, so for example, we have the word "Celebrate" where we will find information on International Aerobatics Day, and we have the word "Compete" under which we can find information about the "Contest Calendar."

## Send Videos!

Our new website has videos that play on the front page. I love this feature, but for it to work, we need to receive fresh video content. We are looking for short videos of aerobatic aircraft that really tell the story of what the IAC is about. Something between 30 seconds and one minute

seems about right. It's okay if the content includes interview excerpts or just video of airplanes. Please, if you can make a professional video, we'd love to get some new content so that our website can be engaging for everyone who stops by.

### Sustain the IAC

One link you will notice in the header of the new IAC website is "Sustain." That's our polite way of saying, "Please give us your money!" Seriously now, the IAC is always looking for donations to support its mission: to spread the joy of aerobatic flight as widely as we can. You sustain the IAC by being a member, by helping us bring more people together at our events, by buying our merchandise, by volunteering, and by making a small (or large) donation. You can donate right on the site via a PayPal link, or you

can contact me or our executive director, Steve Kurtzahn ([execdir@iac.org](mailto:execdir@iac.org)), if you prefer.

### In the Loop

Speaking of IAC media offerings, did you know that the IAC has a mailing list that reaches more than 13,000 aerobatic enthusiasts each month? Our email newsletter, *In the Loop*, is probably already coming to your inbox if you are an IAC member. If you aren't seeing it, check your email program's spam settings. You also can subscribe to *In the Loop* online at [EAA.org/Magazines](http://EAA.org/Magazines). Click on "Manage Your Subscriptions." *In the Loop* is a great way to learn all about the latest happenings in the aerobatic world, so don't miss out!

### Thank You

Enjoy what is left of the sunshine in your area before winter sets in. As always, you can reach out to me at [president@iac.org!](mailto:president@iac.org) **IAC**

**LIFT**  
AVIATION®  
[LIFTAVIATIONUSA.COM](http://LIFTAVIATIONUSA.COM)

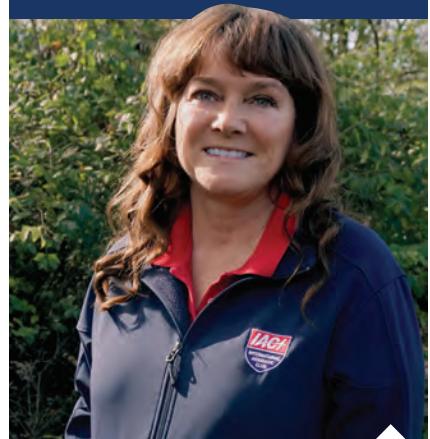
**AV-1 KOR**  
STRONGER | LIGHTER | VENTED

**XTRA330SC**

QR code

# Getting a Little Help From Your Friends

BY LORRIE PENNER, IAC 431036



**WOW, WHAT A WEEK!** The U.S. National Aerobatic Championships concluded on September 29. The week started out with an overcast layer of clouds that didn't want to move off, which slowed up getting everyone some practice time. Once the contest got rolling, it was blue skies all the way to the end. Although the sky remained blue the rest of the week, the last two days saw high winds and some creative rescheduling.

Led by Contest Director Shad Coulson, this year's U.S. Nationals was well organized and fun! All the evening activities were well attended, and the Wednesday night barbecue at the airport turned into an immediate favorite as members of the IAC board of directors served all the participants dinner.

The January/February 2024 issue will carry a full Nationals recap of all the flying and activities. In the meantime, enjoy the photos of all the national champions and other award winners in the center spread of this

issue. Congratulations to all our competitors and volunteers for a safe and fun-filled championship.

This issue honors our 2023 IAC Hall of Fame inductee Lewis "Lew" F. Shattuck. Mike Heuer, IAC historian and founder, has penned a wonderful tribute to Lew, who flew his first IAC contest in the Advanced category in a Pitts Special S-2A at the 1976 IAC Championships in Fond du Lac, Wisconsin. In 2009, Lew was awarded the Frank Price Cup for outstanding contributions to aerobatics, including as a national hero, his service to our organization and our country, and as an outstanding pilot, mentor, and trainer.

We can all learn something from each other, whether it is related to maintenance of our airplanes or our bodies so that we are "Fit to Fly," as in Joe McMurray's article about your health and fitness to fly aerobatics. "While the focus is often on the technical aspects of aerobatic flying, the importance of health and maintaining fitness should not be underestimated," Joe said.

"Sometimes I get by with a lot of help from my friends," Tom Myers said in his article that is centered on his tail wheel, with its slightly deformed locking pin in the tailwheel assembly, that jammed in the unlocked position as he was maneuvering to a tie-down spot. It took a small village, including the NorCal Aerobatic Contest director, Jake Carter, with a packet full of tools, a friendly FBO Skyview Aviation providing wooden blocks to elevate the tail, and Drew Detsch, Brian Branscomb, and Ilya Pirkin providing the muscle to lift the tail onto the blocks for repair.

Bruce Mamont shares his years of research on a recording device capable of capturing airplane position and attitude data. The data capture's purpose? To record flight path and airplane attitudes to help identify mistakes while practicing aerobatics. Some readers might remember that Bruce began this mission of discovery about two years ago and wrote an article titled "Coach in a Box." In "Adventures in Flight Recording" he has an update about recording devices.

Whether you have a flight recording question, wonder about health and fitness, or are looking for a tech tip, this issue and your IAC friends have you covered! If you have something to add to any of these subjects, please drop me a line at [editor@iac.org](mailto:editor@iac.org), and we'll give a little help to your friends, too. **IAC!**

## ► SUBMISSIONS:

Photos, articles, news, and letters to the editor intended for publication should be emailed to [editor@iac.org](mailto: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.

*• Something  
You Want •*



*• Something  
You Need •*



*• Something  
To Wear •*



*• Something  
To Read •*

You Can Get It All with IAC

IAC UNLIMITED COLLECTION AVAILABLE NOW AT [WWW.IAC.ORG/SHOP](http://WWW.IAC.ORG/SHOP)



Participants at the Acro Camp finding some shade and refreshments in the 110-degree weather.

## Acro Camp with a Twist

BY ALEXIS NAHAMA, IAC 441876

**WITH THE HAMMERHEAD ROUNDUP CON-**  
**TEST** (55 pilots and close to 200 flights in the box in less than two days) behind us, International Aerobatics Day also wrapped up with 18 general aviation pilots introduced to aerobatics in a day (Saturday, June 24). Three Great Lakes and a Super D were flown. The next Akrofest contest was at least three months away so, what silliness could we come up with to occupy ourselves acrobatically in the meantime? What about a camp with a twist?

With average temperatures in Borrego Springs, California, well over 110 degrees and a persistent marine layer coverage that blocked ground observation along

the coast at least until 1 p.m. most July days, holding a camp, getting a coach, and mobilizing everyone seemed like a really bad idea. So, of course, we said, “Let’s do it! What could possibly go wrong?”

First, we surveyed all our members to get a good status on their interest for a coaching camp, but to make it more interesting, we also asked about which Smooth awards they had earned previously. Oh, surprise! Very few of our current active folks, even among active



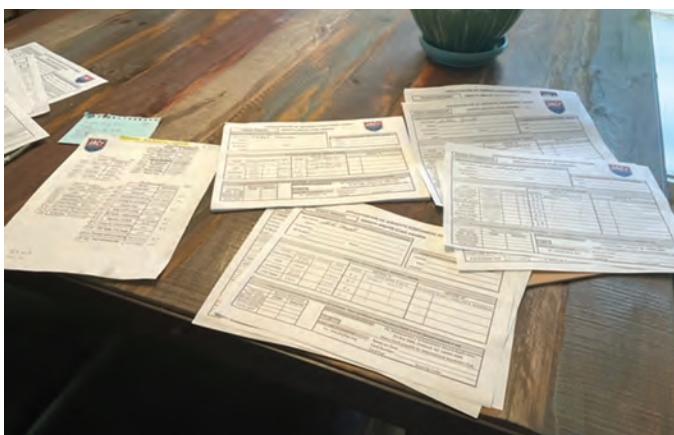


Congratulations to Miko Pawel for earning his Primary, Sportsman, Intermediate and Advanced Smooth Achievement Awards all in one day!

competitors and aerobatic CFIs, had earned all the awards that matched their current flying level. Big opportunity ahead!

For those unfamiliar with the Smooth awards, it is a wonderful program that allows anyone to work on individual figures and earn patches, pins, or decals with either ground scoring from a current judge or with an in-flight observer up to Intermediate. The figures to qualify are flown individually at each pilot's pace. The participant chooses to fly them all at one session or over time.

It is a great program because it can be used to give a goal between contests or training camps and also opens the door for pilots to try to work on figures beyond their current competition level – stretching and improving their skills but also preparing them gradually for the next move up. Or just allowing them the pure joy to be scored on next level figures for variety as they practice their free routines. The IAC Achievement Awards program is a flexible tool with a lot of underutilized potential. You need to check it out if you are not familiar with it.



Now back to our idea for a camp. Once we identified a dozen defective and interested members who had not earned Smooth awards among other major character and flying flaws, we set up to remedy that situation.

Chris Harrison agreed to drive down to San Diego for a scoring weekend. Gray Brandt agreed to coach those who wanted help over that weekend, too. A big thank-you goes out to Chris and Gray for their expertise and mentorship! The camp was scheduled for July 21-23, and we ended up flying on July 22 only.

For Plan A, we'd fly at Borrego Valley Airport (L08) on Friday, but the session was canceled due to horribly hot shoe-melting temperatures.

As for Plan B, we'd try Imperial Beach airport (KNRS); however, that session was canceled at 6 a.m. Saturday morning due to stubborn low cloud coverage, 600 feet overcast along the coast and all the way inland, and a shortage of fuel at Brown Field Municipal Airport (KSDM).



**IAC 36 might have broken a record and had tons of fun doing it!**



A well-deserved dinner and refreshments after an 11-hour flying day.

And yes, we also had a front and rain forecasted that did materialize Sunday, effectively scrapping that day, too.

Despite all that, we sent out a group text at 7 a.m.: "... everyone back to base at Gillespie." Plan C was put in motion; skies were clearing up east of San Diego.

At 8 a.m., we sent the coach and judge to a GPS coordinate location that we had fortunately scouted the week prior to camp just in case. No one had ever been to Gillespie Field Airport (KSEE) on the ground before. First time for everything.

