



SPORT

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AEROBATICS

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

▶ 2021 U.S. NATIONALS RECAP

▶ BEHIND THE SCENES OF THE
REDLANDS AEROBATIC CUP

KIRBY CHAMBLISS

2021 HALL OF FAME INDUCTEE ▶ PG.14

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ON THE COVER:
IAC Hall of Fame inductee Kirby Chambliss flying his Zivko Edge 540. Photo by Mike Shore

ABOVE:
Kirby Chambliss enjoys performing in air shows throughout the year. Photo courtesy of Kirby and Kellie Chambliss

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Stressful Coexistence, the Right Frame of Mind, and the U.S. Aerobatic System

BY JIM BOURKE, IAC 434151

COMPETITION AEROBATICS is a very stressful activity. The stress of competition is obviously most evident in the air, where our competitors strain themselves physically and mentally in the pursuit of perfection, but the stress of competition is also present on the ground.

Competitors feel stress even when they are not flying. They worry that they might not have practiced enough, that they might have a mechanical issue with their aircraft, that they will forget a figure during their flight, or that the winds might pick up just when it is their turn to fly.

This stress works against the competitors' goals of putting 100 percent focus on their execution. To be a great competitor, you must master yourself and ensure that you are in the right mental state ready for your performance. You must be confident and calm to face the challenge of flying in competition, and you must have the ability to forgive yourself for your past mistakes so you can put them entirely out of your mind as you take to the air.

Everything I just said about competitors applies equally to our nonflying contest volunteers. Their role is just as important as the competitors' and just as stressful. They prepare themselves for the high-pressure environment of a contest. They lose sleep. They worry they will make mistakes. And the pressure they feel to perform interferes with their ability to execute.

If I could wave a magic wand and fix one major IAC problem, it would be to magically get everyone in this sport seeing how hard everyone involved is working so carefully to do things for each other. I would

make everyone forgive each other and themselves and move forward with the past behind them. We do not get it all correct every single time, but we do what we do out of love for the sport and each other, and no one involved should ever feel ashamed for putting forward their best effort.

Keep all of these things in mind the next time you feel stress. Everyone else is feeling it, too, so we all have that in common! Competition aerobatics is not for the faint of heart. Just get out there and give it your best!

I brought up the subject of stress because it was an important thought for me this year as I worked with a new coach. I arranged for Olivier Masurel from the French National Aerobatic Team to train me in preparation for the U.S. National Aerobatic Championships.

Olivier's approach reminds me of U.S. Team Coach Claude "Coco" Bessiere's methods, which makes sense, of course, because they are both French. But Olivier focused a lot more on mental preparation, and I found it very helpful.

Once an aerobatic pilot has learned the right techniques and has built up the correct muscle memory to execute aerobatic figures in practice, the next step is to prepare him for the actual competition. Performance in practice and performance in competition should be the same, but a pilot's mental state in the days leading up to a competition can change dramatically, usually for the worse. How much it changes depends on the person, but there is probably no one alive who is in the same mental state on the day of the contest that he was a week prior.

COMPETITION AEROBATICS IS NOT FOR THE FAINT OF HEART. JUST GET OUT THERE AND GIVE IT YOUR BEST!

Olivier taught me a lot about how to put myself in the right mental state and keep myself there. It helped me perform my best at Nationals. I really enjoyed working with him. His tips are to have confidence, to focus on the next flight, and to prepare yourself very carefully. It's not enough to just memorize the figures and walk the sequences. You need to do it like you are in the airplane, and you must think about all the forces you will endure, what you will see, and where you want to be in the box. I realized during this week that I had never before truly prepared myself for a flight. It makes a difference.

During my time with Olivier, I had a great opportunity to talk to him about the French system versus the American system. The truth is we don't have a "system" here, but it seems that in France they do. He was surprised to learn how little aerobatic dual instruction we get, how we allow people to move up in categories freely at their own pace, and how easy our sequences are. They have more categories than we do, and they split things up into "two-seat" versus "single-seat" categories so that the lower category pilots are never competing against the high-end carbon-fiber planes. You must score at least 70 percent to move up. They have a category in between Advanced and Unlimited that helps people transition.

I'm also in good contact with pilots from other countries, and everyone I talk to tells me we are struggling because we expect our pilots to figure out too much on their own. Last year, the IAC board approved the formation of a committee to review our category structure and make recommendations. I'll keep in touch with Olivier and my other international contacts and try to sort out which of their ideas can fit into our way of doing things. **IAC+**

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



That's the Way I Heard It

BY LORRIE PENNER, IAC 431036

ONE OF MY FAVORITE PODCASTS is *The Way I Heard It* with host Mike Rowe of TV's *Dirty Jobs* program fame. Mike has a way of describing a person with only minimal behind-the-scenes information. On the description of the podcast, it says, "Each mystery is a trueish tale about someone you know." As the podcast continues, you finally find out who the mystery person is. The podcast follows the formula of the very successful radio show *The Rest of the Story* by Paul Harvey.

I love both the podcast and the radio show. I'm not usually much of a reader of mysteries, especially true crime mysteries, but the stories told by Mr. Harvey and now Mr. Rowe seem somehow very satisfying with the teasing buildup and the final reveal.

Why do people love mysteries and their kissing cousins riddles, gossip, and rumors so much? Is it because we really don't have any burden of responsibility for how the truth finally comes out? It really doesn't affect us, so we can just be entertained?

From a 2019 *Time* magazine article, "In order to gossip, you need to feel close to people," said Stacy Torres, assistant professor of sociology at the University of California, San Francisco, who has studied gossip in older adults. "There's an intimacy' to sharing experiences and feeling like you're on the same page about others."

BE PART OF THE REST OF THE STORY TO HELP THE IAC IMPROVE AND EXPAND ITS ACTIVITIES AND ENHANCE THE SAFETY AND ENJOYMENT OF SPORT AEROBATICS.



At this year's U.S. National Aerobic Championships there were a number of protests presented to the jury for their evaluation and decision. The jury took each protest very seriously, and researched and used IAC Rules and Policy & Procedure guidelines to come to final decisions.

Initially, incomplete information about the protests flew off-site and ended up on multiple social media platforms. Speculation and dare I say gossip abounded. Interestingly enough, not all commentary was posted by IAC members. While I can appreciate that some people feel close to the event and want to share experiences through social media, as IAC members we have a pathway to sharing and spreading important information through our own publications and website.

In fact, an opportunity to help shape IAC and its rules was recently available for all IAC members; the 2022 Rule Proposals were posted for member comment on the IAC website. The comments go to our IAC board of directors for approval at the fall meeting.

One of the IAC's goals is to gain a better understanding of who our members are and identify the needs of the members to adjust action plans and resources for the benefit of the sport of aerobatics. Be part of *The Rest of the Story* to help the IAC improve and expand its activities and enhance the safety and enjoyment of sport aerobatics. **IAC+**

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BUILT  PROUD

2021 U.S. National Aerobatic Championships

BY LORRIE PENNER, IAC 431036

THE 2021 U.S. NATIONAL AEROBATIC CHAMPIONSHIPS wrapped up at the Salina Regional Airport on Friday, September 21, and the contest was triumphant — not only for the many pilots and volunteers who had to delay attending the premier IAC event for two years, but also for one special pilot who had another record-breaking event.

The opening ceremony and first briefing of the U.S. National Aerobatic Championships took place on Sunday, September 19, in Salina, Kansas. Shelli Swanson, director of administration and finance from the Salina Airport Authority, declared the Nationals open!

Congratulations to Rob Holland on his 10th U.S. National Unlimited Aerobatic Champion title! In his own words, “It’s been a long road and a lot (whole lot) of hard work, but I just won my 10th consecutive U.S. National Aerobatic Championship. I can’t thank my sponsors, family, and friends enough for their never-ending support, love, and encouragement.”

Thumbs-up — starter Daly Byrkit is ready to launch Unlimited competitor Aaron McCartan.

The Unlimited category scores were noticeably lopsided from the first flight on opening day. With a score of 82.84 percent in the Known, Rob’s closest challengers were Goody Thomas with a 73.58 percent and Jeff Boerboon with a 71.89 percent. Rob easily won the Freestyle, Unknown I, and Unknown II for a clean sweep. Jeff continued to hang tight at the top, placing second in the Freestyle and Unknown I and II for a second place on the podium with a score of 76.43 percent. Jim Bourke, who had been training with Olivier Masurel from the French National Aerobatic Team, ended in third place with a score of 73.97 percent.

Intermediate Power followed the Unlimited category on opening day. Mike Lents successfully won first in the Known flying his Super Decathlon against second-place finisher Craig Fitzgerald flying an Extra 300L and third-place finisher Tom Rhodes flying his CAP 232. The three competitors remained in a tight group except in the Freestyle, where Brittane Lincoln brought her A-game and placed third in her MX Aircraft with a score of 83.64 percent. The Unknown is always a great flight to watch, and this was no exception. Mike placed first, Craig was second, and Tom held onto third place. Throughout the contest, the three had Justin Hickson and Brittane nipping at their heels, but finished the championship with Mike first, Tom second, and Craig in third.

The Intermediate Glider pilots saw first-time Nationals competitor Shad Coulson dominate the category. He successfully won all three flights by a good margin, ending as Intermediate Glider Champion with a score of 81.87 percent. The other civilian glider pilot in this category, Andre Gerner, finished overall in third place by placing second in the Known and the Unknown. U.S. Air Force Academy cadet Jared Bachman finished overall in second place, with two third-place finishes in the Known and the Freestyle.

Monday, September 20, saw the Advanced Power and Glider pilots standing down for high winds. Once things calmed down a bit, the Advanced Power guys were back at it. However, the Advanced gliders were pushed to Tuesday.

Marty Flournoy won the Advanced Power Known with 75.86 percent. Marty’s initial spot at the top helped him through the rest of the competition. He didn’t stay in the top three for the rest of the contest, but continued with very good scores to finally finish overall in second place. Matt Dunfee had finished in second on the Known with a score of 73.22 percent, and vastly improved his position on the Freestyle with a score of 83.74 percent. This kept him on top for the rest of the competition, earning him the title of U.S. National Advanced Aerobatic Champion.

