August 2017

SPORT Aerobatics

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

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— *Carlen Cyphers*

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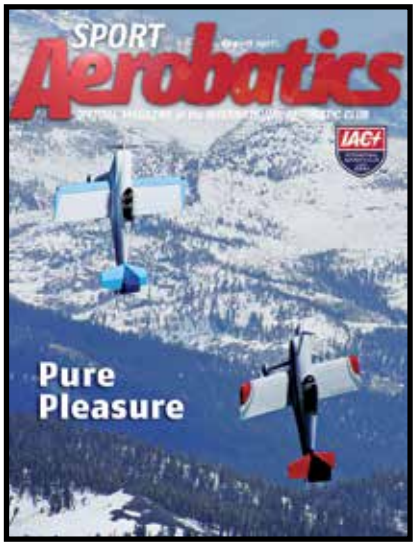

COVER

David Taylor looping over the Sierra Nevada with his brother Tom in their RV-4s. Photo by Richard Yao.

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Letters

Recreational aerobatics is a passion for many who love flying acro, but for a host of reasons don't participate in competition. The magazine is likely the strongest reason members who don't compete remain members, in my humble opinion. Publishing articles that will be more of interest to these members is good strategy. My experience in competition is very limited, and I hesitate to be critical in any way. I competed once in what was known then as Basic (1988), went to the judges school twice, and participated in an acro camp this June. I've been an on-and-off member for many years, and it seems that the steadily rising cost, increasing complexity, and the influx of very expensive competition aircraft have been a continuing issue being discussed. It is what it is, but increasing the attention to those enjoying recreational aerobatics is welcomed.

— David Dean, IAC 11099,
Port Townsend, Washington.

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President's Page

Grassroots and recreational aerobatics

MIKE HEUER, IAC PRESIDENT, IAC 4

EAA AirVenture 2017 and the IAC's participation in this mammoth aviation event is history. This year's theme concentrated on the 40th anniversary of the introduction of the Christen Eagle and also featured a gathering of Extra aircraft, ranging from the first airplane the factory introduced, the EXTRA 230, to the latest, the EXTRA 330SC. Enjoy our brief coverage of this event in this issue and look forward to more detailed information in an issue coming this fall.

The IAC has participated in AirVenture since our foundation in 1970. First, with a couple of tables in the early exhibit tents, then a booth in the exhibit buildings, and then finally our own building in 1980. That building, which in retrospect seems so small, was replaced by the current pavilion in 1991 and expanded and improved over the years, with the most dramatic changes made in 2015. My thanks to all of the officers, directors, and volunteers who make AirVenture happen for the IAC, and especially to our executive director, Lorrie Penner, who devotes much of her time to planning and execution of the event.

As August unfolds, the IAC's U.S. Nationals key volunteer group (KVG) will turn its attention to the organization and administration of the U.S. National Aerobatic Championships in Oshkosh, which open on September 23. The facilities are ideal for a championships of this size, with several buildings being used for contest administration and hangarage for competition aircraft. Gary DeBaun, who was also with us at AirVenture, is camped out in Oshkosh full-time from the end of AirVenture until the Nationals are over. Needless to say, the first time a major event like this is held at a new location, it can be challenging. I am quite certain it will be much easier in 2018. Even our government relations chairman, Bruce Ballew, has been involved in an important way — applying for and securing our waiver to run the event.

Members should remember that contests and air shows are different, not only from an IAC perspective but also from the FAA's view. The FAA deals with waivers for contests and aerobatic practice areas in different chapters in its handbooks from air shows. We have had excellent cooperation from the FAA as we went through the waiver application process, which will establish important precedents for the future. My thanks to Gary DeBaun for starting the process and also to our government relations people, headed by Bruce Ballew, for grabbing the baton and running with it.

Which brings me to "grassroots" and recreational aviation. In the first decades of EAA's life, I can remember listening to many talks and speeches by its founder, Paul Poberezny. There were always discussions about how EAA was for the "little guy" in aviation. In the IAC, we call that "grassroots." Paul's definition of a little guy was anyone who paid their own way. "Grassroots," on the other hand, is a term often associated with political movements. These movements and organizations use "collective action from the local level to effect change at the local, regional, national, or international level" according to Wikipedia. This is certainly true of the IAC. The basis for our organization is the chapter structure, and these groups are the ones who organize and manage our sport all across the country. The dozens of contests that are held each year are only made possible because of the work of chapter volunteers, often carried out over decades. There is a huge amount of skill and institutional memory there, and aviation is the better for it.

We generally define "recreational aerobatics" as noncontest flying, and the vast majority of our members do not participate in the IAC as competition pilots. Nonetheless, contests are recreational for many, so they could be included in the definition. That said, we have roughly 3,800 members who will not fly a competition in 2017, and we must serve them as well. With the improvements you all have seen in Sport Aerobatics these past few months, including this issue, I think we are on the right track.

Just look inside. Doug McConnell writes of the development of the Citabria and Decathlon series of airplanes that were key to the revitalization of aerobatics in the 1960s and 1970s and that remain valuable training aircraft to this day. Carlen Cyphers writes of his own apprehension about stalls and spins and how aerobatic training overcame that feeling and gave him a sense of self-confidence that proficiency in aerobatics always brings. I loved Spencer Suderman's comments on taking up new activities that involve learning new skills. I always think of Henry Haigh, who became a world aerobatic champion at age 64. It's never too late.

Aerobatics is a wonderful world of airplanes and people. I am proud to be a part of it.

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

First American team participates in 5th FAI World Yak 52 Aerobatic Championships in Tula, Russia

The Yak WAC, as the competition is affectionately known, saw three IAC members from Half Moon Bay, California — Marian Harris, Ross Ferguson, and Brian Branscomb — participate as the first U.S. team entry into the World Yak 52 Aerobatic Championships, July 9-16, 2017. This year, pilots from 15 countries competed at the historic military airfield Klokovo in Tula, Russia. The airfield was built in the 1930s, and during World War II was the base where the famous Free French airmen squadron Normandie-Niemen were trained on the Yak-1 and fought with the Soviet forces until the end of the war in Europe.

"We are very proud to be able to represent the USA in this competition," said Marian Harris. "We would also like to thank the organizers of the event for coordinating the competition in this historic location and for helping us with the logistics involved in participating."

"I really hope our participation this year will encourage more American aerobatic pilots to compete in the next Yak 52 competition in Belarus," said Ross Ferguson.

Follow the team through its Facebook page at *www.Facebook.com/USAyak52*.

For more information on the event, visit *www.Tula-Aerobatics.ru*.

Non-Flying Awards Announced

The IAC's non-flying awards for the 2016 flying season have been announced. There are five recipients, all contributing greatly to the sport of aerobatics in their respective fields.

Curtis Pitts Memorial Trophy — Frank Christensen, Wilson, Wyoming

As the founder and president of Christen Industries, Frank Christensen is principally noted for his introduction of the Christen Eagle II to the sport aviation market in 1977. The Eagle is a kit-built airplane with the most complete kits and instruction manuals ever produced. The Eagle kits became the "gold standard" for the amateur-built aircraft market. This two-place aerobatic biplane is now an icon in the sport flying world and also sports one of the most beautiful paint schemes ever designed. In addition to the Eagle, Frank's company also produced other products for the sport aviation community, including his well-known inverted oil system which is now a standard feature of most aerobatic aircraft engines.

Frank Price Cup — Fred and Liza Weaver, Ocala, Florida

Fred and Liza Weaver are tireless supporters of the IAC, and many of the southeast regional contests simply would not be successful without their time, energy, and mentorship. Fred is often found on the judging line, as a chief judge for category after category, and Liza as registrar, often while helping to train registrars and scorekeepers at the same time. Their dedication to the ongoing success of IAC activities richly qualify them as the recipients of the award that recognizes individuals who have contributed significantly to the sport of aerobatics in 2016. Fred has been a member of IAC since 1971 and Liza since 1983.