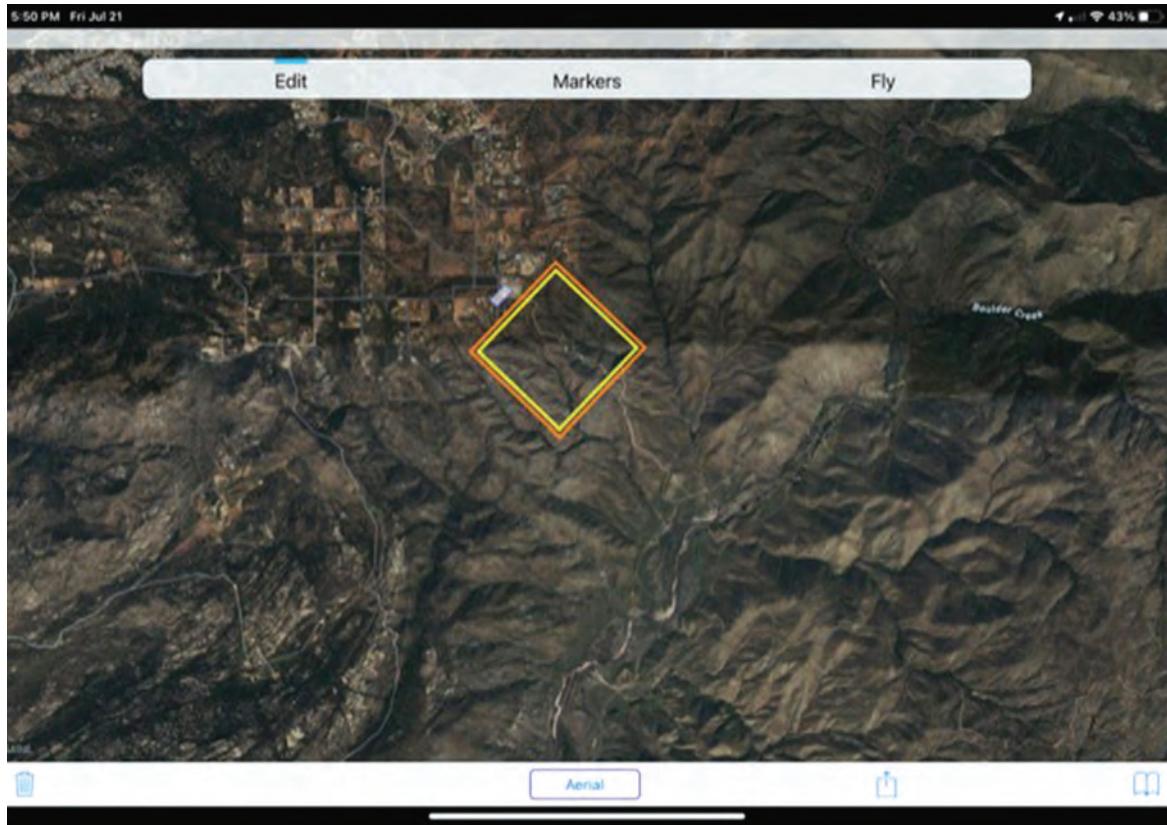
How did we find the judging spot? Somewhere in the mountains east of San Diego — within miles of our current practice area at Borrego Valley Airport. The initial spotting on satellite map showed some accessible roads for a prospective judging spot facing the valley that we thought would be good enough for a temporary box area. We made sure there was a big visible landmark: a private baseball field worked out great. And we did aerial reconnaissance in FlightSim to make sure there were no surprise features. Then one of us had flown the week prior to check it out.

As the second airplane for the box was desperately waiting for the cover to burn off so it could make the hop between Montgomery and Gillespie, our first airplane went out as a guinea pig. Miraculously, they found the spot, got in touch with ground, and completed the Primary Smooth requirement. It all worked out, and that pilot can now do decent slow rolls and has many ideas on how to practice them further.

From that point on, we were cranking all day nonstop, airplane after airplane. Every time an airplane entered the box, the next airplane would take off. Schedules were updated and texted to our ground station that kept begging for someone to air drop them margaritas and food. Eleven flying hours later and a total of 11.5 hours scoring/coaching sessions, we wrapped up the day with everyone having achieved their set goals. A well-deserved dinner and refreshments followed.

**IAC 36 might have broken a record and had tons of fun doing it!** The group completed 18 Smooth awards: eight Primary, six Sportsman, three Intermediate, and one Advanced (and two partially completed Advanced).

**Very few of our current active folks, even among active competitors and aerobatic CFIs, had earned all the awards that matched their current flying level. Big opportunity ahead!**



No one had ever been to Gillespie Field airport. We found it somewhere in the mountains east of San Diego.

Congratulations to Miko Pawel for earning his Primary, Sportsman, Intermediate, and Advanced Smooth Achievement awards all in one day! In addition to Miko getting them all, everyone did great, with many of our primary competitors earning their Sportsman Smooth and getting a taste of what is to come when they are ready to move up!

A caveat about how we organized the slots: For any IAC chapter wishing to learn from our experience, our biggest “aha moment” was organizing a judge/coach team with 30-minute time slots, which is long by coaching standards. Because the airplanes had a bit of traveling to get to the designated practice area, we wanted to allow them the use of the box for more than 15 minutes. It worked fantastically well.

To maximize their time in the box, everyone was briefed that there would be no leniency in the scoring or coaching. They had to bring their A game. Pilots would and did get “fails” for any figure not to standard.

Chris went by the (rule) book, slashing points right and left. Pilots arriving to the area would call out to the ground station, confirming their name and award sought. Then they would call the figures to be judged, fly them, and receive immediate pass/fail feedback. Next, they would decide if they wanted to move on to another figure or get coaching to fix what they were doing wrong. Gray, who coached throughout the day, worked with all the pilots to correct their deficiencies when necessary. Most attempts succeeded within two, or more seldom, three tries — with clear and visible improvements along the way. Our collaborative process, coaching between but not overlapping scoring, was a success.

There were moments of pure unexpected joy, such as cleanly snapping a Great Lakes on a 45 upline for example! You read correctly; Miko completed all the Advanced figures in the Great Lakes and in the hardest possible way in a biplane, not in a 300-hp monoplane that you point in the direction you want it to go and whisper softly in its oversized ailerons, “Please snap for me, baby.” Oh no. Making the Great Lakes fly Advanced figures requires bulky muscles and persistence!

We all had to get creative to get the most energy-consuming figures to work! All in all, we discovered a new and practical area for regular ground coaching sessions when the awesome Borrego box turns too hot even for the hellhounds. Everyone had a great time as a chapter; they worked hard to earn well-deserved awards, and the experience made our aviators better and more engaged IAC pilots in the process.

What a great day and a wonderful experience! **IAC**



# LEWIS F. SHATTUCK

## IAC HALL OF FAME RECIPIENT

BY MIKE HEUER, IAC 4

**THE CRITERIA FOR INDUCTION** into the International Aerobatics Hall of Fame, administered by IAC, are simple. A candidate must have made significant contributions to aerobatics. This can be done in any number of ways — as a pilot, designer, builder, administrator, innovator, or mentor to others. Above all, the candidate must show integrity, character, a devotion to service to others, and inspiration to all. Lew Shattuck, this year's inductee, meets those criteria and then some.



PHOTOGRAPHY COURTESY OF JOHN MORRISSEY

In 1976 Lew was invited to join the Blackhawks aerobatic team led by John Morrissey.

**Though his eye was injured, Lew was determined to continue to fly and loved the Pitts Special. His first was a Pitts S-2A, N27PS, he purchased from Marion Cole in Shreveport, Louisiana, as Marion was a Pitts dealer at the time.**

Enlisting in the U.S. Air Force in 1952, Lew went into the aviation cadet program and won his wings and commission as a second lieutenant in October 1954. From there, he flew a variety of fighter aircraft, including the F-86D, F-100, and F-105. It was in March 1966 when he found himself in Thailand with the 354th Tactical Fighter Squadron, flying the F-105 in combat missions over North Vietnam.

The F-105 squadrons experienced heavy losses during the war, and on July 11, 1966, Lew was forced to eject over the north and was cap-

tured that day. He spent 2,409 days in captivity until his release during “Operation Homecoming” on February 12, 1973. He was awarded the Silver Star amongst other awards for his service. He suffered damage to his left eye due to an infection that was not treated while he was a prisoner. He retired from the Air Force in 1976 as a full colonel.

On the day Lew was shot down, I was between my junior and senior years in high school, and the Vietnam War was far away but on everyone’s mind. It was a time of discord and division in our country, with far-reaching consequences that have affected events in today’s world as well. Our support for our POWs and the desire to bring them home safely was

In 1978 Lew transitioned to a Pitts S-1E and won the Pitts Cup (high-scoring Pitts pilot for the year) and the Pitts Trophy (Unlimited winner at the IAC Championships) at Fond du Lac, Wisconsin.

PHOTOGRAPH COURTESY OF MIKE HEUER

never in doubt. In my case, I ended up in USAF pilot training, and on the day Lew was released, I was finishing up my training in the T-38. But it wasn't until three years later when I finally had my first acquaintance with Lew Shattuck.

Though his eye was injured, Lew was determined to continue to fly and loved the Pitts Special. His first was a Pitts S-2A, N27PS, he purchased from Marion Cole in Shreveport, Louisiana, as Marion was a Pitts dealer at the time. It was in 1976, the year of Lew's retirement from the Air Force, that he appeared at the IAC Championships in Fond du Lac, Wisconsin, for the first time and flew that S-2A in Advanced to a sixth place out of 23 total pilots. That was the year that my father, Bob Heuer (IAC's first president), and I served as co-chairmen of Fond du Lac. For IAC and the country, 1976 was a big year, as it was the nation's bicentennial, and altogether, 102 pilots flew at Fond du Lac that year, including an incredible 31 in Sportsman and 38 in Intermediate. The Unlimited category attracted 10 pilots, and it would have been many more but the U.S. team was competing in Kiev, USSR, that summer and was away for the event.



US Air Force awards and wings, among them the Silver Star.

Departing Hanoi in 1973.



US Air Force official portrait.





The Blackhawks formation aerobatic team became the Holiday Inn team in 1977. Both Lew and John left the team after a very successful 1978 season, having performed at 23 locations. PHOTOGRAPHY COURTESY OF JOHN MORRISSEY

In 1977 and 1978, Lew returned to Fond du Lac and moved up to Unlimited. In 1977, the Unlimited category grew again to 25 pilots, and Lew's results placed him in 14th. He had transitioned to a Pitts S-1E and in 1978 finally won the Unlimited category as well as the Pitts Cup, an award given to the highest-scoring Pitts pilot in terms of percentage of points possible in any category. As an interesting aside, the chief judge in 1978 was Bob Herendeen, a former U.S. Nationals champion and team pilot who became legendary in the competition and air show world in various

aircraft. It was the Pitts, however, that was the airplane Bob flew for his titles and at the World Aerobatic Championships in 1966, 1968, and 1970, helping to popularize the Pitts as a competition machine.

During those early years, Lew and John Morrissey became good friends, and Lew was invited to join the Blackhawks aerobatic team in 1976, which John led, and in the "slot" position for the four-ship air show team, all flying Pitts S-2s. All of the team pilots were former fighter pilots and flew an incredibly precise air show



Lew in Blackhawk 4.



## 1994 United States Aerobatic Team

Lew served as the team's official videographer in Debrecen, Hungary.

1996: Lew served again as the team's official videographer in Oklahoma City.



PHOTOGRAPH COURTESY OF MIKE HEUER

**His last contest was in the Advanced category at the Apple Cup in Ephrata, Washington, in June 2018. He was 85 years old at the time and decided it would be his last.**

also offered his video skills. Later, Lew joined John at his long-running and well-known training camps in Ashland, Kansas, as an assistant and later a student himself. Those training camps, under John's direction, have trained hundreds of aerobatic pilots for competition, and the roster of pilots who have participated over the years reads like a "who's who" in aerobatics. John Morrissey himself was inducted into the Hall of Fame in 2019 as a result of those contributions to our sport, as well as his long service in other IAC and team positions.

In more recent years, Lew has flown a Giles G-200, N354TF, at IAC contests in the northwest region. IAC's online contest database starts in 2006, and from that year until 2018, Lew flew in 30 regional contests and likely many more before that for which results are no longer available. His last contest was in the Advanced category at the Apple Cup in Ephrata, Washington, in June 2018. He was 85 years old at the time and decided it would be his last. He also mentored pilots and judges at training camps in Ephrata over many years.

In 2009, Lew was awarded the Frank Price Cup for outstanding contributions to aerobatics, including as a national hero, his service to our organization and our country, and as an outstanding pilot, mentor, and trainer. It was presented at the U.S. National Aerobatic Championships that year, where Lew also flew Unlimited in a Giles G-200.

To quote our mutual friend, John Morrissey, "Integrity first, service before self, and excellence in all we do. That phrase was used by Gen. Ron Fogelman [former chief of staff of the Air Force] at our last reunion [of F-105 pilots]. Of course, it describes all who were prepared to give all. And Lew was an integral part of that relatively small band of brothers of resolute,

stout, and courageous men. He was shot down once and rescued and was back in the cockpit two days later."