Luke Penner flew beautifully in the Advanced category, actually outscoring Marty. However, this is the U.S. National Championships, and as a non-U.S. citizen Luke could not claim the second-place national trophy. He did, however, pick up a third-place flight medal in the Known and a second-place flight medal in the Unknown.



Unlimited competitor Goody Thomas and starter Doug Vayda wait patiently on deck for Goody’s turn.



PHOTOGRAPHY BY GARY SCHENAMAN

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Mike Lents (L) with the University of North Dakota Aerobatic Team

By mid-to late afternoon, the winds were calm enough to send the Sportsman Power competitors out to fly their Known sequences. Michael Hoy jumped right out there with a beautiful flight in his homebuilt Monosport 360 and clenched first place with a score of 86.35 percent. In second and third place were Joshua Gregg flying a Super Decathlon and Philipp Gragg flying a Pitts S-2A. After a slow start in seventh place in the Known in her Extra 300, Brazilian Juliana gave everyone a run for their money by winning first-place flight medals in the Freestyle and the Unknown. Although she finished in second place overall, as a noncitizen her situation was the same as Luke's; she could not claim the national trophy. This brought Joshua and Phillip up for the second- and third-place overall win.

On Tuesday, September 21, the gliders were up first and making up for the previous day's howling winds. Sportsman Glider pilots included Sean Moran, who also flew Primary Power later. He finished the Sportsman Glider Known flight in first place in an MDM Fox, followed by U.S. Air Force cadet Patrick Koenig in second and Andrew Dever in third, both flying the academy's gliders. During the Freestyle, Andrew surpassed Sean's performance and clinched first place with a score of 81.06 percent, and Dante Cyrus finished second with 79.96 percent. Sean was still in the hunt, though, and earned the bronze with 78.18 percent.

In the Sportsman Glider third flight, Sean once again was in first place, but Matthew Hamilton had an excellent flight and surprised everyone by placing second. Dante was still in the game and landed in third. With a score of 73.24 percent overall, Sean Moran became the U.S. National Sportsman Glider Champion. Andrew Dever hung onto second place, and Dante Cyrus landed in third.

The Advanced Glider pilots were also able to fly on Tuesday. Lt. Col. Jonathan Roe flew the U.S. Air Force Academy MDM Fox to first place in the Known and Freestyle with a score of 76.38 percent. He was followed by civilian pilot Joseph Gerner, also flying a Fox with a score of 74.29 percent. Cadet Jacob Szymanski came in third at 71.91 percent. In the

Freestyle, Jacob improved his standing with a second-place finish followed by Matthew Kuczajda. The Unknown was a challenge for most, but Joseph Gerner flew his best flight of the day, to a first-place finish with a score of 82.71 percent. Matthew held onto second, and Lt. Col. Roe finished third in the Unknown. When the day was done, Lt. Col. Roe claimed the title of U.S. National Advanced Glider Champion; Jacob came in second and Matthew third.

While it is not a championship category, the Primary Power pilots were a high-scoring bunch, with the top four pilots all scoring consistently throughout every flight in the 80s. Dylan Beal, flying a Super Decathlon, started out on the right foot when he won the Known sequence with an 87.03 percent. Sean Moran (of Sportsman Glider fame) flew his Pitts S1-E to second, and Mikalia Gillis flying the MSU Decathlon came in third in the Known. Dylan and Sean continue to battle it out in the Freestyle, with Dylan finishing second and Sean third. Daniel Shanahan came up from fourth place in the standings to win the Freestyle with an 81.87 percent score in his Super Decathlon.



PHOTOGRAPHY BY GARY SCHENAMAN

The last flight for the Primary Power found Dylan on shaky ground in fourth, but not enough to topple him from his overall standing in first place with a score of 83.12 percent. Sean finished right behind him with an 82.33 percent, and Daniel remained competitive to finish third with an overall score of 81.44 percent.

The last flight of the competition was the 4-Minute Free on Friday, September 24, in the afternoon. The skies were overcast and there was a pretty stiff wind, but not enough to keep the competitors on the ground or affect a crowd of over 65 gathered at Fossett Plaza in front of Avflight. There was excitement in the crowd and on the judges' line. Contest Director Doug Bartlett invited a civilian population to test their critical eye against the Nationals judges. Among them was Brennon Hayden, our youngest aerobatic judge wannabe, who has been studying the rulebook all year and sitting on the judges' line as a recorder for every contest he has attended this summer.

The public viewing area at the plaza saw Lorrie and Gordon Penner, along with Hollywood Hayden, handing out programs and

describing the IAC and aerobatic competition to the locals. Six pilots competed for the Bob Schnuerle Trophy, presented to the highest-scoring competitor in the 4-Minute Free program at the U.S. Nationals. The crowd was fascinated and very appreciative of the excellent flying they were witnessing. Again, Rob Holland reigned supreme and won the 4-Minute Free program for the 10th time. **IAC**

Lt. Col., Jonathan Bell (L) and Capt. Matthew Bell (R) with the U.S. Air Force Academy Aerobatic Team.



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Hanriot HD.1 and a Pitts Special S-1S

Two iconic championship airplanes share the skies over New Zealand

BY ANDREW LOVE, IAC 432723

LATE IN APRIL, we had our final flying training weekend for The Vintage Aviator Ltd., at Hood Aerodrome, New Zealand. The collection features a large variety of immaculate World War I-era aircraft, the majority featuring original or reverse-engineered engines. These machines require a unique approach to operate and maintain them. I have been fortunate to be a volunteer pilot with TVAL for three years now, starting as ground crew back in 2018. Along with vintage and ex-military aircraft, my other passion is competition and display flying. I have been flying Pitts Specials for 14 years. I started out doing joyrides in the S-2A and S-2B in the adventure tourism capital of Queenstown, New Zealand.

I have owned Pitts S-1S serial No. 0029 since late 2019. It has been an absolute blast, a real dream come true. Previously, the owner of the other airworthy S-1S in Morris Tull, New Zealand, our current club president, invited me to fly his immaculate example. 0029 was imported into New Zealand in the mid-'70s, and owner Pam Lock took it to Europe to compete at the World Aerobatic Championships (WAC) in 1976 at Kiev, then part of the Soviet Union, now part of Ukraine. She enjoyed a period of competition flying and air shows around New Zealand before exporting it to Australia in the early 1980s. It found its way back to New Zealand in 2009 after being grounded in 1999 with a cracked crankshaft. The restoration was extensive and absolutely beautifully done. The aircraft now resides at Pam Collings' home base, Forest Field, North Canterbury.

TVAL's Hanriot HD.1, featured in the accompanying photo, served as a Scout in WWI. This particular example is one of the collection's originals and was built in September 1918 at René Hanriot's works at Neuilly-Sur-Seine, Paris. The aircraft survived the war and was later flown primarily by Belgian Ace Willy Coppens. The Belgian air force then contested the World Aerobatic Championships in 1922 in this aircraft, at Nice, France, and won, flown by WWI Ace Coppens, who having lost his left leg in an accident tied his right foot to the rudder bar.

About 12 months ago, we discussed the 50 years between when this Hanriot won the WAC and when the U.S. Aerobatic Team won with the S-1S in 1972, and a plan was hatched to obtain permission from our CEO to photograph the Hanriot and my Pitts through the lens of the famous aviation photographer Gavin Conroy. My Pitts competed at the WAC four years after the U.S. Aerobatic Team triumph. So, it was late April when we managed to complete this shoot of one of the more unusual aircraft pairings. Experienced WWI display pilots John Barge and Gary Yardley flew the Hanriot and Tiger Moth camera-ship, respectively. And the photos you see were the result.

A massive thank-you to TVAL for allowing me to fly in formation with one of the most valuable aircraft in the collection, and a big thanks to John, Gary, and Gavin for making it all possible. I look forward to volunteering with the team next summer. The air show/competition calendar is filling up fast! *IAC+*

Andy Love is the event organizer of the 7th annual South Island Akro Fest taking place at Ashburton Airfield, New Zealand, December 2-4. He is a competitor in the Intermediate class and instructor as well as an air show display pilot.



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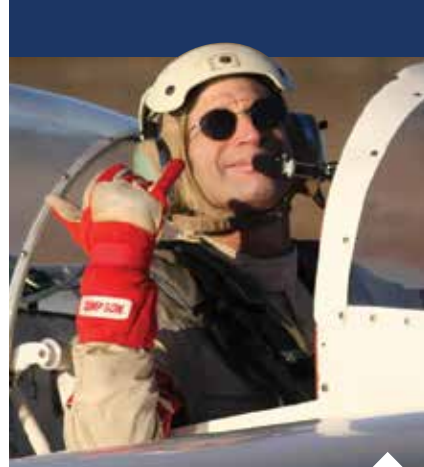
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- and last but not least to the great people of Salina, Kansas



A Mag Story

BY TOM MYERS, IAC 16830

MANY, MANY YEARS AGO, I had a mag fail on takeoff. A very short approach and landing initiated from a very short upwind ensued. My takeaway from that brief but noteworthy flight was that mags are wonderful devices, but they're even more wonderful if they are serviced far more often than the manufacturers call for. Specifically, even though the maintenance manual calls for the mags to be opened up every 500 hours, I had found over the years that opening them up every 200 hours or so results in useful reactive and proactive maintenance being performed.

Late last summer, I noticed a trend happening with one of my mags. During runup, the rpm drop for that mag was slowly increasing over the course of several flights. The magnitude of the rpm drop never got anywhere near close to the recommended limits, but the slow trend was clear.