Harold E. Neumann Award for Outstanding Contribution as a Chief Judge — John Morrissey, Lee's Summit, Missouri

John Morrissey joined IAC in 1975 and in the ensuing years has become a respected aerobatic coach and trainer, FAI and IAC national judge, longtime judges school instructor, member of the Rules Committee, frequent contributor to *Sport Aerobatics* magazine, and a chief judge who knows every aspect of the official IAC rules. The award recognizes John's contributions and reputation as a person known for his leadership qualities and fairness as a chief judge. John has also conducted training camps for beginning aerobatic pilots as well as experienced competitors for many years. More than 150 pilots have attended his camps and have made their own marks in competition as a result of his coaching.

Kathy Jaffe Volunteer Award — Bob Hart, McHenry, Illinoi

Bob Hart has served as the IAC treasurer since 2010 and is the IAC's Finance Committee chairman. During this time, the IAC has gone through some difficult financial times, and during the past two years, due to his fine attention to detail in our financial affairs, statements, and budget, the IAC is now on firm financial footing thanks, in part, to his work. Without a strong financial standing, the IAC would not be able to accomplish what it does today.

Robert L. Heuer Award for Judging Excellence — Marty Flournoy, Columbus, Georgia

Marty Flournoy has been a judge at the FAI World Aerobatic Championships in both Advanced and Unlimited categories since 2014. He will be serving on the board of judges again this year at the 29th FAI World Aerobatic Championships in South Africa in September 2017. Prior to those events, he has also spent time working with the U.S. team pilots at their training camps while they prepare for the competition. Very active in IAC regional competitions as well, Marty judged 212 contest flights in 2016, including various categories at the U.S. Nationals. He flies an MX-2 in the Advanced category and has been a member of IAC since 1996. *IAC*

The Importance of Learning a New Recreational Skill

by Spencer Suderman, IAC 429636

As we carry on with our daily grind that moves us further away from a time of formal education, we don't realize how our learning capabilities start to atrophy. It's one thing to have an opportunity to learn but quite another to learn how we learn as an individual and what that can mean to our overall happiness.

> I have found that learning recreational skills can open up the mind beyond strictly cognitive skills . . .

Everyone learns concepts and skills in a unique way, and what works for some does not work for others. I saw examples of this when I worked as a sailing instructor in college; I could show a classroom full of students how to tie a bowline knot the same way and not all would get it, so I had to create several approaches to teaching the knot. It finally dawned on me that people perceive new experiences very differently, and some are in tune with their own learning capabilities enough to articulate how they want you to teach them while others haven't yet figured it out. I find the same thing true today when I put on my flight instructor hat and teach a pilot new flying skills. I know that I have a proven ability to transfer knowledge, but the hard part is figuring out how a person learns and explaining it to them so they can learn how to learn.

This brings up the importance of learning new skills in one's own life. We need to be reminded often about how we learn because it opens up our self-awareness in a way that has benefits across all of the roles we play simultaneously: family member, boss, employee, coach, teacher, student, team member, etc.

I have found that learning recreational skills can open up the mind beyond strictly cognitive skills because of the engagement of both the body and brain in the pursuit of that new ability. For example, learning to dance teaches about physical control of the body to create movements that are not natural, thus forcing the brain to accept and apply new concepts to muscle control. In the process of learning to dance, if you want to succeed, you must look inward to find a way to learn what works for you.

Perhaps you have always thought that skeet shooting looked like fun, and it is, but you're unsure if you could handle a powerful 12-gauge shotgun with enough accuracy to destroy a fast-moving clay target in midair. Consider all of the new physical and cognitive skills you would have to learn and develop to engage in this sport: eye-hand coordination, control, timing, discipline, focus, correct shooting stance, body motions to track a moving target, and possibly overcome a fear of guns.

Now picture yourself telling your friends and coworkers how this new hobby has improved all of the other aspects of your life while you brag about the increasing percentages of hits every time you practice. Isn't that a lesson that could be applied to improve other aspects of your being?

Even if acro has become mundane, routine, and lacking challenge, even if you already fly Advanced or Unlimited, you can add some noncompetitive maneuvers to your recreational repertoire. Many staples of the air show genre are fun to fly and will provide a new challenge! The torque roll, double hammerhead, and lomcevak (tumble), to name a few, are fun to perform and will relight that spark of adventure that got you into aerobatics in the first place! Fond memories of your nascent acro days will return as you experience the feeling of figures that are easy to do and hard to do well. There are many air show pilots who are also instructors who would be happy to pass along their experience and who have access to appropriate training aircraft.

Now get out there and learn something new. Have some fun! IAC

Recreational Vignettes

RICHARD YAO

That's What I'm Talking About
By David Dean

Recreational aerobatics has been a passion of mine since I was introduced to it in 1973, shortly after getting my private pilot certificate. I began flying a Citabria 7ECA, and then a T-34 owned by the Jax Navy Flying Club at NAS Jacksonville. From that time on I have pursued it at every chance that a long military career allowed, owning a number of single-seat aerobatic-capable aircraft over the years. In 1988 I acquired a 150-hp S-1C, and I knew

DAVID DEAN

COURTESY DAVID DEAN

I would always need and want an airplane that could do what it was capable of doing. It was a great stress reliever from the challenges inherent to a military career. To be able to go to it on a beautiful California day and go dance in that blue sky always brightened my life and recharged me.

Another military assignment meant I had to say goodbye to my Pitts and hammerheads for a while. In February 1994 I saw my dream plane on the cover of *Sport Aviation*, the Rihn DR-107 One Design. I loved the looks, and after reading the article by Budd Davisson I was sure I had to have one. The fact that I could actually afford it helped, too. After retiring from the military I bought the plans, acquired a project that had lain dormant for many years, and started building my dream plane. I do enjoy building experimental aircraft, and this one was a very rewarding challenge. I built it very light and installed the IO-320 that it was originally designed for, and it responded by being a very well-balanced and great flyer. The DR-107 is a plansbuilt aircraft, and there is a very active community of builders, a forum, and a Facebook page for support. Dan Rihn, the designer, is always available to assist with questions. All were an enormous help.

Few things in my life have given me more joy than flying an airplane I built myself, and its ability to fly aerobatics has only added exponentially to that joy. The DR-107 is a plane that will allow me to grow in my aerobatic flying and enjoyment without ever needing to be replaced by another aircraft. It is simply to me the best little airplane for a resources-constrained individual like myself, and I wouldn't want another even if I could afford it. There is always something new I can learn doing recreational aerobatics, and I enjoy maintaining and improving my plane. Anybody who loves flying aerobatics and has flown on a bright blue day in the Pacific Northwest knows what I'm talking about.

PHOTOS PETER H. SCHMIDT

When Odd Ducks Fly Acro
By Peter H. Schmidt

I am an odd duck aerobatically. I love acro, and have been an IAC member for 17 years now, but I don't have any interest in competing.

I take my flying seriously and regularly go up with instructors (who have included air show luminaries, world champion competitors, and a Marine test pilot) to make sure I'm safe. Yet, I really just want to fly for fun — the pressure of competing is not fun to me.

I enjoy reading about contests, and judging courses, and the best way to make box markers that will survive a Texas thunderstorm. Someday I may even compete, a little bit, just to please my evangelist friends.

In the meantime, I go fly acro by myself for grins. I am fortunate to live close enough to the coast northeast of Boston that I can go fly in an incredibly beautiful juxtaposition of land, sea, and sky. Pivoting over the top of a hammer and being rewarded by emerald-green sea filling the windscreen makes me happy, every time.