It is with great pleasure we welcome him to the Aerobatics Hall of Fame.

---

**Mike Heuer** found himself in the right place at the right time in 1970 as the IAC was being formed. His father, Robert "Bob" Heuer, was the IAC's first president. As a 20-year-old, Mike attended all of the early meetings and assisted his father in the day-to-day administrative work. In 1973, he became the IAC's vice president and in subsequent years served as treasurer and two terms as president. He flew in the Advanced category on and off for 24 years.

2011 Beaver State contest, Pendleton, Oregon. Five Giles G-200s lined up. Courtesy of DJ Molny. Left to Right: C-FAMP Charlie Teeuwsen, N354TF Lew Shattuck, N571WF Mac Engh, N200PD Phil Deturck and N220DJ Molny.



**mt-propeller**



Available for almost every aerobatic and experimental aircraft.



Kirby Chambliss



Extra NG



GB1 Gamecomposites



Super Decathlon

**MT-Propeller USA, Inc., Florida**

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

**MT-Propeller  
Headquarters Germany**

Phone: +49-9429-94090  
Fax.: +49-9429-8432  
e-mail: sales@mt-propeller.com



**[www.mt-propeller.com](http://www.mt-propeller.com)**



PHOTOGRAPH COURTESY OF MIKE HEUER

# Adventures IN FLIGHT RECORDING

BY BRUCE MAMONT, IAC 432407

**I SUSPECT THAT MANY OF US,** especially Primary and fledgling

Sportsman pilots, wonder if we're reinforcing bad technique when we're practicing. We don't have enough experience to recognize our mistakes. We also don't know if we're reinforcing what we're doing correctly. I don't fly frequently enough with an aerobatic instructor or have a ground observer who provides feedback.

It seemed to me that watching an animated recording of a flight path and airplane attitudes could help me identify mistakes and determine why I was making them. I could share a recording of a solo practice flight with an instructor; even better, we could use a recording of a lesson or a coached flight for a debrief.

I understand that figures are scored by people on the judging line who literally have a different perspective. The replay of a figure in a tool wouldn't match how a figure would look from the judges' line. However, using a recording to improve figure conformance with IAC scoring rules should help to score better at a contest.

I started searching for a recorder capable of capturing airplane position and attitude data. A recording tool would need to capture data at a high rate.

The off-the-shelf high-performance units offered online were prohibitively expensive, priced for military or commercial users. Early efforts to build a do-it-yourself recorder appealed to me but ultimately required more time than I could devote.

Still looking for ideas, I came across a Facebook site for Flight Recording Systems (FRS), [Facebook.com/FlightRecordingSystems](https://www.facebook.com/FlightRecordingSystems),



**BRUCE MAMONT**

which led to the FRS website FlightRecordingSystems.com. The FRS developers in Milan — Andrea and Roberto Gatti — are aerobatic airplane owners and pilots. The Flight Recording Unit (FRU) they sell offered the best fit for my requirements. I purchased an FRU and a support subscription. Andrea and Roberto have been impressively responsive to my suggestions for FRU enhancements.

I clamp my FRU to the cockpit frame of our Super Decathlon and align it with the lateral and longitudinal axes. (See the photo below of an FRU mounted in an FRS airplane and my Super D.) Two bubble levels I attached to the FRU align it with the roll and pitch axes. After a flight, I upload FRU data files to FRS for processing either over an iPhone hotspot Internet connection or over my home Wi-Fi network. FRS notifies me by email when the processed files are uploaded to a shared Google Drive folder so I can view my flight.



The Flight Recording Unit (FRU) in a Flight Recording Systems (FRS) aircraft.



The Google Earth Pro flight path from the FRS Facebook page.

FRU files are in KMZ format for viewing in Google Earth Pro. The Google Earth Pro flight path and attitude data are high resolution. Fully exploiting the KMZ format in Google Earth Pro requires some practice.

FRS also produces a CSV format file that can be imported into CloudAhoy for viewing. The CloudAhoy visualization and animation capability is much easier to use than Google Earth Pro but sacrifices the high resolution of the KMZ file. Using CloudAhoy requires a CloudAhoy subscription, adding to the

cost, but offers other advantages. One is that the recording of a flight can be shared with others (like an instructor) to whom the subscriber can send a link that launches a CloudAhoy session. A CloudAhoy account isn't required to watch a shared CloudAhoy flight. You can watch a CloudAhoy animation of the flight that includes the above loop extract at: [www.iac.org/in-the-loop-adventures-in-flight-recording](http://www.iac.org/in-the-loop-adventures-in-flight-recording)

FRS also responded to my request to create an X-Plane "flight data recorder" or "FDR" file. I can watch an animated replay of my flight in X-Plane 11.

Tacview, which describes itself as a "Universal Flight Data Analysis Tool" ([Tacview.net](http://Tacview.net)) is also available to watch a flight animation. The French air force uses Tacview (tempting me to infer that it might also be used by the

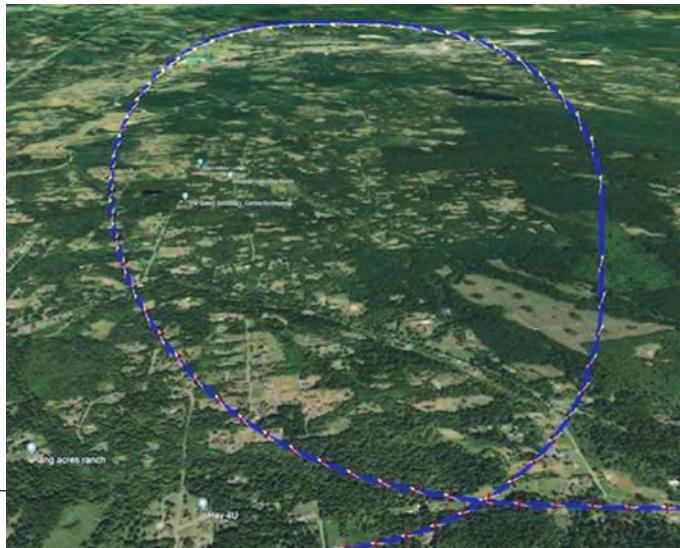


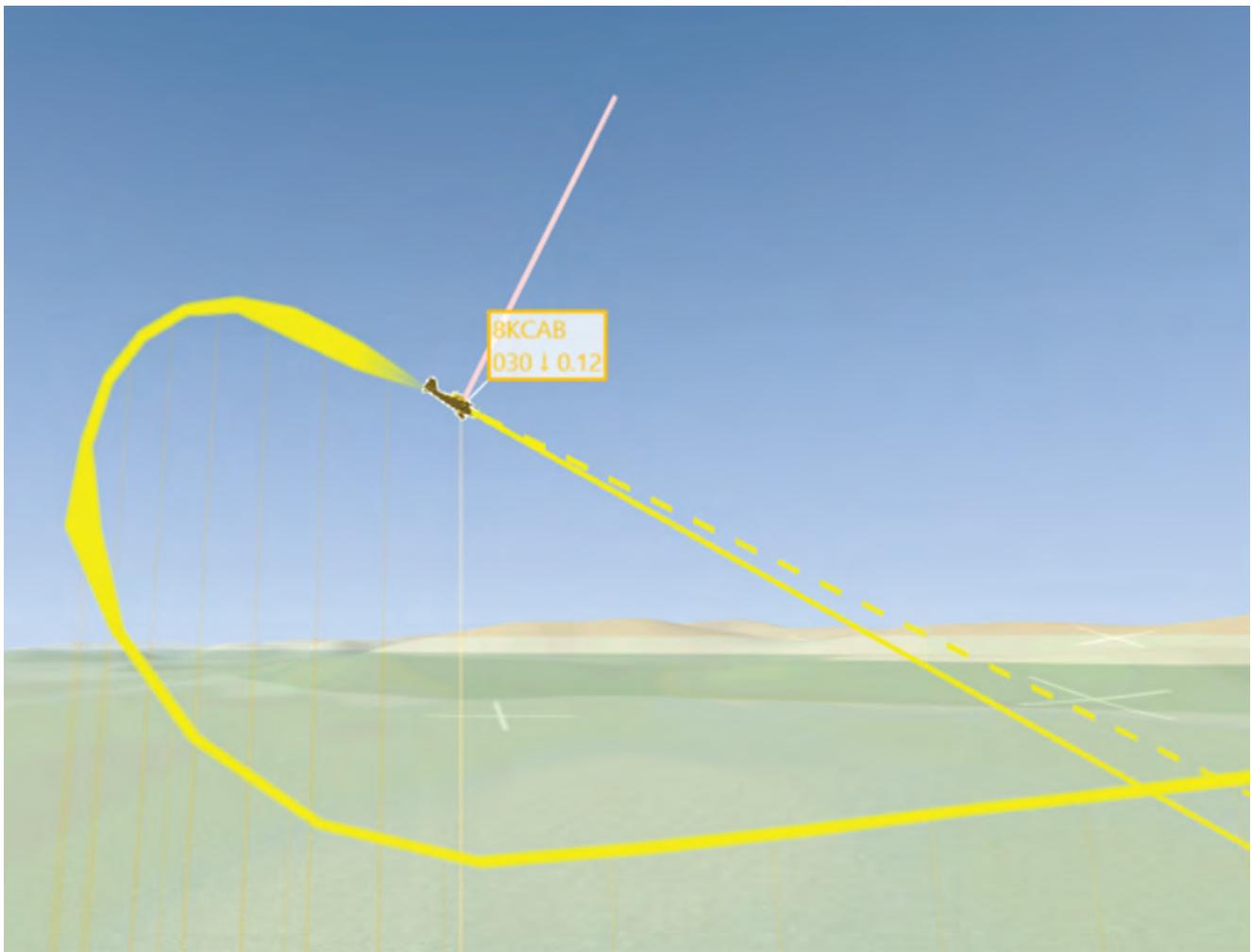
French national team aerobatic pilots). As a result of a collaboration with Tacview developers, FRU CSV files can be viewed in Tacview, which offers a demo version; a license cost me \$26. Of the “visualization” alternatives, Tacview is the best (a best value) option ... so far. FRS is also adapting Cesium open-source software to create a capability to view an animation of a flight. This version of Cesium will be included with the purchase of the FRS service.

A loop in my Super Decathlon from Google Earth Pro.



The FRU mounted in my Super Decathlon.





FRU CVS files can be viewed in Tacview ([Tacview.net](http://Tacview.net)).

In March 2022, my FRU and an FRS subscription cost €654, about \$750 at that time. If you have a subscription to CloudAhoy, you can view FRU recordings processed by FRS into a CloudAhoy CSV (similar to Microsoft Excel) format.

Of course, flight recording systems don't capture my control inputs. I can't literally see my mistakes, only their consequences; a flight recording displays responses to the control inputs, not the control inputs.