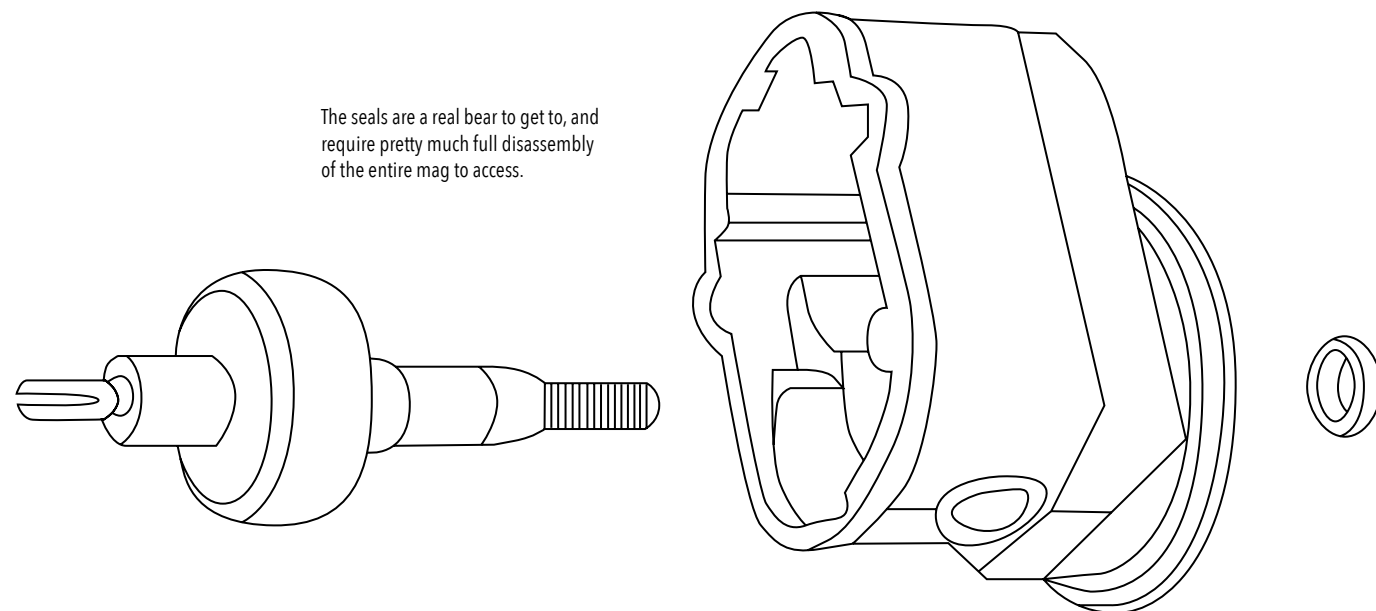
Slick mag drive shaft seal

Even though the mags were well short of 200 hours since last serviced, it made sense to pull them early during the annual inspection last fall to understand what was going on. Even though the condition of only one of the mags was of concern, my attitude was that if I was going to open one mag, I was going to take the opportunity to open both mags.

My A&P mechanic has a full set of mag overhaul tools and fixtures, so after I got the mags off the engine, I brought them over to his hangar so we could open them up. The mag without any issues required only routine cleaning and maintenance, a new carbon brush for the distributor, and timing of the points.

The mag with the rpm drop issue was a different story. When we got that mag open, we discovered a whole lot of oil. The oil was clearly fouling the points and the distributor electrodes, so the cause and effect picture was clear. What was not so clear was where all the oil was coming from. Another benefit of pulling both mags was that we already knew that the mag without any issues was dry inside. While my engine is not absolutely devoid of any oil whatsoever on the outside after flights, the amount of oil that is present is miniscule.

The evidence therefore pointed to a likely culprit, the mag drive shaft seal. The seals are a real bear to get to, and require pretty much full disassembly of the entire mag to access. According to the logbooks, both mags had similar maintenance histories, so at that moment, what was going on did not make much sense. Even though taking a mag completely apart is an involved project, my A&P and I agree, as always, that we do whatever it takes to run a problem through to the root cause no matter how inconvenient the process can be along the way.



The seals are a real bear to get to, and require pretty much full disassembly of the entire mag to access.

Once we got the shaft seal out of the bad mag, it appeared to be physically fine. However, I had taken the time to reread the mag overhaul manual before we started. The mag overhaul manual includes an extensive chart detailing the various components used in the various mag models. It occurred to me that there were only two different shaft seal types listed. As you have probably just guessed, a check of the component chart showed that whoever had installed the shaft seal during a previous overhaul had used the wrong seal type for this particular mag model. The seal type that was installed was for a mag with a slightly larger diameter drive shaft, so it did not take very long before the seal started letting oil from the engine accessory case around the circumference of the smaller diameter drive shaft.

Of course, we immediately disassembled the other mag. However, the good mag did have the correct shaft seal installed. As long as we had both mags disassembled, though, we just went ahead and replaced both shaft seals with correct brand new parts. Both mags have been running perfectly ever since.

It is unlikely we will ever know exactly how and why the wrong shaft seal had gotten installed. The bottom line is that someone did not do a very good job, and that led to a mess that someone else had to clean up. Fortunately, the mess was a pretty small one, all things considered. No dramatic adventure like the one from my first noteworthy learning experience with mags. I've come to discover that I like learning without drama. Fewer seat cushions to pry out.

My A&P has suggested that given what I do with my airplane, opening up the mags closer to every 100 hours rather than every 200 hours would be a good idea. I agree with him.

Here are a few takeaways from this latest learning experience with mags. The more you pay attention to what your airplane is doing, the more likely you are to notice the effects of problems and surprises. The more you know about all the components that make up your airplane, the more likely you are to figure out what the problems and surprises are. The more you dig into your airplane, the more likely you are to find the problems and surprises. The more often you dig into your airplane, the more likely you are to find the problems and surprises at a time of your own choosing. The more often you dig into your airplane, the more likely you are to find the problems and surprises when they're small instead of when they're big.

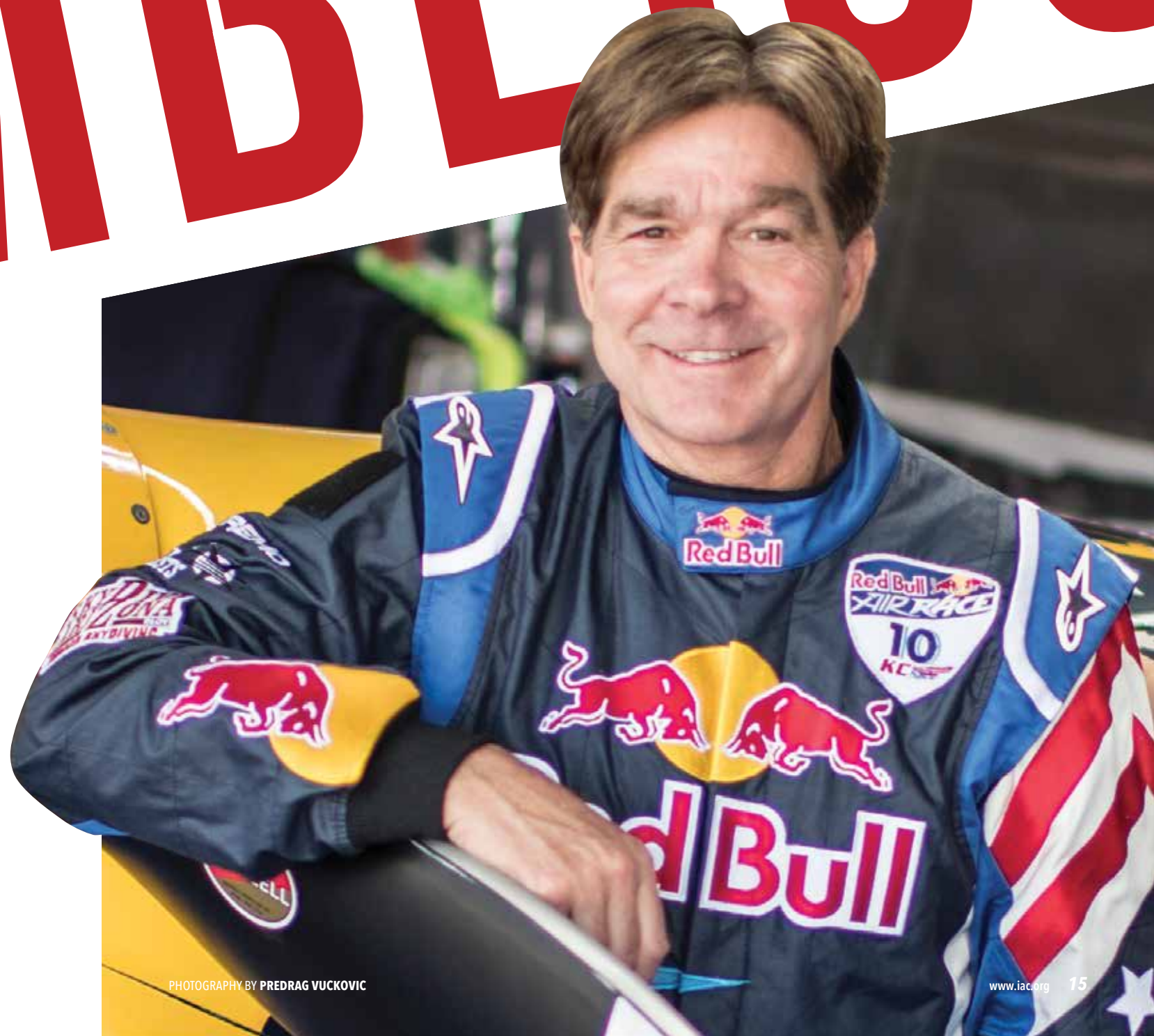
Fly safe. *IAC+*

“THE MORE YOU PAY ATTENTION TO WHAT YOUR AIRPLANE IS DOING, THE MORE LIKELY YOU ARE TO NOTICE THE EFFECTS OF PROBLEMS AND SURPRISES.”

KIRBY CHAMPBLISS

2021 IAC HALL OF FAME INDUCTEE

STORY BY LORRIE PENNER, IAC 431036





“THE GREAT THING ABOUT THE IAC IS IT GIVES YOU EXPERIENCE. YOU ARE SURROUNDED BY AEROBATIC PILOTS AND JUDGES WHO ALL HAVE A WEALTH OF KNOWLEDGE TO PASS ON.”



Kirby, the early years, loving all things aviation.

As a child, Kirby Chambliss was always running around with toy airplanes. “I don’t ever remember saying I wanted to be a pilot; I just always wanted to be a pilot,” he said. At the age of 13, he began to help his father build a DA2A Davis in the family garage. In pursuit of his dream to become a pilot at the age of 15 he began fueling airplanes in order to pay for flight lessons.