I also love sharing the experience, so I often take friends and acquaintances up for sightseeing and maybe a bit of light acro, if they are up for it. Their joy and wonder reflects back onto me, like Christmas morning with little kids. Seeing friends proudly sharing pics on social media reminds me how lucky all of us acro pilots are to get to regularly invoke the magic of fully three-dimensional flight.

And surprise, the pics I take have doubled my own fun. I've shared a sample of iPhone pics from the past year: a selfie from the rear seat of a Folland Gnat jet trainer at 390 knots, 1,500 feet off the deck in England, the coast I love, and Boston from 1,900 feet over MIT. I share pics and enjoy the likes I get, but it turns out I enjoy looking at them myself even more. Photography has become a zero-dollar way to get more bang for my acro buck. An unexpected bonus!

You won't ruffle my feathers by pitching competing, but at least now you know what I'm up to when I sneak off in the Super D but don't flock to practices. Enjoy your contests, and I'll see you on the Exploder!

Formation "Barrel Rolls" ...
Just for the Pics
By David Taylor

It started with an LLC with my brother, Tom, who like myself is a retired Navy F/A-18 pilot. Together we owned one souped-up white and blue RV-4 and one Harmon Rocket II (a clipped-wing slightly enlarged IO-540-powered RV-4). I'm in Virginia; Tom is in California. The annual plan was to fly one of them for the year, fly cross-country to somewhere in the Midwest, meet for a weekend to do some one-on-one basic fighter maneuver flights (i.e., dogfights), swap planes, and fly the other one home.

That was the plan, until I saw an aerobatic contest at my home field, and also ran across a two-seat Staudacher for sale. Two months later I owned it, and shortly thereafter we decided to dissolve the LLC. Tom wanted to keep the RV-4 that I had in Virginia, so I spent two wonderful days flying it out to Lemoore, California, at 2,500 feet AGL (an outstanding cross-country if you ever get the chance).

The next day in the San Joaquin valley it's CAVU, and Tom has coordinated a sweet flight! Cue the Bonanza A36, piloted by another retired F/A-18 pilot, cargo door removed, professional photographer strapped in the back, and the beautiful snow-capped Sierra Nevada just to our east.

After some vanilla shots, we kick it up a notch. In formation, we establish a "perch" position, approximately half a mile ahead, 1,000 feet right, and 500 feet above the photo bird. I execute a diving right turn similar to the last third of a barrel roll. My goal is to be perpendicular to the photo bird's flight path, 500 feet below, and a quarter mile ahead of him. Then up we go for the first half of a loop with Tom still attached at my hip, trying to be exactly vertical and close aboard as we pass the cargo door. Click, click, click. I continue over the top with a barrel roll maneuver to end up back on the photo plane's right side, diving down to accelerate back out in front and climb back to the perch. It was very dynamic and quite challenging at 8,500 feet MSL to make it all come together at the perfect 3-D space and time while being a smooth flight lead. Kudos to the Blue Angels boss; that's a tough gig. Tom and I rinse-and-repeated, times about ten. Click, click, click, click.

I've never had more fun doing aerobatics than that day. ***IAC***

Editor's note: Photo flights, especially those with subjects in aerobatic formation, are extremely dangerous and should be attempted only by qualified pilots.

My Aerobatic Training Experience

Article and photos by Carlen Cyphers

On April 2, 2017, I marked my last aerobatic flight in the Great Lakes 2T-1A-2 at Chandler Air Service. It also marked my 80th hour of flight time. I started aerobatic training to transform my feelings of nervousness and uncertainty into confidence — and it worked.

I got my private pilot certificate last year in June 2016. Despite passing my checkride with flying colors, I didn't fly for several months after getting my ticket. It was middle of summer, and my dad and I were searching for an airplane. In October we picked up a beautiful 1965 Cherokee 140. However, in those past few months I had really lost my confidence in flying. Despite being — what I think anyways — a competent pilot (albeit "green"), I just didn't feel completely comfortable flying. I felt like my private pilot training had left a lot to be desired in terms of experiencing the full flight envelope. They say you only see about 5 percent of an aircraft's flight envelope during your private pilot training and about 11 percent during your commercial pilot training. That is a lot of unknown territory that you haven't seen as a pilot.

I had always been uncomfortable with power-on stalls and unusual attitudes during my private pilot training. I was competent enough to do them and demonstrate them on the checkride, but they were truly nerve-wracking at the time. I had never seen a spin, but the stories of pilots killing themselves on base to final had really made me nervous. What would I do if I got into an unusual attitude? A spin? A situation I had never seen before? Looking back, I realize being so nervous about stalls and spins was simply a lack of understanding and experience. Falling leaf stalls — I don't know why every instructor doesn't teach this. What an incredible exercise for new pilots.

I had been thinking about aerobatic training for quite some time as I thought it would really open my eyes and give me the boost of confidence I had been searching for. Interestingly enough, I posted on an online pilot forum to get some opinions on aerobatic training — the responses were mixed. "Flying an aerobatic plane won't do anything for you right now," "Dude, you should give up flying; it isn't for you," "You should be flying straight and level; never exceed a bank of 2.56 degrees." (No one actually said that last one, but you get the point.) I am glad I decided to make my own decision and not listen to the peanut gallery.

I decided to go for it and signed up for an aerobatic class at Chandler Air Service in the Great Lakes 2T-1A-2. Chandler Air Service and my instructor Lary Leadford were both spectacular. I highly recommend them if you are in the Phoenix area.

Flight one: I admit the first time I strapped myself into that small tubular steel cockpit, I was second-guessing what I got myself into. The front seat of the Great Lakes isn't the most comfortable for a taller guy like myself, but it worked. My nervousness dissipated as we took off and headed toward the aerobatic area. We started out with some Dutch rolls, slow flight, stalls, and steep turns to get familiar with the airplane. We then proceeded on to some aileron rolls and loops.

This was the first time I had ever been upside down in an airplane! Although it was a bit nerve-wracking, it was a feeling that can't be described until you have experienced it. Fun and exciting is an understatement. At the end of the lesson we finished off with some spins. A bit scary to be spinning toward the earth in an airplane, but very fun once you have done a few.

Flight two: We started out with some aileron rolls and loops. Next up was hammerheads — what a blast! This is one of my favorite aerobatic maneuvers. We did some more spins, left and right. Spins felt like no big deal anymore. We finished out with a few snap rolls, one of the quicker and more aggressive maneuvers.

I decided to go for it and signed up for an aerobatic class at Chandler Air Service . . .

Flight three: Again, we started with some aileron rolls before transitioning into some loops and hammerheads. I had asked to do some falling leaf stalls, as I had heard about this maneuver from several other pilots. Believe it or not, I thought this was one of the best maneuvers I experienced during my training. Being able to see that you can keep the airplane in a stalled condition, keeping it coordinated with the rudder, and never enter a spin was a very eye-opening experience. We let the wing drop significantly multiple times to demonstrate that you could still level the wings with just the rudder. Pretty amazing. Next was the half-Cuban-eight followed by some snap rolls. The half-Cuban-eight was the first time I felt like I was really hanging from the four-point harness.

Flight four: This was the only flight I took in the afternoon, and it ended up being fairly warm and bumpy. We decided to take it easy on this flight. We did a few spins and aileron rolls before moving on to some slow rolls. My instructor demonstrated the slow rolls — definitely the most technical of the aerobatic maneuvers I had experienced in my training. This was really the only maneuver I wasn't doing on my own by the time I finished the course.