Even if I could routinely fly with an instructor and enjoy ground-based coaching, a post-flight debrief

supported by an FRU animation should make a teaching, training, or practice flight even more valuable. Imagine the difference between "Remember when you did this?" and "See how you did this?" during a debrief. Having a practice flight recording has helped me diagnose and fix problems with my looping figures in particular; I was making inadvertent rudder and aileron inputs during the second quarter of my loops. I could see from the cockpit when reaching the top of my loops that my wings weren't level and I was off heading. I knew I had a problem. But I couldn't figure out (no pun intended) where in the figure I was inadvertently applying rudder and aileron that caused those deviations. Watching my loops helped me fix the problem (without creating a new problem). I'm confident that using the FRU will improve execution of my figures, make my practice sessions more satisfying, and focus my training. **IACt**

# A COACH IN THE COCKPIT

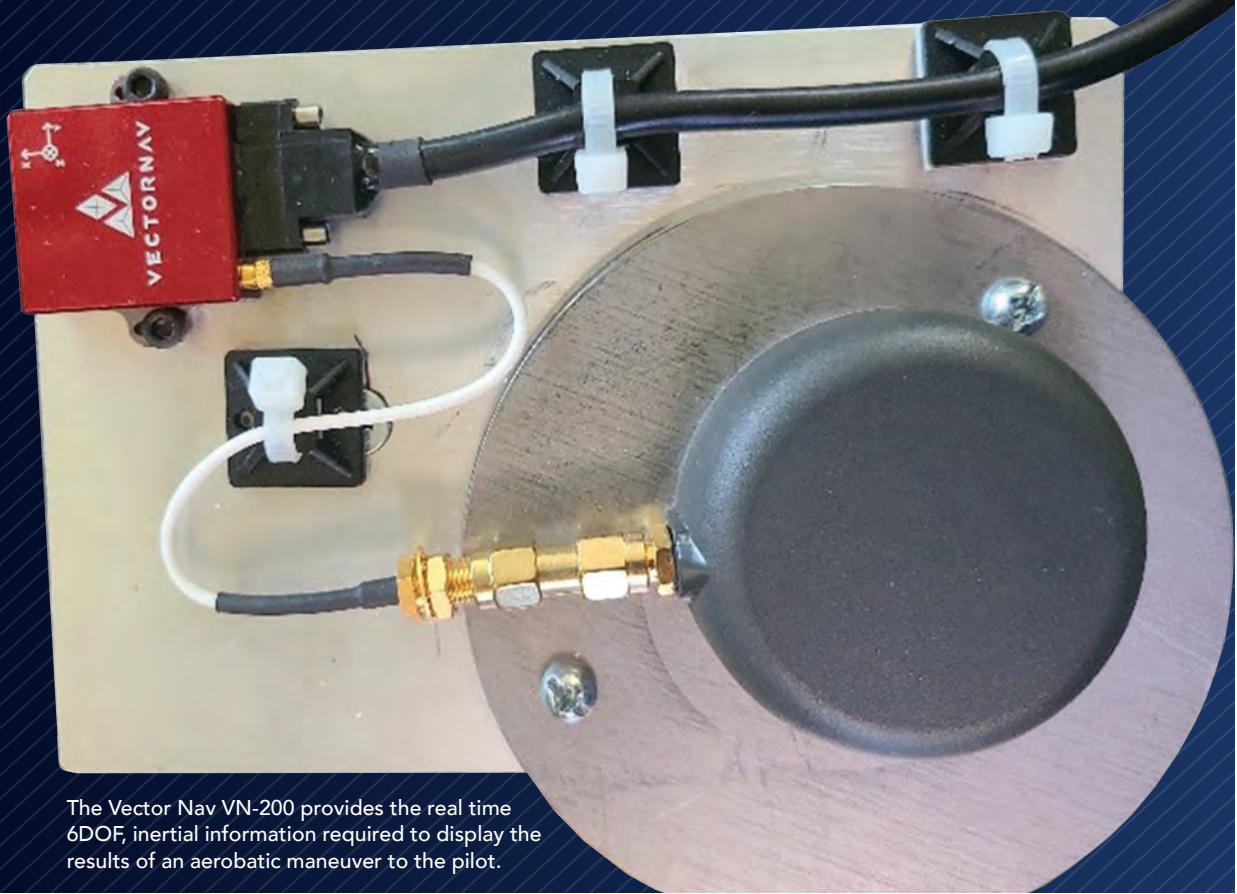
BY ANDY CRUCE, IAC 437169

A famous golf instructor once said that “practice makes permanent, not perfect.” That is exactly the case in practicing aerobatic maneuvers. You do a loop, the ground goes around, you come out on altitude and heading, but you don’t really know how circular the loop was. Having a coach on the ground provides additional input to critique the maneuver, but who has continuous access to a coach?

A way around this issue is to collect six degrees of freedom (6DOF), inertial frame dynamics of the airplane during the maneuver, and then display the results to the pilot immediately after the maneuver to determine the accuracy of the maneuver. Collecting the data in an inertial frame will distort the maneuver in the presence of wind exactly as a coach on the

ground would have seen the maneuver. When the maneuver is shown on the tablet in the cockpit immediately after the maneuver, the pilot can immediately determine how accurately the maneuver was performed. Was a loop circular or squared off? How close was the dive angle in a shark’s tooth or Cuban to the required 45 degrees? Was the competition roll level with constant roll rate? Getting this kind of feedback immediately after the maneuver allows the pilot to try it again to correct the mistakes. As I said, it’s almost like having a coach in the cockpit.

View the full article online at: [IAC.org/articles](http://IAC.org/articles). There are links to videos illustrating how this system can be used by the pilot.



The Vector Nav VN-200 provides the real time 6DOF, inertial information required to display the results of an aerobatic maneuver to the pilot.



#### ADVANCED POWER

L to R: 1st place Britt Lincoln, 2nd Mario Mena (not pictured), 3rd Michael Lents



#### PRIMARY POWER

L to R: 1st place Justin Miller, 2nd Sara Arnold, 3rd Olivia Yeiser



#### UNLIMITED POWER

L to R: 2nd place Jeff Boerboon, 1st Rob Holland, 3rd Jim Bourke



#### SPORTSMAN POWER

L to R: 2nd place Wayne Forbes, 1st Phillip Gragg, 3rd Chris Rudd



#### INTERMEDIATE POWER

L to R: 2nd place Justin Hickson, 1st Jerry Esquenazi, 3rd Nathan Ruedy



#### GOODRICH TROPHY

Luke Penner – highest scoring non-citizen



**INTERMEDIATE GLIDER**  
L to R: 3rd place Gretchen Knox, 1st Andre Gerner, 2nd Jacob Mohans



**HIGHEST-SCORING GLIDER IN THE FREE PROGRAM – Greg Borovskyh**



**SPORTSMAN GLIDER**  
L to R: 2nd place Greg Borovskyh, 1st Robin Simmons, 3rd Joseph Tschetter



**PRIMARY GLIDER**  
L to R: 3rd place Larry Ruggiero, 1st Vivian Pfleger, 2nd Brandon Humphreys



**SAFETY AWARD**  
Chris Rudd



**OLD BUZZARD AWARD**  
L to R: 2022 winner Marty Flournoy presents to 2023 winner Steve Johnson.  
The Old Buzzard Award goes to the highest-scoring pilot over 65 years old.

IAC

# Phoenix Rising

## REVIVED! Super Starduster SS101

BY MARK MCKIBBEN, IAC 18919



I DON'T REMEMBER IT, but my first airplane ride was in late summer/early fall of 1961. At the time, Dad was a helicopter pilot in the U.S. Air Force based out of Charleston Air Force Base (now Joint Base Charleston), North Charleston, South Carolina. He snuck Mom out to the base dressed up in a flight suit to hide her bulging belly and to show her Charleston from the air. I was born in December.

We got an Aeronca Chief when I was 5 years old. This time I would remember that I sat up on my knees to see over the panel during the flight. The next year when I had just turned 6 years old, Dad brought home a Stinson 108-3, which we still own. Eventually I would solo the Stinson at 17. Then Dad got a Pitts Special S-1C "flat wing" that I drooled over, and I worked on it with him every chance I got. Contests and air shows were part of my childhood. Finally, I got my private pilot certificate in 1990.

My initial aerobatic training took place in a Super Decathlon by trading maintenance work for a 10-hour aerobatic course. The flight instructor was an extended family member, Carl Austin, who was instructing in the Decathlon at the time. He was also doing maintenance. So, he would give me some instruction, and then I'd help with getting the Decathlon ready for inspection, adding oil to the pump and pulling off the accessory gear case.

Over the years, I have either owned or flown everything from a clipped wing Taylorcraft to a Hiperbipe, a Pitts S-2B, a Smith Miniplane, and back to a clipped wing Piper Cub (aka Cubby).

Fast-forward to 2019 when an airplane located in Washington that I had seen years before showed up on Craigslist. I had to have it. I had been drooling over that airplane, trying to figure out how to not write bad checks for it.

The airplane was available for a reasonable price under \$10,000. I immediately sold the Cubby and used some of the proceeds to pay the owner of one of two existing Super Starduster SS101s. The airplane was one of the last designs of the acro bipes from the Stolp Starduster Corp. It built three Stardusters including this one. One of the three was the first one built by Bill Clouse and Jim Osborne. My new-to-me airplane was designed with Acroduster 1 wings with symmetrical ailerons and a heavily modified SA-100 Starduster 4130 fuselage. You can see the airplane I purchased on the 1984 December cover of *Sport Aerobatics*.

After hauling it over the western mountain ranges, the Starduster was delivered to Casa de Smizo (aka Griggs Aircraft) at the end of January 2020, and Chris “Smizo” Murley and his partner Matt Griggs jumped on getting it unloaded. Chris was excited about my new project. He expressed how cool the airplane looked. I contracted with Chris to build a new engine mount as my “Franken” engine, an old Lycoming cobbled together from parts of various other aircraft engines, was conical and the existing mount was dynafocal (specifically, a dynafocal Type I). The amount of help I needed at this point to restore the airplane was staggering. There were many people who were selfless in making my dream come true.

As we all are painfully aware about two months later the world came to a screeching halt. Finally, in June 2020, I was able to take the engine and go see my airplane for the first time in person. I was able to hang the engine on the new mount and plumb most everything. Heck, I was thinking, I’ll have this flying in no time. I shake my head at that thought. I was not the brightest bulb in the pack.

Because of the distance between the shop where the Starduster was and my home, I was making four-hour commutes every couple of weeks. When I wasn’t at the shop, the paperwork made for fun reading at night. After some “light” reading, I figured that I was owner No. 6. Jim Moss, the 2017 Vintage Aircraft Association Hall of Fame honoree, had owned the Starduster for a while. He built/rebuilt many award winners, including an authentic full-scale copy of Benny and Maxine Howard’s 1935 Bendix Trophy and Thompson Trophy winning Howard DGA-6, *Mister Mulligan*.



On September 12, 2022, Mark took off for his first grass field landing since purchasing the Super Starduster project.



The Super Starduster graces the cover of the December 1984 cover of *Sport Aerobatics*. The plane was built by father-son team Dick and Tom Green.



February 2020, Tom Womack did a great job of moving the project from Washington state to Pennsylvania, with a 1,000-mile detour around the western mountains.

The Starduster was a heavy airplane with an angle-valve IO-360 and a Hartzell compact hub constant-speed prop. I was looking to have it lose roughly 100 pounds. What an ambitious goal!

The control system on the airplane has been used on some other notable aircraft like the Ultimate series of Hiperbipes. The ailerons are interconnected with the elevator; with full up deflection the ailerons droop, and they reflex when the stick goes forward. Roughly, 15 percent of droop/reflex happens. Vernon Payne of Knight Twister fame is the engineer who created this for the Ultimate and the SS101.

The 4-to-1 header that was on the Smith Miniplane from my Reno air racing days fit like it belonged there. A lot of labor was put into the project before it was ready to start; however, there was no oil pressure showing on the test start. I had stuck on a Hegy propeller for the start and finished the plumbing and wiring. Without oil pressure, I was done and headed home.

In August I took a week off from my day job to work on the *Ol' Gal*. The oil pressure prime was resolved, and I attempted a start. Somehow the timing was messed up, and it was determined that the impulse coupling was not working. Mysteriously, when the coupling was removed it was accidentally trashed. Moving on, the tailfeathers were installed and rigged. After about 50 hours of work, a baffle kit from Van's Aircraft still wasn't done.



June 2020, Mark finally got to see and touch the plane and got some work done on it. Engine control things to work out first.