At 21, through his first job as a corporate pilot flying in the right seat of a Citation with the La Quinta Motor Inns, he got excited when he discovered the rush of aerobatics. “The chief pilot was a smart guy, and he said that if that jet ever ends up upside down with the CEO onboard, we’d want you to be able to turn it right side up,” Kirby said. To Kirby this made perfect sense, so he was sent to a

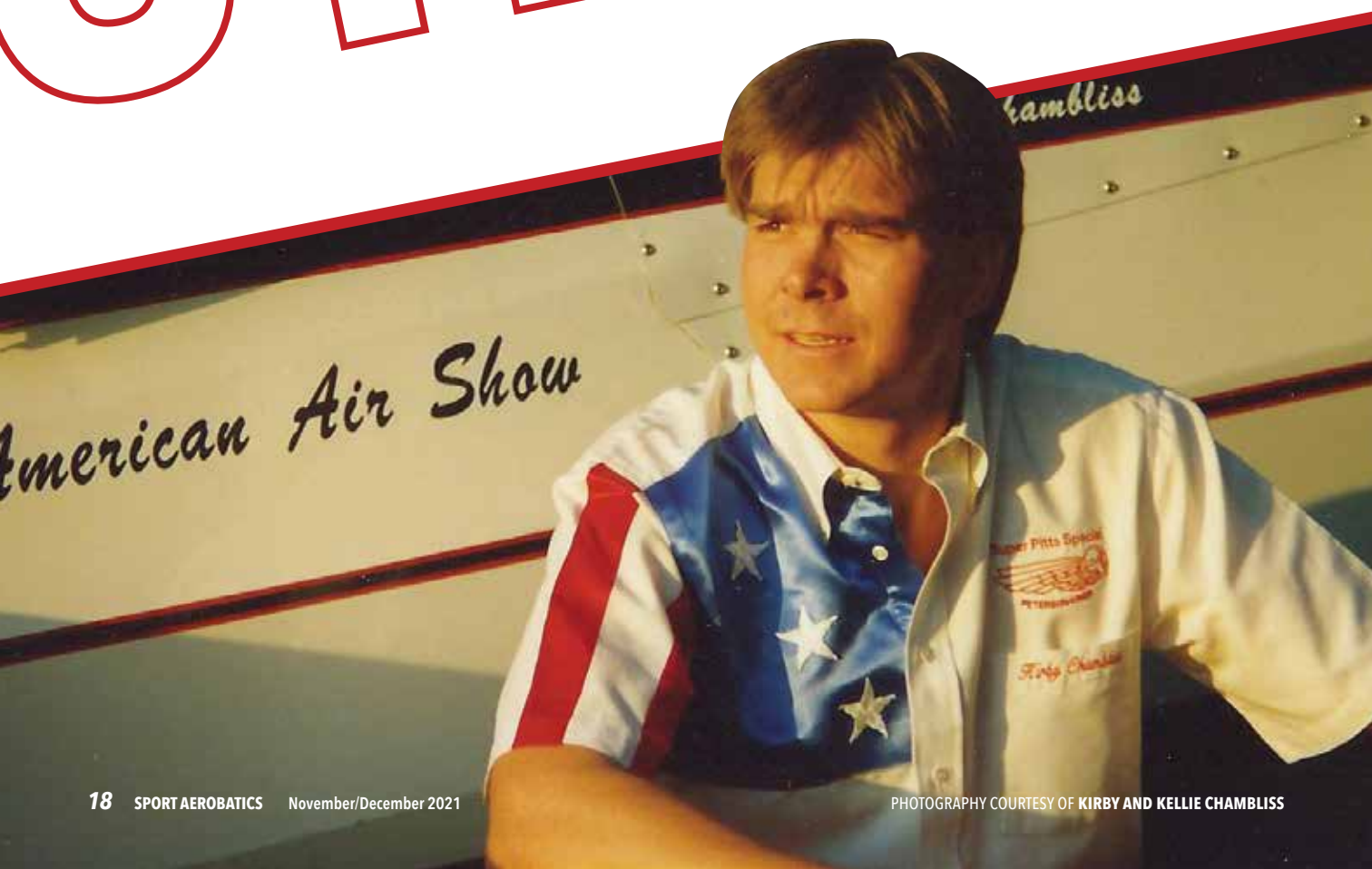
10-hour training course with aerobatic pilot Duane Cole. From the moment he and Duane turned the Decathlon upside down it changed Kirby’s flying perspective forever.

By 24, Kirby was the youngest pilot at Southwest Airlines, and made captain by 28. Although he enjoyed flying commercial airlines, it was simply a means to finance his true love, aerobatics. He continues to fly with Southwest Airlines and is based in Phoenix, Arizona.

“I was fortunate to experience the IAC first and not get straight into the air show business,” Kirby said. “The great thing about the IAC is it gives you experience. You are surrounded by aerobatic pilots and judges who all have a wealth of knowledge to pass on.”



KIRBY CHAMBLISS



PHOTOGRAPHY COURTESY OF KIRBY AND KELLIE CHAMBLISS



Kirby joined the IAC in 1986 and entered competition, placing first in the Intermediate category in his first aerobatic airplane, a Pitts Special S-2A. That same year he began flying air shows, continually training in order to perfect his aerobatic skills and routines. Kirby modeled much of his aggressive flying style after his hero Leo Loudenslager, a seven-time U.S. National Aerobatic Champion and 1980 World Aerobatic Champion.

Meeting Leo was an inspiration to Kirby. He had watched him at air shows, but had not seen him fly in competition. Kirby was intrigued by Leo's last airplane, the Shark, which he wanted to fly when he saw it during its building process. The manufacturer of the Edge 540, Zivko Aeronautics, was developing the Shark with Leo. The airplane was ahead of its time, especially with respect to its unique tail section. Both the horizontal and vertical stabilizers could be uncoupled, giving great stick throw and 70 degrees of deflection during flight. Leo's goal was to develop his version of the ultimate airplane.

Six months after Kirby purchased his Pitts S-2A, he went down to Harvey & Rihn Aviation in La Porte, Texas. "I went to H&R Aviation for six hours of aerobatic and tailwheel time," Kirby said. After the training he decided to buy his own Pitts S-2A.

Kirby discovered that his Pitts S-2A was too expensive. He just couldn't afford to keep it, so he sold it. After selling the S-2, he bought a Pitts S1-S for the bargain price of \$18,000 and ended up flying that little airplane for 10 years. Kirby spent a lot of time working on the airplane and having it rebuilt.

As Kirby continued to fly in the Unlimited category, it became apparent he'd have to invest in a monoplane if he was going to stay competitive. He longed for an Extra 300S, but couldn't afford the price tag.

During the time that Cecilia Aragon's airplane was being worked on, Kirby was introduced to Zivko Aeronautics. Cecilia's airplane was a one-off, custom-built Sabre 320 whose fuselage was originally designed by Dan Rihn and equipped with an all-composite Edge wing.

ALTHOUGH HE SAID HE LOVED EVERY PART OF COMPETING, WHETHER REGIONALLY, NATIONALLY, OR INTERNATIONALLY, “THE BEST PART OF THE WHOLE EXPERIENCE ARE THE FUN TIMES PRACTICING WITH MY BUDDIES AND TRAINING.”

In 1993 Kirby did the test flights for the Zivko Edge 540 prototype. He became Zivko’s factory test pilot from 1993-2005. The new Edge 540 V3 is capable of plus or minus 12g although the wing on the Edge has been static loaded to over 20g. It has a maximum speed of 265 mph and a rate of climb of 3,700 ft/mi. The Edge 540 matches Kirby’s aggressive style with the strong Edge “midwing.”

When Kirby first started practicing in the Edge 540 between 1993 and 1994, he credited some of his practice discipline to having an audience. Bill Mayberry, a regular on the Unlimited judges’ line, including during the IAC Championships at Fond du Lac, used to watch Kirby three mornings a week while he was practicing. “He’d come out and give me a critique just because he loved aerobatics,” Kirby said.

In addition to the successful single-seat Zivko Edge, Zivko Aeronautics designed a two-place version that made its debut in the October 2000 issue of *Sport Aerobatics*. Kirby and his wife, Kellie, are featured in the two-seater on the cover. As Vicki Cruse wrote in the article, “There is no pilot more associated with the Edge than Kirby, the first recipient of an Edge 540. He has had the job of test-flying many Edges, and he also had a hand in the design of the Edge 540T.” Kirby wanted a plane able to perform as well as a single-place Edge. He wanted an airplane capable of flying Unlimited. Kirby says, “What we have done with the Edge 540 T is to make it an Unlimited competitor as close to the single place as we could. It will be competitive in Unlimited but will have a hard time performing a six-figure Freestyle. This is one of the drawbacks to adding another seat.”

In 1998, Kirby won his first U.S. National Unlimited Championship title. He considers it one of the most special wins because he really didn’t know he could do it. Kirby had finished twice before; he wanted to win just like any competitor.

In 1995 he placed fifth in the IAC Championships. With only five weeks separating “Fondy” and the Nationals, he had been training to qualify for the team. His chances of making the 1996 team looked excellent. His hopes were crushed when he was injured in a car accident just days before the competition. Although he flew that year with two broken ribs and 50 stitches in his head, he feels like the first maneuver was his downfall, causing him to miss the slot on the team. It had a 1/2 snap-roll, and he did a 3/4 snap-roll, which put him off the entire sequence.

In 1996, Kirby was hoping to win the U.S. Nationals with odds leaning in his favor. The competitors faced unfavorable weather, and for most of the week the rain didn’t let up. For the second time in the history of the U.S. Nationals, no national champion was named. With the World Aerobatic Championships in Oklahoma City that year, John Morrissey, 2019 IAC Hall of Fame inductee, asked him to fly as a warmup pilot for the U.S. team. French coach (and later U.S. team coach) Coco Bessiere watched Kirby’s warmup, approached John, and asked why Kirby wasn’t on the team. John had to relay the 1995 story of the car accident, and Coco replied, “Good for us.”



Kirby at home in Arizona with many of his U.S. National Aerobatic Championship trophies.