Flight five: This flight consisted of loops, hammerheads, aileron rolls, slow rolls, inverted flight, and several spin variations — an accelerated spin, spin reversal, and a hands-off spin recovery. We didn't fly inverted for very long, but it was good experience and fun to look at the world upside down. Next up was spin variations — if a normal spin doesn't wake you up, a spin reversal sure will! We started a spin to left and held in right rudder to recover, but instead of neutralizing the rudder we kept the right rudder in. The plane hesitated for a second before snapping into a spin to the right that was twice as fast as the original spin. The accelerated spin was simply a normal spin with aileron introduced, increasing the spin rate. The hands-off spin recovery consisted of a normal spin entry, letting go of the stick completely, and simply using the rudder to recover. The airplane wants to fly if you let it!

Flight six: The last flight. We reviewed most of the previous maneuvers and added vertical rolls, split-S's, cloverleaf loops, and a skidding turn into a spin (trying to simulate a base to final spin). Vertical rolls were one of the more technical and disorienting maneuvers, while the split-S was a simple maneuver that pulled quite a few *g*'s. The cloverleaf loop was one of my favorite maneuvers alongside the hammerhead. The last maneuver we tried was a skidding turn into a spin. To my surprise, it was not easy to get the Great Lakes into a spin this way. Again, the airplane wants to fly; it doesn't want to spin!

Although it was a separate experience, it is worth mentioning that I also had the opportunity to fly with a fellow hangar neighbor — a 20-year F-16 pilot (now a Southwest Airlines captain) — in his RV-8. This thing was a rocket ship. We did most of the maneuvers in the RV-8 that I had done in the Great Lakes. The roll rate was much faster in the RV-8, and the visibility that the sliding canopy provided was exceptional. To date it is one of the coolest life experiences I have had. I want an RV-8 now.

My day-to-day flying in the Cherokee has changed tremendously. I have found a new level of comfort in every phase of flight. I have learned to be assertive with the airplane. Fly the airplane. Look outside. The front seat of the Great Lakes had an airspeed indicator, an altimeter, vertical speed indicator, and an oil pressure gauge. That's it. You learn to fly the airplane by feel and by looking outside, not in the cockpit. My comfort level in turbulent conditions has risen, and my patterns are much tighter and cleaner. I'm not afraid to bank more than 10 degrees in the pattern anymore. I had always been timid in the pattern, because I didn't want to be the guy who spun his airplane into the ground on base to final. Turns out my lack of understanding was causing this fear.

I have had some incredible flying experiences in these past few months between flying the Great Lakes, RV-8, and my own Cherokee 140. One thing is for sure, this won't be my last "aerobatic rodeo." I will go back for more training — maybe someday own an aerobatic airplane. Who knows, maybe someday fly some competitive aerobatics for fun.

If you are a new pilot, struggling to find complete confidence in your flying, I highly recommend taking an aerobatic course. It transformed my understanding, confidence, and flying abilities in so many ways.

Next stop: instrument rating and tailwheel endorsement. **IAC**

Citabrias and Decathlons

by Doug McConnell
IAC 862

It is no real coincidence that the International Aerobatic Club and the Decathlon are both celebrating their 47th anniversaries this year! They both took wing at the same time (1970) when interest in basic grassroots aerobatic flight was sweeping the country. And why, you ask, was interest so high in aerobatics just at that time? You can thank the Citabria for that, introduced in 1964 as the first factory-built nonmilitary certified aerobatic trainer and excellent-performing weekend cross-country "fun" machine. And, it was sort of cheap ... $6,495!

It was the Champion Aircraft Corp. of Osceola, Wisconsin, that produced both the Citabria and Decathlon. Of course, modern updated versions of both the Citabria and Decathlon are still in production today by the American Champion Aircraft Corp. in Rochester, Wisconsin. The Osceola company owned the rights to the "7-series" Aeronca Champ and had been building a number of variants of the Champ going back to 1959. In the early '60s it decided to create an aerobatic version and in 1964 introduced the Citabria ("airbatic" spelled backward).

All during the '60s, Champion Aircraft was a stand-alone manufacturing operation in Osceola, Wisconsin. The company was owned by Bob and Jim Brown and their financial partners. Tiny Osceola — about an hour's drive from Minneapolis-St. Paul, Minnesota — was selected as the company headquarters and manufacturing site because Bob and Jim Brown owned riverside summer homes there. As 1970 approached, Citabria sales were down and Champion was in a slump. A new owner/investment group led by Bob DePalma of Redwing, Minnesota, made a pitch for the declining company and assumed total ownership in 1970.

I was hired at that time as vice president of marketing and sales for the "new" Champion company based on my MBA marketing degree, past years as a Citabria distributor/dealer, and part owner of a large aerobatic flying school in Oakland, California (Flightways Sport Aviation). At that same time, the Champion factory air show and test pilot developed illness and could not continue his flying duties. As a result, I was also assigned both the air show schedule and all production and experimental flight tests. This required that I be tested and receive official FAA endorsement. So in 1970, I conducted all of the Decathlon test flights leading to final certification, flew and certified each new production Citabria, and performed air shows while preparing the marketing and sales introduction for the new model (8KCAB) Decathlon. It was great fun!

The way that Champion and Bellanca got hooked together was interesting. Bellanca Aircraft Co. of Alexandria, Minnesota — about a three-hour drive northwest of the Twin Cities — was owned by Jay Downer from Alexandria, Minnesota, and Marge Mitchell and Jim Miller from Texas. Bellanca produced only one model of aircraft, the Viking 300, and sales were also in a slump. The reason that Bellanca was located way out in Alexandria, Minnesota, was because Jay Downer had a lakeside summer home there and wanted to have his factory close. So the Bob

DePalma investment group that had successfully purchased the Champion company also made a pitch in 1970 for Bellanca and assumed ownership that year. The investment group consolidated the two companies and installed a new combined headquarters in the Alexandria, Minnesota, home of Bellanca.

As VP of marketing and sales for the new combined company, I was assigned to "fix" the sales slump! I did this by eliminating the two-tier distribution system for Champion, going to factory-appointed dealers only, and introducing a broader product line for improved sales. The new line consisted of the new Decathlon, a redesigned Viking (the 300A ... see *Flying* magazine, April 1973), with the addition of the Champion Scout "bush" plane, and the little 7ACA Champ. The full line of Citabria models was also retained. I also stepped up the advertising efforts, joined EAA and IAC, hired young acro phenom Bobby Bishop to demo the new Viking 300A at air shows (yes, acro), while also hiring Gene Soucy (another acro phenom!) to demo the new Decathlon while on U.S. tour with the Red Devils Aerobatic Team. Sales increased dramatically, and new aircraft deliveries surpassed Beech Aircraft Co. making Bellanca-Champion the third largest light aircraft manufacturer in the United States.

Before the Citabria, aerobatics was performed in a variety of aging World War II military trainers, a few sport aircraft from the '30s, and an occasional homebuilt. Most aerobatic-knowledgeable pilots had learned their skills from military pilot training. So, lack of access to aerobatic-capable aircraft and the nonexistence of aerobatic flight schools left sport pilots out in the cold. But the introduction of the Citabria changed all that — both aerobatic trainers and flight schools were now becoming widely available for the first time. Also, because aerobatics was something new in civil aviation, all the magazines

One-of-a-kind 1968 Champion Pro (symmetrical wing/180-hp/constant-speed prop).

were highlighting it and drawing thousands of interested pilots to new aerobatic flight schools dotted all across the country. By 1970, these many thousands of Citabria-trained pilots were ripe for an advanced airplane that was still easy to fly, but primarily a better performer in aerobatics. So the factory focused on a new "step-up" higher-performance trainer and sport plane that would appeal to the masses, and thus the Decathlon was born.