Mark putting in long days of work, including swapping out the angle-valve IO-360 engine with Mark's previous engine from his Smith miniplane.



Getting a little help from a friend, Dan Williams.



The wings are ready to hang.



The modified SA-100 Starduster 4130 fuselage exposed.

I made the decision to move the Starduster closer to home before another month passed by. When the first Saturday in September came along, I got the airplane unloaded in the hangar and managed to get the magneto repaired, onto the airplane, and timed. About this time a hangar neighbor recommended some changes to the inverted oil plumbing. The Starduster was starting to look like an airplane, and by the next week the engine was running, but I had rigged the mixture backward. The engine purred and sounded healthy, though. I went ahead and rerigged things, but the Starduster was not happy running above idle. Thinking it was the fuel delivery, I did some cleaning and adjusted the throttle body-mounted injectors (TBI).

October rolled around, and I was able to get it to run a bit better but was still fighting the ignition, and then the harness. I was checking things off the items list, but adding others on. The engine ran enough for me to see it was very rich at idle. I had hoped to start hanging the wings by that point. Life intervened, and shortly after this my wife was rear ended while driving her car, which resulted in a fusion of four disks with rods



Chris Murley (contracted to build a new engine mount) and his friend "Banks" make a toast to the project.

and screws. Major surgery and recovery during COVID are not a recommended path, but sometimes you just have to play the hand you're dealt.

I didn't get back to the Starduster until March 2021. I shaped up some aluminum and tried my hand at making a fiberglass spinner. I refocused and got organized to start work again. The work was slow, but by May 2021 I had completed the baffling and figured out how to hang a wing panel by myself. I got the wires on, tuned, and rigged the wing.

During a two-day flurry of activity, I put the fairings and cover plates on, secured the javelins but the wheel bearings ended up being trashed, and installed the wheel pants. I replaced the Odyssey PC925 battery, which



August 2021, "Bang!" During an overflight of the airport, the plane was shaking. After a successful landing, the propeller debris and spinner were found at a golf course nearby.



The SS101 plans were used extensively during the project.

weighed 23 pounds, with an EarthX PC680 and then removed an emergency locator transmitter, a venturi with an attitude gyro, and a ton of miscellaneous stuff. The weight and balance came in with roughly a 110-pound weight loss. The empty weight of the Starduster was now 860 pounds.

The CG was at the back end of the typical CG because I didn't read the plans clearly. I had never seen a never exceed aft CG calculation. I can only assume it's the neutral point. It was still 5 feet forward of that.

The ailerons have an internal bellcrank in the I-strut to operate the upper ailerons. There was some slop between the upper and lower. Eric Anderson has a Ray William-built Pitts S-1 with a similar setup, and Smizo told me his was almost identical. I've made a note to myself to be cognizant of the sloppiness of the ailerons. I also trimmed and installed the homebuilt spinner with the Prince two-bladed propeller.

May 2021 continued to be a productive month. I began pushing even harder to take



Working on the wings.



Mark's Super Starduster doesn't have center sections; the upper wings bolt together in the center.

the airplane to National Aerobatics Day (NAD) at Skyhaven Airport (76N) in June. The little engine that could, couldn't, and I was unable to get the engine to rev beyond 2000. To say I was frustrated was an understatement. Of course, timing is everything, and it was also time for a flight review! I flew 1.2 hrs. in the back of a Citabria, and although I was rusty, handling the airplane came back fairly quick.

During the summer, I thought I was ready to fly the Starduster, and this time ended up with a radio issue. I had my friend Brian Miller help me troubleshoot the radio. We worked the problem until it was to the point where I called it a day, because just too many things were going against us. The next weekend, with the radio mounted, I could get the engine to only 2000 rpm. In a continued effort to get over 2000 rpm, I installed a TBI for inverted fuel. It had run on this engine, in a different airplane with a slightly different setup, before without any issues. I closed off the air so it was drawing from inside the cowl with no change. I thought it might be disturbed flow, which is a known issue for the TBI. No luck.

August came and I broke down and talked to engine wizard Danny Bond, and he pointed out the mistake I made with cam timing. After several tries and finally using a degree wheel, I got the timing to perfection. The TBI seemed okay at this point, so I went with it. On the 15th I did one lap around the pattern. The wing rigging felt good; the elevator, not so much. With such a weight shift it needed more down elevator than I could hold. It climbed at about 2,000 fpm. I rerigged the tail and worked on the comm radio. Electricity is not my strong suit. Tried eliminating things that would cause noise. It doesn't have an alternator, and there didn't appear to be noise on the P-leads. I found out later that the new radio had an issue with the antenna.

At the end of August, I went to the Polk Contest and judged. There I installed a new radio, thanks to Pacific Coast Avionics for a quick delivery. The local avionics guy lent me a crimper I didn't know I needed. Had it all installed and buttoned by noon.

Talked to the tower at KESN about an overflight of the airport as it was my "first" flight of length. Rpm was 2450 static, climbing at 2,000 fpm at 120 mph. Temps pushed 400 degrees during the heavy climb, so I pushed over and added cruise climb at 140 mph to 2,500 fpm. Still holding forward stick, I realized I would need to make a new hole for the stab to get a better adjustment. I was starting to get comfortable, the oil pressure was good, and the temperatures were good. With 2500 rpm I was getting 150 mph or so. And then BANG, and it was shaking really bad. I

heard myself call "Mayday" and pulled the throttle to idle. The Starduster was still shaking so I shut it down.

I was parallel to the long runway, so I set up a glide at 100 mph. The landing would be downwind, but at least the runway was 5,500 feet. It flared a little high but rolled straight and made it off the active runway by coasting. Bob Hoover might've been impressed. I had noticed the prop rotate in the wind, and one blade was missing at about 12 inches. With some help from my friends at the airport, the Starduster was tucked back in the hangar.

I don't know which let go first, the prop or the spinner, but the airport manager got a call from the golf course about debris, and he went and got it. Of course, I talked to the FAA immediately after the incident and again the following Monday.

Everything needed to be checked from the firewall forward to make sure all was where and how it was supposed to be. This was my first dead-stick with the prop stopped. Eerie,

August 2021, "Bang!" After an emergency landing, Mark, "...noticed one blade was missing about 12 inches."





Mark flew in the 2023 James K. Polk Open Invitational and won 1st place in the Primary category.



so quiet it took a while to sink in. I did some math, thinking about the glide ratio I had on the airplane, 4-to-1, and felt lucky to have made the field.

In September, I spent some time at home and worked on inspecting the airplane. Took all the panels off and checked for cracks and anything broken. I didn't find anything. Made

the drive out to Cape May, New Jersey, for the Wildwood Acroblast contest and judged. My friend Chris Meyer was flying his recently acquired Pitts S-1 he bought from Eric Sandifer. Chris had removed the Catto propeller that was on the airplane for a trusty Sensenich that he felt better with. He offered the Catto to me to try on the Starduster.

The people of airplanes and especially the IAC are the best people on earth! I wasn't sure the 320 on the Starduster would have the guts to turn it. However, the Catto was able to turn 2150 static. Shortly after the Catto install, I planned to fly but came up with a bad plug. While I had the plugs out, I worked on the prop again to try to pull out some kinks. With adjustments the airplane would now climb at 2,000 fpm at 2300 rpm. I flew several laps around the airport. It was getting late, and I figured I'd do some testing and pushed the throttle forward. When the tach hit 2700 rpm, the engine got quiet. I quickly pulled the throttle closed and the airplane began vibrating, so I squeezed the throttle forward and it was running again.

I asked the tower for priority to land, and the Starduster floated forever down the runway. After getting the Ol' Gal back to the hangar, I pulled the plugs and it was lean on top. My hangar neighbor Rich said he heard a pop; I figured there was a lean backfire, and that got my attention. Time to play with the metering again. The engine was crisp off idle and through the mid-range. I was working feverishly to make the Farmville contest.

I had Veterans Day off, so I spent it flying the airplane. Did 20 minutes and three landings in the morning. After lunch I did a couple full stops and a touch-and-go. I screwed the last one up, getting confident, and as it climbed through 800 feet, the engine quit! I moved the stick forward and made a hard left, only losing 200 feet but realized that landing downwind

I would likely run off the end. Felt the airplane shaking, and it was running at idle. Made a 270-degree turn to land on the cross runway.

Adrenaline is good stuff, as I landed with a significant crosswind just fine.

It was May 2022 before I got back to work on the airplane. With the engine work complete, I tried to start it and raw gas began running out of the exhaust pipe. I had not had the unit overhauled and thought it had gone bad from sitting. Don Rivera at Airflow Performance did me right and turned it around in 10 days. Unfortunately, I put the overhauled engine back in, and it did the same thing! Made a couple of calls and the solution was to plumb it correctly, and voilà, it ran like a champ.

Installed the Prince prop and went around the patch, and it would hardly turn 2400. That wasn't going to work. Eric Anderson let me try his Hercules propeller, and it was also too strong for the engine. To the rescue was Bob Schmidle who had a Catto from his old S-1C. It was set up for a 320, and we made a deal on it. After installing the Catto from Bob, the airplane climbs at 2450 rpm at 120 mph showing 2,000 fpm. Cruise is somewhere about 140 mph at 2400 rpm. It burns about 8.5 gph at cruise.

Things I have noticed about the Starduster, as I am trying to find out what the *Ol' Gal* likes and doesn't like:

- The airplane tracks straight as an arrow if the pilot holding the stick doesn't aggravate it.
- It takes only a bit of pressure in the direction you want to go.
- Stab the rudder and you're looking like an amateur.
- Speeds are critical across the fence.

Sometime in September 2022 I actually saw upside down for the first time in the Starduster. Unfortunately, I hadn't adjusted the boost tab on the elevator, and I nearly pushed hard enough to exit the cockpit. Belts weren't tight enough, and I needed more headroom. I made some adjustments and tried more rolls. There was better control, but goodness they were UGLY. To improve my view and seating, I moved the sighting device and tried a variety of placements on the seat pan to gain headroom. Sight was dead on, but headroom was still lacking.

Between weather and other priorities, I didn't get back to the airport until late in October. Went out to get some practice and expand the envelope. I pulled without looking to what I thought would be 3.5g's to do a loop. The airplane corners hard, and I didn't think I'd pull that hard on it. Fortunately, it's rated to +/-7.5g's. The only thing I can say was it went around for a loop. Probably much closer to a square. Did a power-off stall/mush, and it felt like it would just stay there. Felt like the center of gravity was a little aft.

I returned to work on the airplane again in late April 2023. I was under the gun (my fault) to make NAD at 76N. I also wanted to get the rest of my testing done and practice for the Polk contest. I started to move things around; the EarthX behind the seat went to the firewall with a removal of all the old boxes, cables, solenoids, etc. Added an Oberg oil filter, which has a reusable screen. I've used them on auto racing applications with success. I also went to an engine monitoring system in the panel. The verdict is still out on this unit.

I also decided to add a way to grease the bushings in the I-strut/bellcrank. I then took up some of the slop between the ailerons and made them smoother. Grease works better than liquid lube in there. I did a weight and balance, and made changes that moved the CG forward about

an inch with no weight gain. I did a couple of test hops to make sure all the parts would stay on. It was about then we got all the smoke from Canada. So, the Polk contest was questionable until Wednesday and Adam Cope said it was a go. I loaded up Friday morning and flew around the special flight rules area to get to Warrenton/Fauquier Airport (KHWY). A long way around, but I'm flying right?

I wasn't sure I'd be able to fly, because I had not had a lot of practice since the smoke from the Canadian wildfires had infiltrated the area around the airport. However, once I unloaded my gear from the airplane and the weather was nice, I went out to fly. I climbed to 7,500 feet AGL and did a half-dozen spins left and right. I was surprised that the nose was pointed down lower than a Pitts or Decathlon. Timing was questionable, but sometimes you just gotta say, "What the heck." This was the first time in six years I



Mark on the ramp at the Polk contest.

had flown in the box. I came down out of the box feeling out of breath. The adrenaline and pulling g's had me winded, and I felt like I'd been hit with a hammer. Primary here I come!