Honing his aerobatic skills, by 1997 he had earned a coveted spot on the U.S. Unlimited Aerobatic Team. From 1998 through 2005, he served as team captain three times. Of his competition and team days, Kirby fondly remembered spending many hours practicing in Texas with fellow team members David Martin, Steve Andelin, and Mike Mangold. “We’d go practice at David’s place before Nationals. We’d go swimming in the afternoon to cool off,” Kirby said. “It was a great atmosphere and wonderful camaraderie there.”

Although he said he loved every part of competing, whether regionally, nationally, or internationally, “The best part of the whole experience are the fun times practicing with my buddies and training,” Kirby said. “In 2013, when the World Aerobatic Championships were in Texas, David Martin asked if I would try out for the team. I did think about it for a few days, but I was in the Red Bull Air Races, flying air shows, and had an 8-year-old daughter at the time. It would have been another opportunity to fly with my friends, but competing at that level is a full time job.”

The future would prove to be kinder, and Kirby went on to win the U.S. National Unlimited Championship title four more times from 2002 to 2005. In addition to his national championship titles, Kirby was also a Bob Schnuerle Trophy winner in 2000 and 2002. The trophy is presented to the winner of the 4-Minute Free Program at the U.S. Nationals.

Before his successes at Nationals, Kirby competed at the IAC Championships, which were held in Fond du Lac, Wisconsin. During the opening ceremonies of the championships, an invitational competition was held. The competition and award had been conceived by the Fond du Lac Convention & Visitors Bureau. In 1994, Kirby won that separate event, and his name is engraved on the permanent trophy that sits in the IAC building on the EAA AirVenture grounds in Oshkosh, Wisconsin. He was later crowned the IAC Unlimited Champion in 1997 at Fondy.



Red Bull racing was a perfect fit for Kirby. "I love to go fast," he said.



Aerobatic competitions have always been a great steppingstone for a lot of air show performers. Competition flying is a very disciplined and focused sport. Because of his continuous practice and competition experience, Kirby says he hardly knows if he is right side up or upside down anymore. As it turned out, competition is also a great training ground for being a Red Bull Air Race pilot.

"Racing is a fantastic event for me because I raced motocross as a kid and I love going fast, so Red Bull was a perfect fit for me," Kirby said. He is a two-time Red Bull Air Race World Champion. He won his first Red Bull competition in 2004, winning two of three races. The second win was in 2006 when he amassed 38 points and four wins over a season that included racing sites in Abu Dhabi, Barcelona, Berlin, St. Petersburg, Istanbul, Budapest, Wiltshire, United Kingdom, San Francisco, and Perth.

Kirby also won the title 2000 World Aerobatic Champion Men's Freestyle in France. In 2005 he was awarded the Charlie Hillard Trophy for the highest-placing American at the World Aerobatic Championships. To date, Kirby has accumulated 13 medals in world competition. Whether he's in a world aerobatic competition or in a Red Bull Air Race, Kirby admitted that it's always an honor and a thrill to represent the United States.

Outside of competitions, training, and family, Kirby loves to ride motorcycles and go skydiving. However, his interests are not limited to extreme stunts; one of his favorite things to do is to fly low and slow over the desert in his Storch, a World War II era tailwheel aircraft. Kirby is also very giving of his time to the next generation of pilots and to the general aviation community. He works one-on-one with young people by exchanging letters with fans, visiting college groups, donating his time to charitable foundations, and mentoring aspiring aviators throughout the country.

During the 2020 COVID-19 shutdown, Kirby had a chance to become involved with Angel Flight. "It was an honor for me," Kirby said. The charity arranges free air transportation for people who need to travel to receive life-saving medical treatment.

Being inducted into the International Aerobatic Club Hall of Fame came as a surprise. "It is a big honor for me," Kirby said. "There have been so many before me. I am honored to be in the company of the previous inductees and all their aerobatic accomplishments. They have inspired me, and being a part of IAC has done so much for me." **IAC**

KIRBY CHAMBLISS, IAC 12086. Captain, Boeing 737, Southwest Airlines
Logged over 30,000 hours of flight time. Has flown more than 70 types of aircraft.

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Intermediate Glider: L to R, 3rd place Andre Gerner, 1st place Shad Coulson, 2nd place Jared Bachman



Safety Award went to starter Doug Vayda



Advanced Glider: L to R, 3rd place Matthew Kuczajda, 1st place Lt. Col. Jonathan Roe, 2nd place Jacob Szymanski



Sportsman Power: L to R, 2nd place Joshua Gregg, 1st place Michael Hoy, 3rd place Phillip Gragg



Chapter team trophy goes to IAC Chapter 78 Minnesota



Sportsman Glider: L to R, 1st place Sean Moran, 3rd place Dante Cyrus, 2nd place Andrew Dever



Advanced Power: L to R, 3rd place Tom Rybarczhk, 1st place Matt Dunfee, 2nd place Marty Flournoy



Intermediate Power: L to R, 2nd place Tom Rhodes, 1st place Mike Lents, 3rd place Craig Fitzgerald



Contest Director Doug Bartlett with Service Award



Betty Skelton Trophy: Melissa Burns



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



Charles "Chuck" Alley Lifetime Old Buzzard Award: Dick Swanson



Primary Power: L to R, 2nd place Sean Moran, 1st place Dylan Beal, 3rd place Daniel Shanahan

BEHIND THE SCENES

REDLANDS AEROBATIC CUP

STORY BY SUSAN BELL, IAC 438132

BEHIND THE SCENES

REDLANDS AEROBATIC CUP

In Hollywood, a behind-the-scenes look at your favorite movie or television series reveals how movie crews seemingly shoot the impossible: that crazy car stunt performed with precision drivers and pyrotechnics, how that alien creature was computer animated over an actor's performance, and how entire worlds are shot on green-screen backgrounds. While perhaps not on the level of a feature film (and as a member of the Producers Guild of America, I should know), starting a new regional contest has some near-impossible feats as well. Let's take a look behind the scenes of the inaugural Redlands Aerobatic Cup, which took place September 3-5, 2021, in California.

THE SCRIPT

Like any good movie, a contest must have a solid foundation. Chapter 26 held the Delano Labor Day contest for over four decades before issues with the flight standards district office (FSDO) made it impossible to continue. It was a major blow, and the chapter searched for a new contest home. After an aborted try at Santa Maria, the chapter held three contests near Lancaster, California, at Fox Airfield. But the extreme desert weather proved too challenging, so the search — or as Joseph Campbell, an American author and professor, would call it, “the hero's journey” — for a new home began.



PHOTOGRAPHY BY BOB DRIVER

BEHIND THE SCENES

REDLANDS AEROBATIC CUP

PREPRODUCTION

A contest location needs three things: manageable airspace, accessible and unpopulated land under the box and waiver area, and a cooperative airport. Finding all three of these items in California has become increasingly difficult. In March of this year, I contacted the former contest director from Chapter 49, which held a contest in Redlands a decade ago, and I received an overview of the local issues and history. First plot point of our story is to find out who is in charge.

Redlands Municipal Airport is managed by the city and has an appointed Airport Advisory Board that advises the city council on airport matters. It was to this group that I made an initial presentation via Zoom during COVID-19 pandemic restrictions that was attended by relevant parties, such as the local pilots association, the current aerobatic practice area (APA) holder, city management of the airport, and the mayor of Redlands. I introduced our chapter, explained why we were interested in Redlands, mocked up a draft box over the river bed, explained the airport could remain open, and answered questions. The board unanimously approved the concept of a contest, and I was given the okay to move forward with the FSDO and city management.

At this time, I listed the contest on the IAC contest calendar and alerted our chapter membership to mark their calendars. Member Zinnia Kilkenny offered to help set up a hotel discount and look into local food and banquet options. I started designing the contest poster as it always gets people excited about attending and gives us something to use for promotion.

The second plot point in our preproduction script is to identify who owns the land where the box markers must be placed. It ended up being extremely complicated at Redlands as there are five federally protected endangered species in the river bed north of the field: the San Bernardino kangaroo rat, the beautiful Santa Ana River woolly star flower, the tiny San Bernardino spineflower, and two nesting birds.

Redlands Airport Supervisor Carl Bruce Shaffer facilitated this discussion by contacting the relevant parties: a conservation district, the Bureau of Land Management (BLM), and the county flood control district. The conservation district happened to be on the phone with the Fish and Wildlife Service immediately before our Zoom meeting and suggested the box markers be elevated to protect the species. They also wanted the chapter to hire a biologist to survey each marker site — an expense we could not afford. The BLM responded to the initial inquiry with a time frame of over two years before it would be able to review our request!

Following some careful repositioning with the help of a geographic information system map expert, the box was moved entirely onto airport and county property, with the exception of a corner we would not mark. After speaking with a county representative, I applied for the ingress permit in April, which included an environmental review. I detailed a new “floating” box marker made of Tyvek bungeed to stakes that would not trap the kangaroo rats or thermally damage plants that I had tested in my windy, desert backyard.

After all these environmental concerns, dealing with the actual contest box waiver and traffic pattern change — plot point three — was a piece of cake. These should be applied for with the local FSDO a minimum of three months out in my experience to allow for any issues to be addressed. The contest box waiver submission included diagrams of a requested 1-mile radius of the box center, with part of the waiver to the surface north of the runway, and then increasing to 1,500 feet AGL south of the runway to allow the airport to remain open. The holding area was placed in the existing APA with the permission of its owner, local Redlands IAC member Tom Jones. Both the waiver contest box and the traffic pattern move were readily approved by the FSDO later in the summer.

In June, I attended a meeting of the local pilots group, the Redlands Airport Association (RAA), to present the contest plan, reassure everyone we will strive to keep the airport open, and answer questions. The RAA was supportive of the event, and several of its officers and members volunteered to work the contest. This month I also developed the on-site ground plan with the airport supervisor and made arrangements with the FBO to ensure adequate aircraft tiedowns and vehicle parking in their leased space.