As most readers know, the Citabria is basically a souped-up Champ with the addition of aerobatic equipment items and strategic enhancements. The original 7AC Champ was certified in 1940 under the Civil Air Regulations CAR 3 (certified for +5/-2.5*g*). It was designed for 65-85 hp and cruised around 80 mph. It is delightful and easy to fly. But as the Citabria, the Champ blossomed with 115-150 hp and cruise increased to 125 mph. At that speed, the ailerons stiffened a little from the additional air pressure that was no problem for cross-country cruise, but rather tiring for extensive aerobatic sessions. In addition, only one model of the Citabria (7KCAB) had an inverted fuel and oil supply system for sustained inverted flight, and that system was limited by a one-minute one-shot oil reserve. In addition, the high-lift wing of the Citabria made inverted flight "interesting," requiring some arm muscle, good arm reach, and experience to hold the nose well above the horizon for sustained inverted flight. And finally, the fixed-pitch prop required the pilot to throttle back during downlines to avoid engine over-speed, which reduced the ability to maintain energy for the next aerobatic figure. Yes, the flying community was ready for something better.

Some may not be aware that the first combined use of the near-symmetrical wing and 180-hp, constant-speed prop as featured on the (Super) Decathlon was first employed on an open-cockpit Citabria ... yes, open cockpit!

It was a one-off experimental parasol version of the Citabria and was named the Pro. It was built in the late 1960s and test-evaluated for possible marketing. It handled a lot like a Decathlon, but with a huge wind in your face! It was decided that an enclosed cabin had a much better potential for the North American mass market, so the Pro was sentenced to be burned by the factory. Even to this day, I am so happy that I prevailed (on my knees) in saving this unique craft from the burn pile. I flew it all around the United States and loved it. I arranged to have it donated to the EAA Aviation Museum in Oshkosh. It was later auctioned off and has had two subsequent owners (see *Air Progress*, November 1968).

For the next new Champion model, the 8KCAB Decathlon, a completely new certification was needed to make all the design changes requested from early Citabria experience. A prototype was designed to conform to the new modern standards for aerobatic aircraft as specified in FAR 23. The new design included the near-symmetrical wings with longer chord and shortened span (shortened span increases roll rate), streamlined ailerons for balanced forces, tall

control stick for added leverage, continuous inverted fuel and oil supply, adjustable seat, and constant-speed prop. Struts and structures were all beefed up to meet the higher (FAR 23) +6/-3*g* certification standard, all of which added about 200 pounds to the empty weight.

The new Decathlon prototype was finally certified in late 1970. I had the great pleasure of performing the certification flight tests — all but the final V_{NE} max airspeed dive test. The dive test was performed by an FAA test pilot who flew up to the factory just for that event. Accompanied by our chief engineer, Larry Nelson, the dive test was performed on a clear day near the Osceola, Wisconsin, factory. When they returned to the airport, it was clear that something was amiss — there were no windows in the airplane! It turns out that at max dive speed, the curved plastic windshield failed under the added air pressure, flew into a thousand pieces, and caused the side windows to depart. The flying small plastic pieces caused numerous small cuts to the pilot and to Larry Nelson. So, all of you Decathlon owners can now appreciate why there is a metal brace in the center of your windshield! That dive test was the only incidence of windshield failure, so you see, testing matters!

I had a fun challenge when creating the marketing launch plans — the prototype still had no name! Since we were targeting the new crowd of enthusiastic pilots who loved aerobatics and were joining the IAC in impressive numbers, I felt that the name should imply "readiness for competition." So my thoughts turned to the Olympic Games; they are certainly synonymous with competition. At first I considered the name "Olympian," but learned that Champion Aircraft had already used that name on an earlier version of the Champ. Then I thought about the most demanding event at the Olympics, and "Decathlon" shot into view. And so I selected Decathlon for the name, designed the introductory red/white/blue air show paint scheme, and the rest is history. The Decathlon was recently rated as one of the top 10 most successful aircraft ever introduced — of all time! The American Champion factory in Rochester, Wisconsin, still produces the Citabria and Decathlon, but with lots of modern improvements. They now feature metal spars with options for more horsepower and three-blade prop, beefed-up fuel tanks, etc. The company also can retrofit older aircraft (many while you wait), and it does a wonderful quality job. American Champion, of course, also produces the Scout and Champ.

A word about aerobatics for everyone — yes, everyone! Aerobatic flight training is a good idea — for everyone. That's because it prepares you to be a much safer pilot. Have you read that the most common aviation fatalities are from loss of control? The typical civilian pilot has had no instruction involving unusual attitudes, and most have never been beyond a 30-degree bank! Aerobatic training is not hard on your body and will prepare your mind to avoid unsafe maneuvers and to immediately respond correctly if your craft is upset by an airliner wake — or whatever. Aerobatic training makes you a better pilot, a safer pilot, and an older pilot! It can be taken in soft measured steps so as to not be upsetting to your tummy. Once trained, you will fly with better awareness, understanding, and confidence. You will avoid aircraft upset caused by your input and will respond correctly and automatically to aircraft upset caused by that airliner! Whatever you decide, *do not* try to experiment with any aerobatic self-teaching. You won't get much advice about this from pilots who tried self-teaching — because many of them are gone! But with an instructor, the training is pleasant, safe, educational, and for many (like me) ... fun! **IAC**

1970 Champion 8KCAB Decathlon prototype (symmetrical wing/150-hp/constant-speed prop).

All in the Family

Bo Kalabus flying over Cleburne, Texas, on July 2, 2017. Photo by Jack Fleetwood.

Bo recently bought N28EK from his father, Ed Kalabus. Ed's was the 8th Eagle II kit order in 1977 and he completed it in 1986. It was covered and painted by Pete Gnaedinger, who also maintained the Eagle Aerobatic Team's airplanes. Bo recalls, "My dad and I flew 28EK to OSH in 1988 when I was 15 years old. This year is the first time 28EK has been back at OSH." Bo and Ed are the only pilots to fly the rear PIC position through its 30 years.

A Tiger and a Chipmunk

by TIM JUST, IAC 19479

Frank Price was an explorer. He crossed oceans to faraway lands in search of gold. Returning from the first World Aerobatic Championships in 1960, his pockets were empty and so was his hangar. Finances, or lack thereof, forced him to leave his Warner-powered Great Lakes biplane in Spain while he worked the next season crop dusting. He did not, however, come home empty-handed, having just experienced firsthand the state-of-the-art of aerobatics in Europe.

Price met the British organizers of the Tiger Club. Excited by their vision, he formed the American Tiger Club in its image as a way to promote and teach aerobatics in the United States. Price next met Col. Jose Luis Aresti of Spain. Aresti was developing what he called an aerocryptographic system for aerobatics. That's just a big word for a series of hieroglyphic symbols depicting all the aerobatic figures used in competition. For those unfamiliar, as drawn, most of the symbols would be equally at home on a cave wall as they are clipped to an aerobatic airplane's instrument panel.

Aresti was flying a Bücker Jungmeister. The Bücker has the reputation for being the greatest snap rolling (or flick rolling, depending on what side of the pond you are from) aircraft of all time. Aresti used the Jungmeister as his standard for assigning difficulty values to each of the aerobatic figures in his system. To him, this made perfect sense, but may have had a few unintended consequences. The colonel initially put a very low K, or coefficient of difficulty, on figures the Bücker did well (snap rolls) and a very high K on figures that were more of a challenge or impossible. The king of high K figures at the time was the vertical roll.

The winning plane and pilot of the day was Czechoslovakian Ladislav Bezak, flying the Czech-built Zlin 226A with a single seat, wooden wings, fixed gear, and a Walter Minor 6 for power. There were nine Zlins in the top 10 including the new Zlin 326 with a retractable undercarriage. Jaromir Hulka, fourth overall, gave Price a ride in the 226 after the contest and introduced him to the lomcevak. Returning to America, Frank must have struggled trying to describe the crazy gyrations the Czech pilots were doing. Not having an airplane to demonstrate with had to be frustrating and most likely led to carpal tunnel syndrome. In 1971 Ladislav "borrowed" a two-seat Zlin 226 and defected to West Germany with his wife and *four* sons.