Adam made the contest work out for me by making sure that Primary and Sportsman would get all three flights. Heck, we even ended up with three flights on Saturday and a final flight Sunday morning. I was in second place after the first flight, and I know Santa Claus was there on the line, because how I didn't zero the spin is beyond me. After the second flight I finished in third, and I was back again in second place after the third flight. Sunday was nice; however, my flight was less than spectacular, but I didn't zero anything. The first-place guy did ... so I won? (Yes!)

I intended to fly the Jaffe contest this August, but I had gone up to the IAC Chapter 58 practice day and the oil pressure was

running only about 48 psi when hot. I picked up a heavy oil pressure bypass spring and installed it, and the pressure went up at idle dramatically. But as soon as it got good and warm, it dropped down again. It was recommended that I look at the seat that the ball under the spring sits in. It was not horrible, but I used and improvised some things to clean it up. I flew it and it was improved, but it eventually dropped but not as far.

The truth be told, I'm a tinkerer. I've got a whole list of items I intend to do hopefully over the winter. Have some engine improvements in mind to make more horsepower. I'd like to eventually fly in the Advanced category again. After watching the Nationals Unknown, I'm not so sure. For now, I will play in Intermediate in the 2024 season.

Will definitely work on a new canopy to keep the cranium out of the bubble, and that'll include rearranging the turtledeck. It'll need fabric sooner than later. I don't plan on getting rid of it. I like my orphans, and this one is going to serve me well. **IAC**

---

**Mark** is a private pilot SEL and A&P mechanic. He has flown ultralights to a DC-3. To date he has flown 80 different makes and models of airplanes and rotorcraft. He has flown in the Advanced category in a Pitts S-2B and hopes to fly the 'Duster there as well. He'd like to fly at Nationals before he retires from competition. Mark works as a contract project coordinator/construction project manager for Prince George's County government.



An advertisement for the GB1 GameBird aircraft. The top half features a close-up of the aircraft's nose and cockpit area, which is painted in a bright lime green color. The text "GB1 GameBird" is prominently displayed in white, along with the tagline "Fly Without Compromise". Below this, a list of specifications is provided: "FAA Certified", "200 knot cruise", "1000nm range", "+/- 10g", and "Made in the USA". The bottom half of the ad includes the GameComposites logo and contact information: "GameComposites.com" and "Info@GameComposites.com".



# Fit to Fly

Achieving optimal health for competitive aerobatics

BY JOSEPH McMURRAY, IAC 441329

**THE THRILL AND PRECISION** of competitive aerobatics have reignited my passion for aviation. Twenty-two years and more than 5,000 hours of straight-and-level flying have given way to the exhilaration and finesse of aerobatics. However, soon after getting involved in aerobatics, I discovered that my 60-year-old body was not as resilient or agile as it once was, and the physical demands of competitive aerobatics soon began to take their toll.

Wait, let me clarify! At 60 years old, I realized that my body, despite its age, was still capable of handling the physical demands of competitive aerobatics. So I decided to focus on proper nutrition and prioritize my overall health to ensure that I have the energy, strength, and endurance to enjoy the exhilaration and challenges of competitive aerobatics.

Training and nutrition are not new to me. As a former competitive powerlifter, I understood the role that disciplined exercise and diet played in my overall health and performance. Furthermore, as a surgeon, I'm often required to stand for extended periods — sometimes as long as 10 hours. Through personal experience, I have witnessed how health issues and poor

physical fitness have prematurely shortened the careers of many of my colleagues.

In this article, I will explore why health is important for competitive aerobatic flying, delve into the significance of nutrition, and suggest a training regimen to enhance performance.

Physical fitness and good health are fundamental prerequisites for any sport, and competition aerobatics is no exception. The intense g-forces experienced during maneuvers can put immense strain on the body, particularly the cardiovascular system. Maintaining overall physical fitness enhances a pilot's ability to perform precise and coordinated movements. A strong core, well-developed muscles, and good flexibility are crucial in executing these movements accurately. Engaging in strength training exercises, such as weight-lifting or body-weight exercises, helps build the necessary strength and muscular endurance required for aerobatic flying. Additionally,

incorporating activities like yoga or Pilates into a training regimen can improve flexibility and body awareness, enhancing a pilot's ability to maintain the correct body position during flight.

Competitive aerobatic flying is a thrilling and demanding sport that requires utmost precision, skill, and focus. Those of us who engage in this exhilarating activity must possess exceptional physical and mental capabilities to perform complex figures and withstand the extreme forces experienced during flight. While the focus is often on the technical aspects of aerobatic flying, the importance of maintaining one's health and fitness should not be underestimated.

Nutrition plays a significant role in supporting a pilot's health and optimizing performance. In a March 2018 *Sport Aerobatics* article titled "Focus on the Food," writer Cyndi Allard, certified personal trainer, notes that a well-balanced diet is essential to providing the body with the nutrients, vitamins, and minerals it needs to optimally function. She goes on to explain the four P's for flying success — plan, prepare, prep, pack — and gives examples of meals to prepare for those long competition days.

Because of the physical demands placed on the body and the potential for fatigue during long training sessions or competitions, nutrition is critical when it comes to competitive aerobatics.



**While the focus is often on the technical aspects of aerobatic flying, the importance of maintaining one's health and fitness should not be underestimated.**





Here are some specific ways in which nutrition can optimize your performance:

### 1. Carbohydrates: energy production

Aerobatic flying requires intense physical exertion. Proper nutrition ensures an adequate supply of carbohydrates, which are the primary source of energy for your body. Maintaining good energy is important since competition days tend to be long.

Complex carbohydrates like whole grains, fruits, and vegetables provide sustained energy and help prevent fatigue. Many fitness experts suggest consuming sucrose or dextrose following a strenuous training regimen. These simple carbohydrates replenish glycogen stores in the muscles, provide a quick source of energy, and aid in recovery. Go ahead, grab a handful of gummy bears or a Pixy Stix after an acro session! Pixy Stix are my favorite!

### 2. Protein: muscle recovery

Consuming adequate protein is crucial to supporting muscle growth, repair, and maintenance. Lean sources of protein like poultry, fish, eggs, and legumes provide the necessary amino acids to optimize muscle strength and endurance.

The amount of protein needed can vary depending on factors such as age, sex, weight, and activity level. Fitness experts suggest consuming approximately 1-2 grams of protein per kilogram of body weight (0.55-0.9 grams of protein/pound) per day.

I normally drink a protein shake within 30 minutes to an hour after exercising or engaging in a practice session because it supports muscle recovery. Remember, individual protein needs may vary, so I suggest consulting with a nutrition expert or dietitian to determine your specific requirements.

### 3. Omega-3 fatty acids: mental focus and concentration

Competitive aerobatics requires high levels of mental focus, good concentration, and quick decision-making. Omega-3 fatty acids, found in fatty fish like salmon, mackerel, and sardines, are essential for brain health. They play a crucial role in the structure and function of the brain.

Omega-3 fatty acids, specifically docosahexaenoic acid (DHA), are a major component of brain cells' membranes. Adequate intake of

omega-3s supports optimal cognitive function, including memory, attention, and problem-solving abilities. In addition, they possess anti-inflammatory properties and help protect the brain against oxidative stress and inflammation (which has been linked to neurodegenerative diseases such as Alzheimer's and Parkinson's).

Other dietary sources for omega-3s include walnuts, flaxseeds, and chia seeds. Alternatively, omega-3 supplements can be purchased at your local health store.

### 4. Water: hydration

Staying hydrated is essential for optimal performance in any sport, including aerobatics. I cannot emphasize this enough (see my earlier article "Grayout During an Aerobic Competition" in the September/October issue of *Sport Aerobatics*).

Dehydration can lead to fatigue, as well as decreased focus and cognitive function. Drinking enough water before, during, and after flights helps you maintain proper hydration levels and overall performance. Sports drinks with electrolytes are fine, but do not replace good, clean water with sports drinks.

### 5. Weight management: for all the right reasons

Maintaining a healthy weight is crucial for aerobatic pilots, as excess weight can affect aircraft performance. Proper nutrition — including portion control, balanced meals, and regular physical activity such as weight training — can boost metabolism, leading to increased calorie burning, even when you're resting. This can aid in weight management and

body composition by reducing body fat and increasing lean muscle mass. Stay fit to fly!

### Fitness Training

Implementing a well-rounded training regimen is vital to competitive aerobatic flying. The training should focus on improving cardiovascular endurance, muscular strength and endurance, flexibility, and mental resilience.

1. Cardiovascular training, such as running, swimming, or cycling, helps improve heart and lung function, allowing pilots to better handle the g-forces experienced during flight. A study titled “G Tolerance and Related Factors in Fighter Pilots,” published in the *Indian Journal of Aerospace Medicine*, supports this view. It emphasizes the importance of cardiovascular fitness and notes that while an increase in muscularity can contribute to g-force tolerance, it’s not the primary determinant. Cardiovascular health, hydration, and specific training techniques are much more critical. Here are some examples:

- **High-intensity interval training (HIIT):** Engaging in HIIT two to three times per week can be highly beneficial, as it simulates the short bursts of intense exertion experienced during aerobatic competition. This type of training can improve cardiovascular fitness by pushing the heart to operate at near maximum capacity during the high-intensity intervals (before allowing it to recover during the low-intensity periods). The explosive nature of HIIT workouts, which simulate the intensity of aerobatic competition, can enhance anaerobic capacity, leading to benefits such as increased strength, power, and metabolic function as well as

greater muscular strength, stamina, and endurance. Personally, I am a big fan of HIIT!

- **Circuit training:** Two to three times per week. A combination of strength training exercises with minimal rest periods between sets will elevate one’s heart rate and provide cardiovascular benefits.

2. Strength training exercises including weightlifting, body weight exercises, or the use of resistance bands are essential for building muscular strength and endurance.

Once upon a time, I was a competitive powerlifter. It taught me the importance of discipline, resilience, and the true power of a determined mind and body. One cannot overemphasize the value of weight training, as it offers numerous benefits for overall health and well-being.

Weight training (also called strength or resistance training) involves the use of external resistance such as weights or resistance bands to build strength, increase muscle mass, and improve muscular endurance.

A strong core is particularly important in aerobatic flying, as it provides stability and helps one maintain the correct body position during maneuvers.

Remember to maintain proper form throughout the exercise and focus on engaging the core muscles. It is important to breathe steadily. Here are some examples:

- Squats, Bulgarian split squats, and deadlifts target multiple muscle groups, including quadriceps, hamstrings, glutes, and one’s core, which are important for maintaining stability and generating power.
- Dumbbell shoulder presses target the deltoid muscles, which are crucial for maintaining stability and control. By targeting the shoulder muscles, you are engaging the stabilizer muscles, balancing

**Strength training exercises, including weightlifting, body weight exercises, or the use of resistance bands, are essential for building muscular strength and endurance.**



strength contributes to better stability, and involving the core while improving range of motion.

- Body weight exercises such as pushups, pullups, and planks primarily target the core, including the abdominals, obliques, and lower back.

I have frequently encountered the misconception that individuals with muscular builds lack the necessary dexterity for intricate and precise movements. However, this couldn't be further from the truth, as evidenced by the fact that many professional athletes with impressive physiques exhibit remarkable agility and finesse.

While in residency, I had the privilege of working under an attending (general surgery) physician who happened to be a nationally ranked weightlifter, further challenging the prevailing stereotype.

3. Flexibility training through activities like yoga or Pilates improves range of motion and body control, allowing pilots to execute maneuvers more precisely. Stretching exercises should be incorporated before and after each training session to prevent injuries and improve overall flexibility.