And then the unexpected happened — plot twist! I tore my ACL and meniscus in my right knee and must have surgery in July. That same month, the city department over the airport decided — 10 days before the event was to be approved by the Redlands City Council — that we must pay a \$3,500 event fee for use of the airport. This development was an unacceptable, arbitrary, and capricious fee compared to the no-fee usage the local EAA chapter and pilots association have. IAC’s government liaison Bruce Ballew and I strategized, and I prepared a slide deck rebuttal to send around and called the mayor, who had offered his help should we need it. At one point in these stressful 10 days, it seemed I needed to appear at the city council meeting the same day as my knee surgery, which would have meant someone driving me there and wheeling me in seated in a wheelchair. Redlands Mayor Paul Barich rectified the situation, the event contract was redrafted with the city attorney, and it was signed and returned the day before the vote.

The major dramatic conflict of this contest script was overcome, and now it was time to play catch-up on all the usual contest directing tasks. The T-shirts must be designed and ordered, sponsorships secured as our regular fundraising volunteer was not available this year, trophies and special awards selected and ordered, hotel and food finalized, and program book laid out and updated. Finish the incident response plan. Order a port-a-potty for the judging line. Meet with the county to add a lock on the river bed gate for box access. Figure out the near box makers on the airport as the brush is 3-4 feet high. And encourage pilots and volunteers to preregister.

That last item is what we in film script writing call the “dark night of the soul.” When pilots do not preregister, it feels like all is lost to the contest director (CD). The budget was ballooning with fixed expenses, and I was worried my guestimates on attendance were way off base. I did not know which judges I could count on yet. I worried my lunch plans were too expensive and that we wouldn’t have enough volunteers to run the lines. I wondered if I should eliminate niceties such as the posters or the programs to reduce the outlay so the chapter would not be too far in the red. The goal was to break even when we set the contest registration fee, which covered the majority of the contest expenses, as well as the \$55-per-pilot IAC sanctioning fee and a \$5 California point series fee. If there is one thing you take away from this article, it is please preregister!



PRODUCTION

In moviemaking, production is when the cast and crew come together to start filming. In my analogy, production begins with moving materials to the contest site and setting up the box.

During the weekend before all the pilots flew in, a small core group of chapter members gathered to load three vehicles with ice chests, tents, chairs, boundary devices, and markers that were spread out between Fox Field and Apple Valley Airport. This year, as I was on crutches, I could do little but point and make sure we collected everything we needed. The convoy drove past an active wildfire in the Cajon Pass, helicopters and tankers flying overhead, and delivered the bulk of materials to IAC member Tom Jones' hangar in Redlands; he volunteered space.

For the week of the contest, more registrations and volunteer signups were coming in, and I sent out emails reminding everyone of dates and times. I also had several preregistered pilots pull out of flying, which made the film producer side of my brain nervous.

As the contest was Friday, Saturday, and Sunday, with a holiday on Monday, the box setup was Thursday. This box wasn't flat. It wasn't an easy-to-transverse cornfield. There were boulders

everywhere. In fact, it might be the most challenging box the chapter had ever set up. The front three markers were on airport property — a rise above the dry Santa Ana river bed. This area is covered in brush with embedded cacti, and we had to use pop-up tents as markers. We were blessed to have two young, eager student pilot volunteers helping the box team navigate the terrain. It took several hours to get the front of the box done, and I could sense we were getting hangry. "To lunch in an air-conditioned restaurant," I ordered.

Next up was placing the new floating Tyvek markers in the environmentally sensitive river bed. I had pre-identified the closest dirt road parking spots and loaded a hiking GPS unit with coordinates. Off the team went, with me hanging out by the cars and unable to follow on foot. Slow but steady progress was made until, while driving to the next marker, I smacked into a large rock, backed up, then got stuck between a slope and another rock in my "city" 4x4 Jeep. Tom Jones and Lloyd Massey dug out the offending 400-pound monstrosity as the rest of the team set off to mark top center. Forty-five minutes later, the Jeep was freed, and we managed two more markers before sunset and the numerous coyotes made marking impossible. We were disappointed not to see any kangaroo rats.

Friday dawned too early. More Redlands volunteers appeared, registration was set up, and the box monitor was educated on announcements to incoming traffic but didn't bother to read NOTAMs of the pattern change. The box team went back out to finish the missing markers. I began to breathe a sigh of relief that six months of work was about to commence.

If you've never volunteered behind the scenes in a key role at a contest, you likely do not know the massive amount of work and time spent once the flying is done. At the end of practice and registration day, most people head off to dinner. The core contest team is just getting started as the volunteer positions for the next day must be assigned and the judging clipboards for the Known and Free flights must be assembled in flight order. Both of these jobs can take hours upon hours.

Volunteer coordinating is the HR of the contest. The volunteer coordinator must balance the requests of pilots flying with those of full-time volunteers here to learn. In the case of Redlands, many local pilots volunteered who would be able to return year after year, and making certain they were exposed to different positions was paramount to me as the CD. I also made sure we balanced the pilots volunteering so no one is put on a boundary more than once, and Primary and Sportsman pilots got a chance to record and learn. So, the next day when beginner pilots complained about their assignments, my three hours of sleep made me a grumpy CD.

Flight order is first picked by random, then adjusted to take in account shared aircraft and safety pilots. There is no perfect way to do it when categories are not large, but we try very hard to make sure no one gets stuck flying first or last every flight. Once the order is determined, the clipboards are built by stacking sequences and judging forms in the correct order. Because everyone is so tired at this point, we take

the time to go back through every board (and there are 14 per flightline when you have five judges) and double-check.

On Saturday, the contest began with the mandatory 7 a.m. briefing. I started with roll call of the pilots in order of flight, and not uncommon, one of them was not present and wasn't rushing in the door. Per the rules, that is a \$50 fine or failure-to-prepare point penalty. He won't ever be late again! Next, we went over the volunteer assignments, and because our flightlines were so complicated, I reviewed the names for the entire day. Chief Judge Michael Church took over to discuss how he wanted the flying to take place. The order of flight and volunteer assignments were posted and the day began ... I wished.

I had many issues with no-show volunteers and pilots not wanting to do specific jobs, so I had to revise the volunteer positions four times. I started using colored paper to make certain the correct version was distributed. I borrowed a golf cart to zoom about with my injured knee and now started picking up slow movers and depositing them at the judging line so we could get going.

Behind the scenes, ice was being purchased and poured into chests we had filled with water and Gatorade the night before. Radio batteries were switched out, and clipboards were given to the chief judge, the starter, and the boundaries, who drove out to their positions. Our northeast boundary was at least a 20-minute drive due to having to cross a bridge and approach the rugged river bed from the north, unlock and relock an access gate, and then hike to a lonely spot in the midst of the elusive kangaroo rats. This boundary was almost always the slow point in getting the flying started. But my chapter is so adamant on good box placement, we give a "No Outs, No Zeros" award to the rare pilot who achieves it. We would have boundaries.

The first day of flights went well. Starter Ronald Hansen kept things moving, and we finished before 5 p.m. I distributed the Unknown sequences to Intermediate and above. As usual, scoring took some time, and many people headed off without knowing the results from the Frees.

Sunday was a repeat of the above — same efficiencies and same volunteer issues — and we got done just after noon. We had a break for tasty sandwiches, which a volunteer had picked up. People fed, and with many pitching in, the on-airport tents, chairs, and ice chests were swept into a hangar in record time and the airport set back to normal. Pool and nap time happened for many as the scoring continued for several hours.

As Hangar 24 Brewery is located across the street from KREI, I wanted to develop a relationship with them. We asked to hold a casual "happy hour" awards banquet there, and at 5 p.m. arrived to set up. Many of the pilots already had gathered on their patio, so the awards were started promptly at 6 p.m. with the silent auction that had been open all weekend closed. Awards presented, we broke down the awards setup, collected the money for silent auction winners, and made sure we had a plan to move everything the next day from Redlands to Apple Valley. And we drove home. As CD, I got 12.5 hours of sleep over three nights.



PHOTOGRAPHY BY BOB DRIVER

BEHIND THE SCENES

REDLANDS AEROBATIC CUP

POSTPRODUCTION

I wish the contest ended after the awards show ended and the contest materials were moved into storage. But another week or so of work remained for the CD and others. I wrote handwritten thank-you notes to all nonflying volunteers and sponsors, an old-fashioned touch. Contest paperwork had to be scanned and sent to IAC for record-keeping. Outstanding sponsorship invoices were made, and silent auction winners were invoiced. The accounting was caught up and the reimbursement check was sent by the treasurer. And work was done with the contest photographer to post awards photos on social media.

In the case of Redlands, I was also asked to attend the city's Airport Advisory Board meeting for a debrief later in September. I want to build this contest into a public-facing event for the local community, so outreach there and cooperation with city officials are key. We had a few tiffs with locals on the field, but involving the RAA helped counter this tension as their volunteers now understood the realities of contest flying and judging. I'm crossing my fingers and toes all is well for next year.

And once all these things are done, it is rest for a few months, and then start the process all over again. At least next year we will have the first contest under our belts and understand where the pressure points will be. Contest directing is often a thankless job herding cats and playing politics. But a well-run contest that everyone enjoys is the reward the hero, or heroine, of the story seeks, and it leaves the audience with warm fuzzies and a desire to come back next year. **IAC+**

SUSAN BELL is president of Chapter 26, contest director of the Redlands Aerobatic Cup, and member of the Producers Guild of America and the Television Academy of Arts and Sciences



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My Jammed Elevator Landing

BY GORDON PENNER, FAA GOLD SEAL INSTRUCTOR,
THREE-TIME MASTER CFI-AEROBATIC, B767 CAPTAIN, SAFE MEMBER

THE INCIDENT

I HAD A SCARY thing happen to me when the elevator of my Decathlon got jammed in flight. I had to make an emergency landing in that configuration. The airplane received some damage in the landing, but I didn't get a scratch. So, I am here to tell you that Rich Stowell's Emergency Maneuver Training (EMT) techniques work. I will tell you what I did and I will tell you what I learned. I also want to use this opportunity to warn pilots about the pitch down that occurs when in ground effect.

On reflection, after reading this piece, I do not want anyone to be cavalier about choosing to bring the airplane in for landing instead of using "the nylon elevator" (the parachute). Air show great Sean D. Tucker chose to jump when he had his control malfunction some years ago. It is a hard decision, whether to jump or not, and the nature of Sean's malfunction was quite different.

Of course, if you do not have a parachute, bringing the airplane in is the only option.