The Russian team had a seriously competitive airplane too, the Yak 18. It was large and all metal with a 36-foot wingspan. Powered by a 300-hp radial with retractable landing gear, it was more like a fighter than a purpose-built aerobatic machine. A number of Yak 18s were used by the North Korean air force during the Korean War — remove sighting device, add bomb rack. U.S. team captain Bob Hoover was allowed a test flight after the contest in 1966, spending most of his flight below the 100 meter minimum altitude for aerobatic competition.

Both the Russian and Czech airplanes outclassed our one-man U.S. team's Great Lakes. The Jungmeister was also no longer competitive. "They were starting to work in the vertical," said Price. The higher drag of two wings could not be overcome — I should say, would not be overcome until a few years later when Curtis Pitts designed the four-aileron Pitts S-1S.

In 1966 Art Scholl was a U.S. team member competing in his Ranger-powered Chipmunk. Seeing his first lomcevak and the performance of both Russian and Czech aircraft must have had a profound effect. Returning home to Southern California, professor Scholl — he had his master's in aeronautics from UCLA — was determined to level the playing field. The Russians and Czechs had a state-sponsored factory building aerobatic aircraft. Scholl had a desire to be world champion and a well-equipped hangar. Add to the mix some very smart friends. Work started immediately. Armed literally with a hacksaw (there is a YouTube video) he clipped the wings of his Chipmunk. This reduced the span of the ailerons so he lengthened them inboard. Flaps disappeared as did the front cockpit. The Ranger engine was replaced by a 480-cubic inch six-cylinder geared Lycoming being pulled by a two-speed Aeromatic propeller. The most ambitious mod of all, the fixed landing gear, was replaced with aft retracting gear originally intended for the Bellanca Cruisemaster. The

engineers helping on the project had told Art it was impossible to fit retractable landing gear to a Chipmunk. After completing the modifications, he agreed. The finishing touch, a rudder so big the word "aerocryptographic" could fit along it.

What Art Scholl and a small group of talented friends had done was truly amazing. When the dust and all those new rivets settled there were enough parts left over to build a stock Chipmunk. With true EAA spirit, he saw the potential still left in the design and built a stronger airplane that also had speed and agility. An airplane "that could do a vertical roll with ease" he would later say. Unfortunately Art Scholl was never able to win a world championship. He did, however, set the bar a little higher for all who followed.

It is unlikely Aresti could have realized that adding the high level of difficulty to one figure, the vertical roll, now considered relatively simple, would influence designers, builders, and professors for years to come.

"The more things change, the more they stay the same," wrote Alphonse Karr in 1849. As our 2017 U.S. Unlimited Aerobatic Team prepares to cross continents in search of gold in South Africa, they go self-funded just as Frank Price did in 1960. I for one can't wait to see what they bring back. *IAC*

JIM BOURKE

U.S. Unlimited Team Training Update

By U.S. Unlimited Aerobatic Team

Our team training camp in June was an interesting camp for me because it was my first time trying out my new EXTRA 330SC. I love the plane! It is just perfect for Aresti-style flying and has good Freestyle potential. The only snag I had with the aircraft is that I'm a bit too tall for it. I've found ways to deal with it now, but on the first outside snap I hit my head pretty hard. I ended up with a knot on my head for the rest of the camp! About halfway through the camp the rest of the team started calling me "Mega Mind," which I take as a compliment, but it could also have been because of the bump on my noggin. I've learned not to protest nicknames, or they will stick.

By the end of this camp I felt like my outside snaps were coming along. It's very important to be secure in the seat, to get the rudder pedal in all the way, and to not let up on the pedal. As you are being forced away from the controls there is a tendency to let off the inputs. This must be resisted. Mike Ciliberti told me to think about pushing the rudder pedal like you are squashing a bug and really grinding your foot into the pavement to do it. That's a good visual that will serve me well.

Speaking of bugs we had an absolute invasion of spiders during this camp. I've never seen anything like it. They came in from the west after a rain, hanging in the sky on wispy silken threads. They did not bite, but if they landed near us they jumped onto our legs and clothing, spinning annoying little webs across all of our limbs. Poor Coco stood in the grass in his humorously French yet assuredly masculine capri pants. Suddenly I saw him do an epic heebie-jeebie dance while waving his arms through the air. Rob was on the camera shuffling from side to side and making erratic circular motions with each limb. I went out to see what the hell was going on and walked through a fine mist of spider webs. They stuck around for a day or two taking over everything but eventually moved on.

We had a lot of trouble getting good video at this camp. It's hard to hold a camera over your head for 30 minutes at a time. Eventually Mike C. and I went to the hardware store and got the supplies we needed to make a crude shoulder mount. I christened it "The Official Team '17 Camera Kerjigger."

Other than the arachnid storm the weather was quite good for the camp. There was a lot of impressive flying. I left the camp for the long trip home in good spirits, and I look forward to getting some practice time in now that I have my new plane.

— Jim Bourke

Our June camp saw all pilots attending, which meant we had a mini contest of sorts, flying Unknowns that Coco created. These Unknowns are challenging; they really test your skill, which is paramount this year as we will be flying three separate Free Unknowns at WAC. Most pilots have settled in on their Free Known sequence, but minor alterations here and there are still possible.

As we get closer to WAC, final details on planes and logistics are coming into focus. It appears we are all set; it's just a matter of execution at this point. That said, this sport is very expensive, at any level you fly. Donations to the team are very welcome, and I want to personally thank those who have or are considering making a donation to Team '17.

— Mike (Spanky) Gallaway

My overall take on the June camp is that we are all progressing steadily throughout the summer. These camps are designed to bring out our strengths and expose our weaknesses. Having taking time away from aerobatic competition for so many years, I am behind where I would rather be at this point, and Coco is still just learning my style, abilities, and faults. He is an excellent coach, however, and is best at fine-tuning the team members before the World Aerobatic Championships. We have all been building on our strengths with his guidance and assisting each other on overcoming our individual weaknesses. I have been learning a lot from everyone, while also learning the idiosyncrasies of flying the EXTRA 330SC as compared to the Edge 540.

Personally, I owe a lot to everyone on the team, especially Craig and Bob for letting me train in their airplanes; the 330SC is so much different than the Edge. I think that it would be too challenging for me to compete at this level without having the practice time needed to get accustomed to the nuances and performance differences before the competition.

I want to also thank the rest of the team, they have all been great to fly with. Mark, Rob, Mike C., Bob, Jim, and Mike (Spanky) G. have all given me advice and encouragement throughout our training, and it has really helped me get up to speed in my flying thus far. As far as July goes, I can not practice because of my obligations overseas. However, I should be able to make up for it in August. If I keep a steady pace with my practice sessions before we fly to South Africa, I think I will be ready.

Marty came up from Florida to help us prepare, and Jo Ann Speer and Mike Rinker as always have been great help and gracious hosts. Each camp makes us stronger and more cohesive. We do have some real talent, and I am encouraged that overall the U.S. team will make a good showing at WAC this year.

— Robbie Gibbs

EXTRA EAGLE
IAC EXHIBITION 2017


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1. INTERNATIONAL AEROBATIC CLUB HISTORY - THE IAC WAS FORMED IN 1970 UNDER THE LEADERSHIP OF BOB HEUER

The aerobatic division of the EAA, first called the "Precision Flying Division", was headed by Bill Dodd of Prairie View, Illinois. Its purpose was to promote safety and to be a central point for pilots to join with each other to share information. The Precision Flying Division continued until 1969.

The IAC was formed in 1970 under the leadership of Bob Heuer, an airline pilot from Maple Park, Illinois, and a group of aerobatic pilots mostly from the Chicago area. Their purpose was to formalize the EAA's Precision Flying Division into a true membership organization, to write the rules and to set up the corporate structure to promote "grass roots" aerobatics. The IAC would encourage the development of the basic skills needed in aerobatic flying through a "building block" system of aerobatic competition categories.