- Static stretching involves holding a specific muscle or muscle group for around 30-60 seconds.
- Dynamic stretching involves moving through a range of motion to stretch the muscles and increase mobility.
- Yoga is known to improve flexibility, balance, and strength. (I personally like to “yogi out” every Sunday morning!)

It's important to consult with your general physician before starting any physical training regimen. In addition, think about consulting with a fitness professional who can design a cardiovascular and weight training program that aligns with your fitness level, goals, age, and any specific considerations related to your health or physical condition.

Remember to always warm up your body before engaging in any physical exercise. As I've gotten older, I've learned to “listen to my body.” Stretching and warming up prior to a particular exercise is important.

Lastly, mental resilience and focus are paramount when it comes to competitive aerobatic flying. In the March/April 2021 issue of *Sport Aerobatics*, Francois Le Vot, the 2013 World Aerobatic Champion,



detailed a personal protocol that emphasizes the significance of these mental attributes.

In his book *Peak Performance for Aerobatics*, Fred G. DeLacerda, Ph.D., thoroughly explores the topics of body-mind unification (Chapter 6) and deep relaxation (Chapter 7), offering insightful discussions and a range of exercises.

Pilots must be able to concentrate for extended periods, make quick decisions, and remain calm under pressure. Incorporating mental exercises such as meditation, visualization, or breathing techniques into the training regimen can help you improve mental clarity and performance.

Whether you are a weekend flyer enjoying gentleman aerobatics or an Unlimited competitor, prioritizing health and fitness is crucial to unlocking your full potential and fully immersing yourself in the exhilaration of competitive aerobatics.

By caring for your body and mind through consistent exercise, proper nutrition, and sufficient rest, you can amplify your skills, enhance performance, and minimize the likelihood of injuries.

Whether you approach aerobatics as a hobby or a serious pursuit, investing in your health and fitness will not only enhance your flying experience but also ensure that you can sustain your passion for aerobatics for many years ahead. *Fly often and fly safe! IAC!*

---

**Dr. Joseph McMurray**, IAC 441329, is a board-certified oral and maxillofacial surgeon. He has an insatiable passion for competitive aerobatics and looks forward to competing in Intermediate in his newly acquired 2023 GB. His ratings include ATP, CFI, COM, IFR, and SES. As a former member of the World Association of Benchers and Deadlifters, he competed in national powerlifting championships across the country between 1998 and 2006. At the age of 40, he won the California State Champion Masters Division with a bench press of 400 pounds.



# Fit to Fly MEAL PLAN

BY JOSEPH MCMURRAY, IAC 441329

My daily meal plan:

## MEAL NO. 1

4 ounces oat milk  
6 ounces egg whites  
1/2 cup dry oats  
1 tablespoon almond butter  
1 cup fresh berries  
1/2 banana  
1 cup frozen blueberries  
1 handful raw spinach  
1 scoop whey protein

## MEAL NO. 2

5 ounces Greek yogurt  
1 handful peanuts (or almonds)

## MEAL NO. 3

6-8 ounces lean protein (fish, chicken, or beef)  
1/2 cup jasmine rice  
1 handful spinach

## MEAL NO. 4

5 ounces Greek yogurt  
1 handful peanuts (or almonds)

## MEAL NO. 5

6-8 ounces lean protein (fish, chicken, or beef)  
1/2 cup jasmine rice  
1 cup vegetables

## MEAL NO. 6

5 ounces Greek yogurt

I save my indulgences for weekends, family activities, and social events. Yes, I am a chocolate, ice cream, and doughnut lover! Ask anyone!

# An Adventure in Tailwheel Land

**Confessions of a g junkie**

BY TOM MYERS, IAC 16830

**SOMETIMES, NO MATTER HOW HARD YOU TRY,** things happen. Or, to put it another way, solving old problems creates different new problems. If you have ever owned an airplane, you know these words to be true.

Not all of my landings are acts of grace. Unless your idea of an act of grace is sumo wrestling. My tailwheel assembly takes a beating. While doing my annual last year, it was obvious to me that replacing all of the individual parts that were showing their age was very close to replacing the entire assembly. Thus, I replaced the entire assembly. In theory, nothing beats new. In theory, theory and practice are the same. In practice, theory and practice are anything but the same. With the new assembly installed, I looked forward to at least some time enjoying trouble-free operation. Silly me.

My tailwheel assembly features a spring-loaded rotational locking pin. Please see photos 1 and 2. The locking pin and spring ride in a square channel through the central steering shaft. During common taxi and runway operations, the locking pin is engaged with a detent pocket in the steering arm, and the rudder pedals control the tailwheel steering. However, pushing the rudder hard to one side or the other pushes the locking pin out of the detent and allows the tail wheel to freely caster. This step permits tight turning, such as needed when pushing the airplane into or out of a hangar full of other airplanes.

Over time, the surfaces of the locking pin and steering arm push against each other. The locking pin and detent pocket become slightly misshapen over time. In particular, the head of the locking pin becomes bulged. Please see photos 3 and 4. Routine tailwheel assembly maintenance includes filing down the misshapen surfaces so that they do not interfere and jam against each other. Thus, over time, the internal clearances open up some, and the assembly becomes more forgiving of misshapen internal components. The cost is more overall play in the assembly, but it is usually very small for the bulk of the lifetime of the assembly components. When the play becomes larger, it is usually time to start replacing those components.

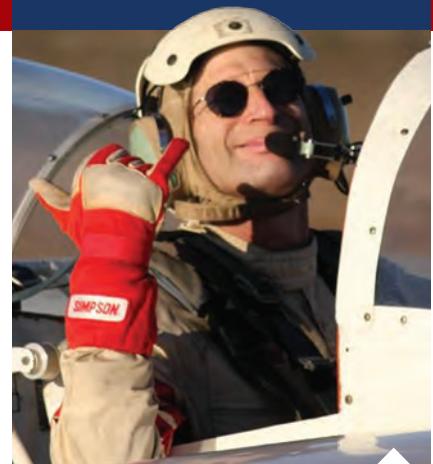


Photo 1



Photo 2

**"I get by with a little help from my friends."**  
— John Lennon and Paul McCartney



Photo 3



Photo 4

When a tailwheel assembly is brand new, there is very little internal play between the components. The assembly is not as forgiving of misshapen wear surfaces. Remarkable how clear hindsight is, huh?

The longest and most commonly favored runway at California's Tracy Municipal Airport (KTCY) is 30. There is a quarry and steep drop-off just beyond the approach end. There are long rows of hangars just beyond the left edge of the runway that are oriented perpendicular to the runway. When there is a strong crosswind component from the left side of this runway, there can be strong vertical and horizontal circulating wind eddies set up on the runway.

These were exactly the conditions at Tracy on setup day and practice day of this year's regional contest. There were a lot of bounced landings and go-arounds by many pilots over those two days, yours truly included. And there was just enough bouncing to cause the slightly deformed locking pin of my newish tailwheel assembly to jam in the

unlocked position as I was maneuvering the airplane into a tie-down spot after my practice day flight. As you can imagine, I had no interest in trying to land an airplane into a strong crosswind with swirling tornados on two axes with no tailwheel steering.

Fortunately, the Tracy airport does have Skyview Aviation, a friendly FBO with a maintenance facility. After spending a minute or two convincing myself that the problem was real and not going to clear itself with a little hand prodding, I borrowed a grease gun from Skyview to see if just adding a generous amount of lubrication would coax the locking pin back into the locked position. Nope. Time to get tools involved.

Thank you to Contest Director Jake Carter for bringing a lot of tools to the contest. Thank you to Skyview Aviation for having a big pile of thick wooden blocks available that the tail of an aircraft could be lifted onto to allow the tailwheel assembly to become an un-assembly for a little while. Thank you to Drew Detsch, Brian Branscomb, and Ilya Pirkin for not only lifting the tail on to and off the wooden blocks but also staying with the airplane to make sure that the tail stayed securely on the aforementioned pile of wooden blocks during the whole repair procedure.

Of course, the repair procedure had to take a turn for the absurd. With the tailwheel assembly taken apart, I had the access I needed to coax the spring-loaded locking pin out of its jammed position. And despite my best efforts to corral the locking pin so that when it did break free it would not become an unguided projectile, when it finally did let go, that's exactly what it became; it shot right up the sleeve of my T-shirt. So, there I was in the middle of this situation gingerly peeling off clothing, looking for small wayward aircraft parts before they were lost to the forces of chaos. Yes, I did succeed at finding all of the aircraft parts before breaking too many public decency laws. You just can't make this stuff up.

After about 15 minutes of filing and testing and rejamming and colorful language and unjamming and still more filing, the interference relented, and my tailwheel assembly quickly became a well-lubricated, properly functioning assembly again. The relief factor was right up there with nailing an Unknown sequence.

The winds died down for the duration of the contest flight days, landings became boring, and there were no further surprise maintenance adventures for me at the contest. When I got back home afterward, the assembly got additional TLC to assure all was truly good to go. The article photos were taken in my hangar at that time.

The locking pin head bulge is difficult to see directly in the photos. The head bulge is easy to detect indirectly with a set of calipers. Photos 3 and 4 show that the bulge increases the locking pin thickness by about 15 thousandths. This thickness increase was measured after all of the filing that was done at Tracy. The bulge was much easier to see directly before any filing was done. Additional filing performed after the photos were taken reduced the bulge thickness even further.

Moving forward, I will be lubricating and servicing my tailwheel assembly more often, especially when there are new components with their close clearances. In addition, I will be more mindful of the fact that new does not necessarily mean unlikely to lead to any maintenance adventures.

Fly safe. **IAC**

**"Not all of my landings are acts of grace. Unless your idea of an act of grace is sumo wrestling. My tailwheel assembly takes a beating."**

# Latest IAC Achievement Award Recipients

## THE ACHIEVEMENT AWARDS PROGRAM

was conceived in 1970 by Verne Jobst, the IAC president at that time who had many years as a glider pilot. Verne wanted an equivalent to the popular soaring badges.

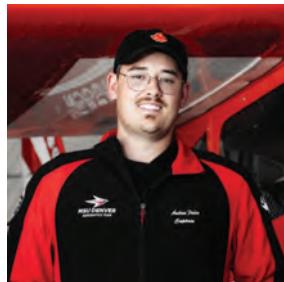
Each category is represented by a different color. Smooth awards and Stars awards, with stars in the concentric circle, were designed. Aerobatic competitors can earn achievement awards that signify the level of proficiency obtained in

aerobatic flight. There are two types of achievement awards available: Smooth awards and Stars awards.

Smooth awards are earned by flying a designated set of figures in front of a judge or by flying with a qualified CFI who gives the figures a qualifying grade.

Stars awards must be earned while flying competition aerobatics at an IAC-sanctioned contest. Awards are available for powered aircraft and gliders.

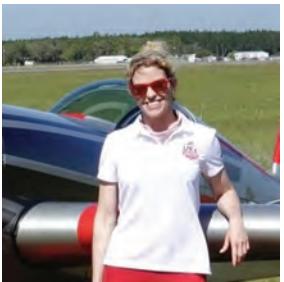
Congratulations to those IAC members who earned an achievement award in the last half of 2022 and the first half of 2023 (July 2022 through June 2023)!