In addition, the point of bailout is not the time to wonder if you have taken care of your parachute like you should have.

EMERGENCY RESPONSE

The first thing we must discuss, which is right out of Rich Stowell's book *Emergency Maneuver Training: Controlling Your Airplane During a Crisis*, is that the *moment* your airplane is doing something you don't expect, *immediately* abandon the maneuver. Handle the problem right away. You may not have much time or altitude. As Rich said, "Unfortunately, warning signs may not precede a control problem. The first hint of a problem may come while right in the middle of a critical maneuver, like a base-to-final turn." I had no warning.

First, let's think of big picture stuff, such as "Get away from the ground," and "How much fuel do you have?"

But don't just jam the throttle in full and put the airplane out of control that way. Be smooth with your power application and watch how the airplane reacts. The pitching effect of power can be your best friend. Don't shoot yourself in the foot with it.

You've all heard the famous aviation saying: "The only way you can have too much fuel is when you are on fire." Fuel is time, so take that time.

Big picture — it will take some time to figure out how to fly the airplane with an elevator failure. You are now an uneducated test pilot. You will have either a jammed elevator or an uncontrolled, free-floating elevator. Find out how your "new" airplane will react up high, before you get close to the ground.

Flying with a free-floating elevator is a separate article.

THE CONTROLLABILITY CHECK

In the military, when they suspect something is wrong with the airplane, such as battle damage, they will configure the airplane for a simulated landing up high, called a *controllability check*. This way, they don't get any surprises close to the ground. The pilots of the Aloha "pop top" 737, where the forward-upper one-third of the fuselage ripped free, used this technique.

The Aloha captain had flown combat in Vietnam. The controllability check helped the crew discover that their airplane could only handle flaps at 5 degrees (instead of flaps full) and couldn't fly slower than 170 knots. This procedure is how they knew to fly to another airport with a longer runway that could handle the higher speeds.

When you get close to the ground, have all your ducks in a row. Set up a long final, so that once the airplane is under control, very little control movement is needed. Rich said, "Whenever control unexpectedly becomes limited, restrict your operating envelope to a narrow, closely monitored window. In other words, avoid making large inputs once you've regained control over the situation."

You may also want to think about going to a different airport with a bigger runway, better crash-fire-rescue equipment, and/or wind down the runway.

TROUBLESHOOTING AND TEST FLYING

If possible, use your radio and get some help. Fighter pilots get radio help, so why shouldn't you? More on that later. Two or more heads can be better than one, but don't let that distract you if it is not helpful. Remember who the pilot in command is, and remember to *fly the airplane* before anything else.

IF POSSIBLE, USE YOUR RADIO AND GET SOME HELP. FIGHTER PILOTS GET RADIO HELP, SO WHY SHOULDN'T YOU?

Contrary to the opinion of some, radios do not create lift.

I had been doing aerobatics up high for about 30 minutes when the jam occurred. It happened at the pullout from a hammerhead. The elevator was jammed at a position a bit above neutral. My rudder and ailerons were unaffected. With full power, I was soon climbing.

One of the first things the EMT course teaches is the technique of trying negative g's to possibly unjam the elevator. This negative-g technique was also advocated by Swiss aerobatic champion Eric Mueller of Beggs-Mueller spin recovery fame.



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EXPRESS ARRIVAL

Unfortunately, when I tried moving the stick forward I felt a lot of resistance. It felt like I was digging or scraping into something somewhere. Now I was worried about getting the elevator stuck in a worse position than it was already, so I stopped trying negative *g*, got the stick back hard, and accepted what little up elevator that I had. Getting stuck with a lot of down elevator would have made things a lot harder!

Two other things taught in the EMT course are that, when the elevator is jammed, you can use power as a pitch control, and that you can use the trim tab backward as a baby elevator. With a trimmable stabilizer, however, you would move the control in the normal directions needed.

I already felt confident using power for pitching the nose. As I moved the elevator trim control to the full *nose-down* position, I gained about two finger widths, or a few degrees, of *nose-up* pitch.

I could have also moved to the rear seat to make a CG change, but it didn't seem warranted. This combination of pitch, trim and power gave me an adequate pitch attitude for a fast wheel landing.

THE GROUND-EFFECT PITCH DOWN

One of the things I did not know, or didn't remember, was that the airplane would pitch down when it got into ground effect. I missed it, and it is on page 142 in Rich's EMT book.

We normally add back elevator during the flaring process, which covers up the pitch-down effect. If I had known about the ground-effect pitch down, I would have added power in the flare, even though it would have gone against years of training.

Why do we have the pitch down in ground effect? Look at Figures 5-23 and 5-11 from the FAA's *Pilot's Handbook of Aeronautical Knowledge*.

In Figure 5-23 below, you see the normal balance of forces along the longitudinal axis of the airplane.

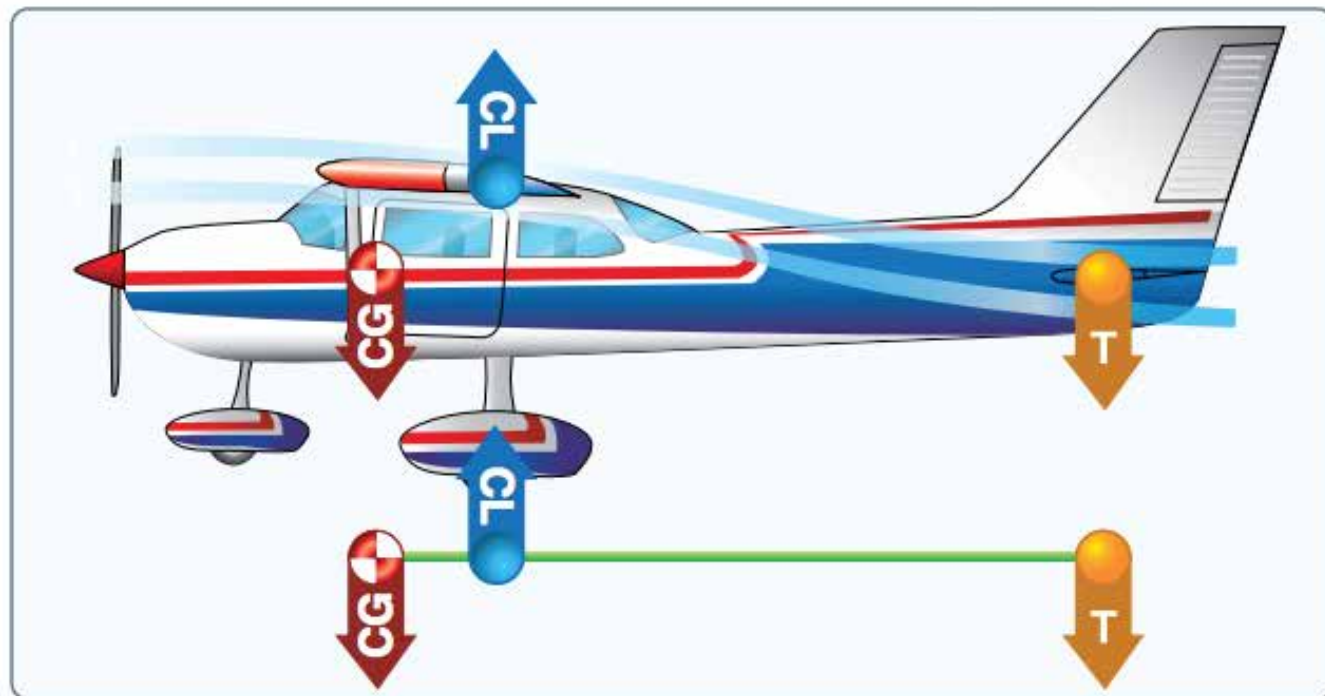


FIGURE 5.23: LONGITUDINAL STABILITY

Pitch stability elements, and the airflow to the tail airfoil.

The center of gravity (CG) is forward of the center of lift (CL). The tail-downward lift (T), or tail-down force, is aft of the CL. Remember, the horizontal tail is just a small upside-down wing. Like a seesaw, the tail-downward lift opposes nose heaviness, maintaining the fuselage attitude. The pilot varies this downward lift with the elevator to set the desired nose pitch attitude.

Since the wings are mounted to the fuselage, setting the fuselage attitude with this opposing balance of forces sets the main wings' angle of attack as desired.

Now, notice the soft blue lines of relative airflow from the wings to the tail.

The airflow downwash angle from the wings shown by the soft blue lines looks similar in low-wing airplanes to what you see here. Air is somewhat sticky, so any "stream" of air affected by the wing as downwash will pull down the parallel air streams above it, setting up a similar downward airflow angle to the tail.

Then in Figure 5-11, notice the angles of the blue airflow arrows as they hit the horizontal tail.

Notice that in ground effect the normal relative wind angle from the main wing hits the ground and "flattens out." That changes the angle of the relative wind as it strikes the tail. That relative wind angle change reduces the negative angle of attack of the tail, which reduces its downward lift. With less tail-down force to oppose it, the nose heaviness takes over and drops the nose toward the ground. The closer one gets to the ground, the more the airflow to the tail is "flattened out," reducing the tail's negative angle of attack.

In addition to the aforementioned, I also had winds from about 30 degrees right of my nose at 15 gusting to about 25 that died off in the flare. I went below some trees that blocked the wind as I got closer to the ground.

With these two effects, it was like someone reached out from behind me and shoved the stick forward at the last second.

This is a piece of information that I want to get out there to everyone.

Curiously, a week after this landing "event," I was reading the 1993 book *Warthog: Flying the A-10 in the Gulf War* by William L. Smallwood. This book describes the pitch-down effect and the surprise it generates. I wish I had read that book two weeks earlier!