In its first year, the IAC membership exploded to over 1,000 members. During this critical growth period, Bob Heuer, as the IAC's first President was key in organizing aerobatic contests all over North America. An international competition, known as the IAC Championships unfolded from what had been known as the "EAA Aerobatic Contest" -- first held in Fond du Lac, Wisconsin.

Verne Jobst succeeded Bob Heuer as President in 1973. He helped to refine its objectives to keep pace with its growth, and the IAC membership doubled.

As the club's third President, Carl Bury is credited with improving the internal administration of the IAC and conceiving ideas on fund raising. The real start of the IAC's merchandising program began under his tenure.

In the midst of this turmoil in late 1981, Mike Heuer assumed the Presidency of the IAC. He was instrumental in convincing the NAA to grant the IAC full sanctioning power for all aerobatic contests held in the United States. NAA terminated its letter of agreement with ACA and the IAC became its aerobatic division.

Photo Captions, see page 30.

2. IAC MOVING INTO THE FUTURE - JOIN THE IAC - ROLL WITH US!

After NAA granted the IAC full sanctioning power for all aerobatic contests held in the United States, the IAC inherited the task of raising funds for the U.S. Aerobatic Team scheduled to compete in the biennial World Aerobatic Championships in Austria in August 1982. The formation of the U.S. Aerobatic Foundation became the key to raising $135,000 in nine short months to send 21 people and 9 airplanes to the competition. The U.S. Aerobatic Foundation fielded U.S. Teams at every World Championship, including those held in Hungary, Great Britain, Canada, Switzerland, France, the USA, and Slovakia.

One of the key's to the IAC's success has also been the continuity in its leadership. The IAC has had only twelve Presidents. After Mike Heuer's term ended in 1990, Steve Morris of Denver, Colorado assumed the helm and among accomplishments were the "IAC 2000" work sessions held in Denver in 1992 that helped chart the organization's future. Morris also gave great emphasis to making IAC's major competition in Fond du Lac an education event for all IAC members with "convention" style activities for all. In 1993, Linda Hamer of Peru, Illinois continued to lead the organization based on the principles it was founded on in 1970. She was succeeded by Dr. Richard Rihn, a veteran aerobatic pilot, administrator and diplomat. In 1998, Dr. Rihn turned the reins over to Doug McConnell, one of the first IAC members in 1970, who brought marketing and strategic planning skills to the IAC as it moved into 2000.

In 2001, Doug McConnell left the office to Rob Dorsey who was succeeded by Gerry Molidor in 2002. Gerry was instrumental in hosting the 22nd World Aerobatic Championships in Lakeland, Florida. Gerry was succeeded in 2005 by Vicki Cruse. Vicki gave just about every waking hour to IAC and competition aerobatics. She earned the National Champion title in 2007. After Vicki's untimely death in 2009, then Vice President Doug Bartlett stepped in to lead the club to 2012. Doug Sowder served as President from 2012 to 2014. The current IAC President is Mike Heuer.

Photo Captions, see page 30.

EXTRA EAGLE
IAC EXHIBITION 2017

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3. IAC MEMBER ENGAGEMENT - COMPETITION AND TEAMS

In light of the IAC's aerobatic endeavors around the world, it is easy to think that its main concern lies in major competitions. Though they are an important part of the IAC competition activity, the true story of the IAC's grass roots efforts lies in the over 40 regional competitions it sanctions each year. These competitions are sponsored by IAC Chapters throughout the U.S.

The IAC has 40 chapters throughout the United States. The majority of the chapters organize at least one contest annually. Competitors must be a member of the Experimental Aircraft Association (EAA) and the IAC. The IAC has broken the United States into six Regions for a Regional Series, in which competitors must fly at least three IAC sanctioned contests during the year.

The U.S. National Aerobatic Championships have been held for over 40 years in Sherman- Denison, TX. In 2017 the championship was relocated to Oshkosh, Wisconsin. Spanning a period of six days in September, pilots from around the U.S. converge at the Nationals to fly for the gold, to crown the U.S. National Aerobatic Champion and select the next U.S. Aerobatic Team. Nationals also celebrate the spirit of aerobatic competition, the love of aviation and the dedication of those who strive to become world-class competitors.

In the history of U.S. National Aerobatic Championships there have been repeat winners with at least three wins including seven-time champion Leo Loudenslager (1975-1982) and six-time champion Rob Holland (2011-2016).

Ten years before the IAC, the United States was represented in the first World Aerobatic Championships in Czechoslovakia by Frank Price. In 1960, he heard about a new type of competition and knew immediately that someone had to represent the United States. He used his own funds to ship his Great Lakes overseas and was the only American to attend the first WAC.

Throughout the years the United States has produced three World Champions: Charlie Hillard (1972), Leo Loudenslager (1980), and Henry Haigh (1988).

Photo Captions, see page 30.

4. IAC PROGRAMS - AWARDS, COMMUNITY, AND SCHOLARSHIP

ACHIEVEMENT AWARDS The achievement award program was conceived in 1970 by then IAC president, Verne Jobst. With many years as a glider pilot, Verne wanted an equivalent to the popular soaring badges. He, Bob Davis and Mike Heuer completed the first set of rules in May 1971. The first pilot to qualify for an award was 16-year-old Debbie Forshee, from Louisiana, who flew for the Basic achievement award early after the program's introduction in 1971. Aerobatic pilots in either powered aircraft or gliders can achieve awards that signify their level of proficiency obtained in aerobatic flight.

ANNUAL AWARDS Each year the IAC membership nominates outstanding volunteers to be recognized for their contribution to the sport of aerobatics. **Frank Price Cup:** Recognizes the person who has contributed the most to aerobatics. **Robert L. Heuer Award for Judging Excellence:** For the most outstanding aerobatic judge. **Kathy Jaffe Volunteer Award:** Recognizes an outstanding volunteer. **Harold E. Neumann Award for Outstanding Contribution as a Chief Judge:** Recognizes an outstanding chief judge. **Curtis Pitts Memorial Trophy:** For outstanding design in aerobatic aircraft or products.

COLLEGIATE PROGRAM The program is intended to encourage interest in aerobatics through Collegiate Competition among college age students. Rules are intended to encourage participation for students to fly in as many competitions as their schedules permit. Two awards exist within the Collegiate program: The **Collegiate National Championship Team Award** and the **Individual Collegiate National Champion Award**.

JUDGES PROGRAM Through its local chapters, the IAC makes available aerobatic judge training classes, covering an overview of aerobatic competition, the Aresti aerobatic notation system, the flight program rules, and detailed judging criteria. In any given year there are approximately 150 aerobatic judges throughout the United States and Canada.

Photo Captions, see page 30.

EXTRA EAGLE
IAC EXHIBITION 2017


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5. WALTER EXTRA - THE MAN AND THE IDEA

As with so many innovations in aviation, the Extra series of aerobatic airplanes started with one man's idea to build a world-class aerobatic monoplane to compete in the World Aerobatic Championships. That man was Walter Extra.

Walter had seen the work of Leo Loudenslager with his Laser 200 at the World Championships in Oshkosh in 1980. Leo had taken the Stephens Akro design and refined it into a superior competition machine that ultimately helped him win seven national championships. Walter proceeded to build his own airplane and which ultimately became the Extra 230. Its introduction was at the World Aerobatic Championships in Bekescaba, Hungary in 1984.

Walter's competition career spanned from 1978 to 2005 in a wide variety of airplanes. His first competition was in Germany in which he flew a Mudry CAP 10. In 1980 through 1983, he flew a Pitts S-1E (D-EHRL) before he graduated to the Extra 230 (D-EKEW) in 1984. The 230 was also flown at the 1984 World Championships by the well-known Swiss pilot, Eric Müller. The airplane was an outstanding success and captured the attention of pilots around the world.