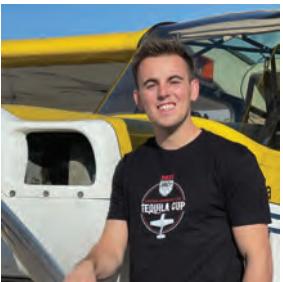
Andrew Fisher



Ben Lomov



Brittanie Lincoln



Bryce Brimhall



Christian Baxter



Craig Grifford



Dave Watson



Eric Moore

## PRIMARY

### **Smooth:**

- #1275 - Caroline Koll
- #1276 - Matthew Bakker
- #1277 - Loren May
- #1278 - Blake Prewitt
- #1279 - Jim Raticek
- #1280 - Grayson Bretian
- #1281 - Matt Schulz
- #1282 - Daniel Vasquez-Velez
- #1283 - Bryce Brimhall
- #1284 - Kasey Campbell
- #1285 - Mike Kolch

## PRIMARY

### **Stars:**

- #728 - Andrew Moehrke
- #783 - Andrew Fisher
- #784 - Tien Luu
- #785 - Shelly Ann Hughes
- #786 - Bryce Brimhall
- #787 - Matt Schulz
- #788 - Markus Broecker
- #789 - Shane Short
- #790 - Dragos Moroianu
- #791 - Daniel Vasquez-Velez
- #792 - Palmer Timmons
- #793 - Matt Dunkel
- #794 - Craig Gifford
- #795 - Kasey Campbell
- #796 - Jessica Hackler
- #797 - Thomas Hogan
- #798 - Charles Schefer



Howard Kirker



Joe Gerner



Leigh Hubner



Mark Cunningham



Matthew Dunfee



Rory Moore

## SPORTSMAN

### **Smooth:**

- #931 - Craig Gifford
- #965 - Matthew Bakker
- #966 - Robert Haag
- #967 - Loren May
- #968 - Blake Prewitt
- #969 - Leland Kracher
- #970 - Grayson Bretian
- #971 - Matt Schulz
- #972 - Bryce Brimhall
- #973 - Mike Kloch

## SPORTSMAN

### **Stars:**

- #1595 - Robert Haag
- #1596 - Andrew Fisher
- #1597 - Atamir Multani
- #1598 - Joe McMurray
- #1599 - Jake Carter
- #1600 - Shane Short
- #1601 - Ben Lomov
- #1602 - Kevin Smith
- #1603 - Sean Moran
- #1604 - Richo Healey
- #1605 - Dragos Moroianu
- #1606 - Craig Gifford
- #1607 - Matt Schulz
- #1608 - Stephen Fiegel
- #1609 - Ethan Green
- #1610 - Thad Golden
- #1611 - Calvin Owens
- #1612 - Loren May



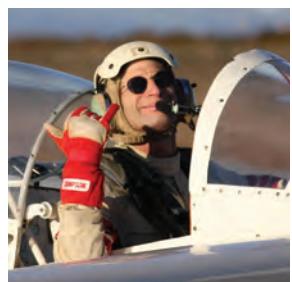
Sean Moran



Stephen Fiegel



Tien Luu



Tom Myers

**INTERMEDIATE****Smooth:**

#532 - Craig Gifford  
 #533 - Mike Kloch  
 #534 - Alexis Nahama

**INTERMEDIATE****Stars:**

#766 - Matthew Smith  
 #767 - Dean Hickman-Smith  
 #768 - Ross Ferguson  
 #769 - Marian Harris  
 #770 - Bret Davenport  
 #771 - Stephen Fiegel  
 #772 - Leigh Hubner  
 #773 - Craig Gifford

**UNLIMITED****Smooth:**

#206 - Craig Gifford

**UNLIMITED****Stars:**

#127 - Rory Moore  
 #128 - Christian Baxter  
 #129 - Craig Gifford  
 #130 - Matthew Dunfee

**ADVANCED****Smooth:**

#306 - Craig Gifford

**ADVANCED****Stars:**

#347 - Eric Moore  
 #348 - Brittanee Lincoln

**LIFETIME DEDICATION**

Silver: (70-plus contests)  
 Howard Kirker

**LIFETIME DEDICATION**

Gold: (90-plus contests)  
 Dave Watson  
 Hugo Ritzenthaler  
 Thomas Myers

**ADVANCED - GLIDER****Stars:**

#7 - Joe Gerner

**ALL FIVE**

#182 - Mark Cunningham  
 #183 - Craig Gifford

**ALL TEN**

#46 - Craig Gifford

IACF



AeroEducate™

## Your Gateway to an Exciting Career in Aviation

AeroEducate is a totally free resource now open for all youths, parents, educators, and youth leaders to register and explore the wide world of aviation and aerospace.

Start your journey today!



[AeroEducate.org](http://AeroEducate.org)

Our partners:



**AIRBUS SIEMENS**



# 2024 IAC CONTEST SEASON CALENDAR



## IAC.org/Contests

DATES	HOST CHAPTER	NAME	REGION	LOCATION	AIRPORT
March 21, 2024	62	Estrella Glider Classic	SW	Maricopa, AZ	E68
March 21, 2024	62	US National Unlimited/Advanced Aerobic Championships	SW	Maricopa, AZ	E68
May 9, 2024	24	Lone Star Aerobic Championships	South Central	Graham, TX	KRPH
May 31, 2024	15	Harold Neumann Barnstormer	South Central	Ottawa, KS	KOWI
June 7, 2024	61	Giles Henderson Memorial Challenge	Mid-America	Salem, IL	KSLO
June 7, 2024	80	MAC 80 Aerobatic Championship	South Central	Seward, NE	KSWT
June 28, 2024	78	Midwest Attitude Adjustment	Mid-America	Spencer, IA	KSPW
July 6, 2024	88	Michigan Aerobic Open	Mid-America	Bay City, MI	K3CM
July 13, 2024	12	High Planes Hotpoxia Fest	South Central	Ft. Morgan, CO	KFMM
August 10, 2024	134	Yooper Looper	Mid-America	Marquette, MI	KSAW

## ★ Softie Pilot ★

**Emergency Parachutes**  
by Para-Phenalia

**Many In Stock For Immediate Delivery**

Details at:

[www.SilverParachutes.com](http://www.SilverParachutes.com)

New Gallet Helmet parts, all 50% off!

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

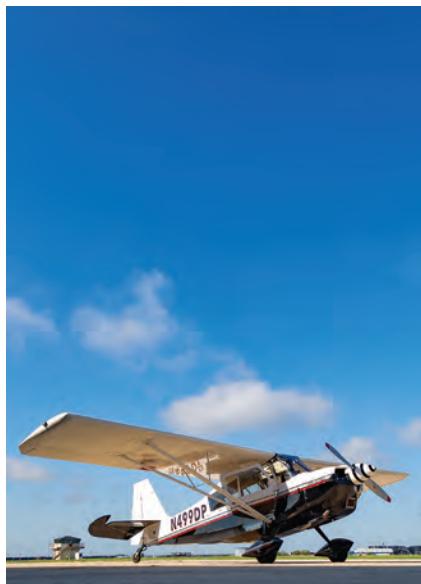
Silver Parachute Sales & Service

Phone: 209-532-7070

Email: [Allen@SilverParachutes.com](mailto:Allen@SilverParachutes.com)



Hammers Over Hondo. Photo by Joe Fernandez.



Hammers Over Hondo. Photo by Brian Papke.

## IN THE LOOP

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](http://WWW.EAA.ORG/NEWSLETTERS)



## ADVERTISE WITH US

### DISPLAY ADVERTISING

For more information contact  
Sue Anderson at 920-426-6127 or  
[sanderson@eaa.org](mailto:sanderson@eaa.org)

### CLASSIFIED ADVERTISING

\$5.50 per 10 words,  
100 words maximum.



## DIRECTORY



### OFFICERS

#### PRESIDENT

Jim Bourke

#### TREASURER

Jordan Ashley

#### VICE PRESIDENT

Rob Holland

#### SECRETARY

Sara Arnold

#### EXECUTIVE DIRECTOR

Stephen Kurtzahn

### BOARD OF DIRECTORS

#### NORTHWEST

Nathan Ruedy

#### CIVA RELATIONS

Mike Gallaway

#### SOUTHWEST

Phillip Gragg

#### COLLEGIATE PROGRAM

Nina Stewart

#### MID-AMERICA

Craig Gifford

#### CONTEST SANCTIONING

Jim Bourke

#### EAA REP/NORTHEAST

Michael Goulian

#### EXECUTIVE COMMITTEE

Jim Bourke

#### SOUTHEAST

Marty Flournoy

#### FINANCE COMMITTEE

Jordan Ashley

#### SOUTH CENTRAL

Doug Jenkins

#### GLIDER AEROBATICS

Shad Coulson

#### INTERNATIONAL

Mike Gallaway

#### GOVERNMENT RELATIONS

John Smutny

#### DIRECTOR

Doug Bartlett

#### HALL OF FAME COMMITTEE

David Martin

#### DIRECTOR

David Martin

#### IAC HISTORIAN

Mike Heuer

#### DIRECTOR

Robert Armstrong

#### JUDGES PROGRAM

DJ Molny

#### NAA REPRESENTATIVE

Amy Spowart

#### SEQUENCE COMMITTEE

Rob Holland

#### ACHIEVEMENT AWARDS

Dave Watson

#### NOMINATIONS COMMITTEE

Doug Sowder

#### ANNUAL AWARDS

Patty Anderson

#### RULES COMMITTEE

Barrett Hines

#### SAFETY COMMITTEE

Keith Doyne

#### TECHNICAL COMMITTEE

Tom Myers

# Thank You

The 2023 U.S. National Aerobatic Championships appreciates your support. Without you this would not be the best contest of the year!

## OUR DIAMOND SPONSORS

Christian Hochheim - Extra Aircraft  
Jack Moshevis - MX Aircraft

## OUR PLATINUM SPONSORS

Vincent Dukamin - Aura-Aero  
Gerd Muehlbauer - MT Propeller  
Dan Tarasevich - Para-Phernalia  
Jerry + Peggy Riedinger

## OUR GOLD SPONSORS

Aircraft Spruce  
Arizona Soaring  
Jim + Teri Branstire - Northwest Insurance  
Guy Acheson  
David + Martha Martin  
Goody Thomas  
Rob Holland  
Johnny Wacker  
Robin Simmons  
Lift Aviation

## OUR SILVER SPONSORS

Justin Wright - Full Stop Aviation  
Jason Stephens  
Mike Goulian  
Duncan Koerbel  
Dagmar Kress  
Patty Wagstaff  
John Willkomm  
Bonehead Helmets  
Yuichi Tagaki  
Hooker Harness  
Lewis Shaw  
Warren Cilliers  
Champion Aerospace

## OUR BRONZE SPONSORS

Freeman Airshows - Bob Freeman  
Craig Gifford  
Gordon + Lorrie Penner  
Pat Costello - Costello Insurance  
Jeff Garibotti  
CP Aviation - Judy Phelps  
Hector + Laurie Ramirez  
Aviation Gear  
Carol Granger  
4-Ever Creations  
Bill Hill



## OUR CHAPTERS SPONSORING DAILY COFFEE

Chapter 3  
Chapter 5  
Chapter 11  
Chapter 12  
Chapter 15  
Chapter 24  
Chapter 34  
Chapter 35  
Chapter 36  
Chapter 38  
Chapter 52  
Chapter 58  
Chapter 62  
Chapter 80  
Chapter 88  
Chapter 89  
Chapter 135

## OUR 'IN KIND' DONORS AND HELP ALONG THE WAY

JoAnn McClure - Visit Salina  
Tim Rogers + Shelly Swanson +  
Kasey Windhorst - Salina Airport Authority  
Mahaska Beverage  
Dry Creek Buffalo Ranch  
Good Life Golf Carts  
The Hilton Garden Inn  
The Garage  
Martinelli's Little Italy  
Salina Regional Airport Tower Staff  
Bennifer's Catering  
Sam's Club



© 2022 Experimental Aircraft Association, Inc.

## A WHOLE NEW WAY TO ROLL



The EAA and International Aerobic 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](https://www.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



Administered by Falcon Insurance Agency, Inc.

[EAA.org/Insurance](https://www.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.*