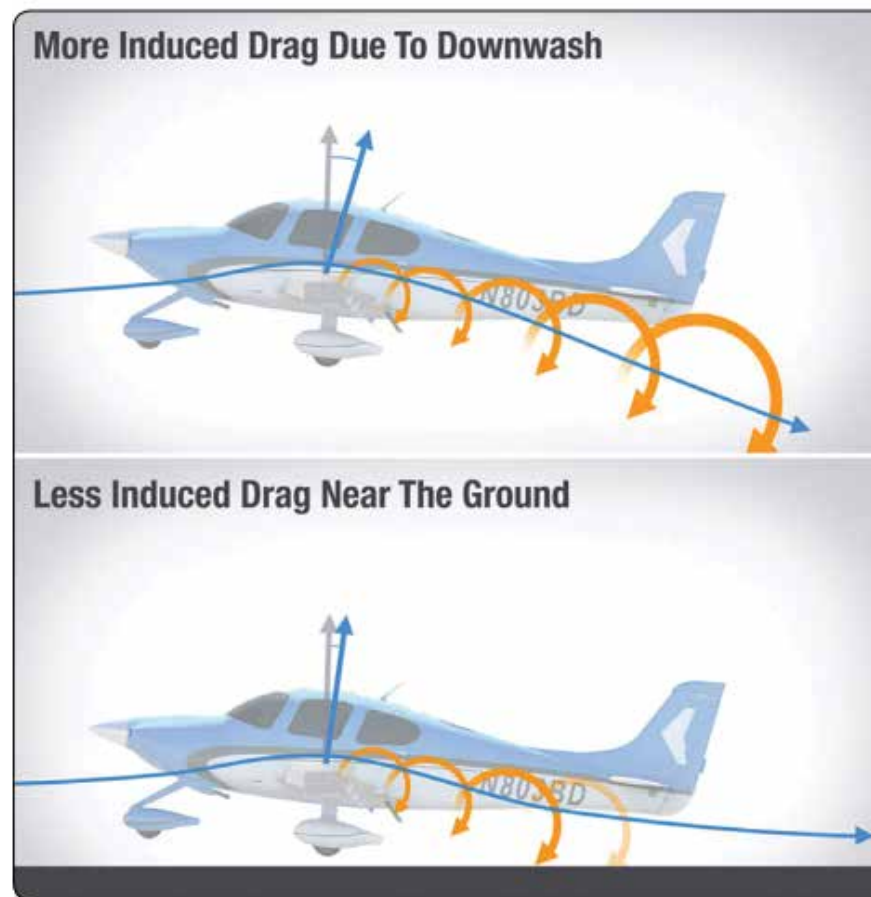


FIGURE 5.11 HERE: THE DIFFERENCE IN DOWNWASH IN ALTITUDE VERSUS NEAR THE GROUND.

LIKE A SEESAW, THE TAIL-DOWNWARD LIFT OPPOSES NOSE HEAVINESS, MAINTAINING THE FUSELAGE ATTITUDE. THE PILOT VARIES THIS DOWNWARD LIFT WITH THE ELEVATOR TO SET THE DESIRED NOSE PITCH ATTITUDE.

On day 15 of the first Gulf War, Maj. Jim Rose of the 706th TFS “Cajuns” received battle damage to his A-10 Warthog when attacking a target. He lost both hydraulic systems and was flying in manual reversion. The A-10 controls are limited and really sluggish in manual reversion. Rose was able to get out of Iraq and back to a base in Saudi Arabia.

In the U.S. Air Force, there is always a Supervisor of Flying, or SOF, on call for emergencies who is experienced in that particular airplane. The SOF reads the emergency checklists to the pilot in the air, who might be just a little distracted holding onto a malfunctioning airplane.

According to Rose, “The SOF in the tower read the checklist for a manual reversion landing. The one thing that stuck in my mind – and I’m glad he made a big point of it – was that the nose will drop abruptly as the aircraft enters ground effect and that I should fly a flat approach”

Later, Rose said he “came in over the threshold and right at the flare the nose really wanted to drop ... it was a major effort on my part to get the stick back and if I hadn’t been keyed to that by the SOF, the nose would have really bounced hard and could have led to much worse things.”

BRINGING IT IN

I did come in as flat as I could, using power for my rate of descent *and* to maintain my pitch attitude. I went to my home field, which has a grass runway and was mostly into the wind. I did not elect to go to the longer runways close by because they both gave me an almost direct 15-25 knot gusting crosswind, which was close to the aircraft’s recommended crosswind limit. I also liked having the lower groundspeed the strong headwind gave me. In using power for pitch control, I could not get any slower than 110 mph. Normal approach is 75-80.

Now it was decision time: Go around or land? When crossing the power lines at 30-40 feet I felt that the pitch attitude and glide path I had at that moment was flat enough for a fast wheel-landing-type touch-down, and I continued to the landing.

Before you engage the throttle on takeoff you should already have planned what you are going to do in an emergency.



Things were looking good until about 5 feet when the pitch down happened. The landing was hard, and the last 10 inches of the prop hit the ground. The gear took the force but was damaged in the process.

The airplane bounced back in the air a bit, but I immediately chopped the power, and the airplane settled down flat. It took some quick rudder dancing, but the plane stayed straight. Incredibly, the rest of the rollout was normal, and the engine sounded like it was running normally! I was able to turn off the runway and then shut down and egress. I did not smell fuel leaking, and there was no post-landing fire. It was then that I saw the damaged propeller.

The gear was permanently spread out about 10 percent to 20 percent, and 10-12 inches of the propeller tips were curled back. The NTSB was notified immediately, which then brought in the FAA.

POSTFLIGHT

The cause of the jam was the safety ring that holds the emergency door release handle from rotating. It became clear that I had worked it loose during my aerobatic practice with my right knee. The FAA felt it was one of those freak things that could have happened to anyone, and they were very happy I was able to get it down. Our recommendation to everyone out there with a Decathlon or Citabria is to *tie a string on that ring!*

The ring jammed between the elevator control and the up stop. It was also wedged between the elevator control and the elevator inspection cover, which is what restricted the nose-down push. We saw the gouges in the inspection cover.

On later inspection, I could not believe that there were no cracks or bends on the frame members that the gear legs attach to. The frame box that forms the cockpit also remained intact. This Decathlon is one strong puppy, and it is a 1974 model! Yes, I would definitely buy another one.

I would like to recommend the study of how to fly with jammed or broken flight controls. It certainly helped me! Fly safe! **IAGT**



Gordon and Lorrie Penner and their 1974 150hp Decathlon.

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Good News! Revised Guidance for Aerobatic Practice Areas and Contest Box Waivers

BY BRUCE BALLEW, IAC 26969, IAC GOVERNMENT RELATIONS CHAIR

IN AUGUST, the FAA released revised guidance for getting an aerobatic practice area (APA) and an aerobatic contest box (ACB) certificates of waiver. The new guidance reflects many positive changes and clarifications on recurring issues related to APAs and ACBs. Kevin Raymond, the FAA team leader, is responsible for getting the final version out and included the International Aerobatic Club and me during the revision process at every step of the way.

The aerobatic box at Warrenton, Virginia.



Part of the change included where the new guidance can be found. It is still in 8900.1, Volume 3; however, it is now in Chapter 6 (not Chapter 5), Sections 4 (APA) and 5 (ACB). Below are the main highlights of the changes:

- APA and ACB guidance now found in 8900.1, Volume 3, Chapter 6, Sections 4 and 5, respectively.
- Change to APA/ACB guidance highlights.
- Requires FAA to begin processing 7711-2/EID (environmental information document) within 30 days of receipt by the FAA.
- Addresses overlapping APAs and coordination requirements.
- Clarifies a federally funded airport's obligation to operate the airport for the use and benefit of the public and make it available for all types, kinds, and classes of aeronautical activity without granting an exclusive right.
- EIDs shall be forwarded to the environmental guys within 15 days of receipt.
- Recognizes that APA access is not limited to those listed in Block 10 of the 7711-2.
- Encourages the use of the FAA's aviation events specialists (AESs) as the subject matter experts (SMEs) for APAs and ACBs. **IAC!**



ABOVE: The aerobatic contest box at Oshkosh, Wisconsin.
RIGHT: The new aerobatic box at Marquette, Michigan.



2022 IAC CONTEST SEASON CALENDAR



IAC.org/Contests

DATES	HOST CHAPTER	NAME	REGION	LOCATION	AIRPORT
June 4, 2022	61	Giles Henderson Memorial Challenge	Mid-America	Salem, IL	KSLO
June 18, 2022	11	James K Polk Open Invitational	Mid-America	Warrenton, VA	KHWY
July 9, 2022	88	Michigan Aerobatic Open	Mid-America	Bay City, MI	3CM
Aug. 22, 2022	134	Yoooper Looper	Mid-America	Marquette, MI	KSAW
Oct. 14, 2022	5	Clyde Cable Rocky Mountain contest	Mid-America	Larmer, CO	KLAA
Oct. 20, 2022	34	Ohio Fall Frolic	Mid-America	Bellefontaine, OH	KEDJ

Welcome, New Members

WE ARE EXCITED to welcome 30 new international members and 365 new U.S. citizens who joined the IAC from January through August this year. Some became aerobatic competitors, some began flying aerobatics recreationally, and some started volunteering at their local chapter, but all are aerobatic enthusiasts. We are happy to recognize the members joining or rejoining, who by doing so, demonstrate a commitment to enhance the safety, education, competition, and enjoyment of aerobatics. *IAC*

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Daryl	Eustace	Alabama	Patrick	Huynh	California
Terri	Mason	Alabama	Sheldon	Johnson	California
Jerry	McKinney	Alabama	Matthew	Johnston	California
Donald	Rickard	Alabama	Nathan	Johnston	California
John	Sutton	Alabama	Ayden	Kahawai	California
Rhonda	Russo	Alabama	Brittany	Kahawai	California
Vince	Russo	Alabama	Brian	Lane	California
Jacob	Wilson	Alabama	Jeff	Leard	California
Bob	Lee	Alaska	Makalyne	Leard	California
Sharon	Dinges	Arizona	Bret	Major	California
Josiah	Freeman	Arizona	Gregory	Marcoux	California
Jacob	Hansen	Arizona	Rachel	Meitler	California
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Victoria	Australia
Western Australia	Australia
	Australia
New South Wales	Australia
New South Wales	Australia
New South Wales	Australia
Queensland	Australia
South Australia	Australia
Paraná	Brazil
	Bulgaria
Alberta	Canada
Columbia	Canada
Manitoba	Canada
Manitoba	Canada
Ontario	Canada
Manitoba	Canada
Ontario	Canada
Quebec	Canada
Manitoba	Canada
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