Though he had no intention of becoming an aircraft manufacturer in his early years, due to the demand for the Extra 230 was so great that he ultimately opened a factory near Düsseldorf. Over the years, Walter has produced a series of aerobatic competition airplanes, including two-seaters that later became widely used as trainers at aerobatic schools around the world.

The Extra 200, 260, 300, and 330 series all followed. The single-seat 330SC is now used by champion aerobatic pilots and teams including the USA, France, and Russia. Out of the 10 top placing pilots at that championships, 7 flew Extra 330SC's.

Not to be outdone or to slow down, Walter Extra produced the Siemens-powered Extra 330LE, with an electric powerplant, and established world records for time-to-climb and speed in late 2016 and early 2017.

Photos courtesy of Extra Aircraft and Tim Just. Photo Captions, see page 30.

6. THE EXTRA 230 (EA-230) - WHERE IT BEGAN

The Extra 230 was the first of Walter's creations and first flown in the World Aerobatic Championships in 1984. In addition to Walter Extra in D-EKEW, Swiss National Champion Eric Müller flew to an overall 6th place in the same airplane. Also flying in the competition in another 230 (D-EJNC) was Italian pilot Nicola Colangelo.

Because the airplane gained so much attention with its performance and presentation, it immediately became popular with competition pilots. During the 1986 World Championships, held in Great Britain, a total of 10 pilots flew the Extra 230. Included in that group was Clint McHenry, who captured the U.S. National Aerobatic Champion title that same year as well as in 1987 and 1989.

Technical specifications: 970 pound empty weight; wingspan 24 feet, 3 inches; powered by a Lycoming AEIO-360-A1E of 200 hp with an MT propeller.

Photos provided by David A. Gustafson, Communication Resources, and Patty Wagstaff.

6.1 Clint McHenry in his Extra 230 (N230X).
6.2 Walter Extra in D-EKEW, the airplane he flew at WAC 1984.
6.3 Patty Wagstaff flies her Extra 230 in formation with a Sukhoi 26.
6.4 Patty Wagstaff in her Extra 230.
6.5 Bob Hart in his Extra 230, taken in 2010.

EXTRA EAGLE
IAC EXHIBITION 2017


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9. EXTRA 300 SERIES AIRPLANES - THE TWO-SEATERS

The Extra 300 series has included a wide variety of single and two-seat aerobatic aircraft though the 330SC is now the only single-seat version in production. Shown here are a variety of photos of the two-seat 300 series.

The 330LX is one of the models pictured above and on display at EAA AirVenture this year. Combining unlimited-level performance with two seats, the aircraft is outstanding for both competition and training.

The Extra 330LX has an empty weight of 1,422 pounds and a wingspan of 26.3 feet. The airplane is powered by a Lycoming AEIO-580-B1A with 315 hp. The tail and wing structures are carbon fiber. Extra's current paint schemes are by AircraftStudioDesign of Italy.

Photos by Mike Shore Photography and Jim Koepnick.

9.1 Extra 330LX.
9.2 Extra Aircraft paint schemes for 2017 by AircraftStudioDesign of Italy.
9.3 Extra 330LX owned by Wayne Roberts of Grenada, Mississippi.
9.4 Extra 330LX cockpit.
9.5 Extra 330LE cockpit.
9.6 Extra 330LE in flight.
9.7 Extra 330LE powered by a Siemens electric motor.

10. THE EXTRA 330SC - THE CHOICE OF CHAMPIONS

The Extra 330SC is now the "choice of champions" and flown by aerobatic competition pilots from all over the world. In recent years, both the French and Russian teams have converted to the German-built Extra as the CAP's and Sukhois that they were flying aged out and were no longer in production.

In the United States, aerobatic teams are selected at the U.S. National Aerobatic Championships each year in both Advanced and Unlimited category. The U.S. Unlimited Aerobatic Team is made up of eight pilots this year and will compete at the 29th FAI World Aerobatic Championships in South Africa in September 2017. Of those eight pilots, seven will be flying the Extra 330SC.

2015 World Aerobatic Champion Alexander Orlowski of France flew a 330SC in Chateauroux, France to capture the world title and the Aresti Cup.

The 330SC has an empty weight of 1,291 pounds and a wingspan of 24.6 feet. It is powered by a Lycoming AEIO-B1A of 315 hp which swings a Mühlbauer MTV 9-B-C/C 198-25 three-blade propeller. Like the two-seaters, the tail and wing structures are carbon fiber.

Photos by Mike Shore, Evan Peers, Loic Logeais, and courtesy of Extra Aircraft

10.1 Goody Thomas takes off for a competition flight at the U.S. Nationals.
10.2 Michael Goulian, airshow performer and Red Bull Air Race pilot, flying his Extra 330SC in formation with a 330LX and LT.
10.3 An Extra 330SC 2017 paint scheme by AircraftStudioDesign.
10.4 An Extra 330SC in the vertical.
10.5 Extra World Championship Logo.
10.6 A closeup of one of the French team's Extra 330SC's.
10.7 Two of the French team's Extra 330SC's in flight.
10.8 Alexander Orlowski of France takes the podium to claim his title of 2015 World Aerobatic Champion in Chateauroux, France

EXTRA EAGLE
IAC EXHIBITION 2017


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EXTRA EAGLE
IAC EXHIBITION 2017

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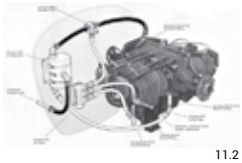
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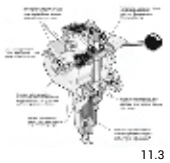
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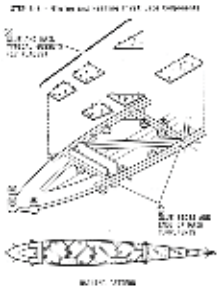
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11. FRANK CHRISTENSEN - PILOT, INVENTOR, AND INNOVATOR

In 1968, Curtis Pitts constructed a custom Pitts S-1S aircraft for Frank Christensen. Like many pilots of the day, Frank performed his own aircraft maintenance, and he was seeking improvements to what he deemed inadequacies in his Pitts such as limited visibility, cramped seats, and quickness on the runway. So, he began making modifications to improve his aircraft, and his persistent tweaking soon led to his designing and manufacturing for Curtis an inverted oil system, manual fuel pump system, and a canopy for the Pitts S-2A. Soon thereafter, he established Christen Industries, Inc. and began offering these products to homebuilders.

As Frank continued working with homebuilders and local aircraft mechanics at his ranch airport in Hollister, California, he became aware of the breadth of the world of aircraft homebuilding, and he became fascinated with the methods, materials, and processes used. Not wanting to compete with the Pitts Special, but wanting his own aerobatic aircraft as a product, Frank eventually entered the homebuilt marketplace with a kit-built aircraft supplied with illustrated step-by-step instructions that he believed would enable anyone to produce the aircraft with simple tools and only a moderate amount of mechanical aptitude, time, and investment.

Frank's vision was an aircraft with great aerobatic performance, modern lines, a beautiful paint scheme, and the creature comforts that were uncommon in aerobatic designs. He and his Christen team developed such a design, and he commissioned his industrial designers - Budd Steinhilber and Barry Deutsch - to develop a dramatic paint scheme. Soon the colorful two-place Christen Eagle II was born, making its debut at Oshkosh 1977.

The introduction of the Christen Eagle II established a unique concept and set a new standard for aircraft homebuilding that was truly revolutionary.

Photo Captions, see page 30.

12. CHRISTEN EAGLE II KIT - 51% RULE

The first complete Eagle II kits cost roughly $40,000, including the paint design and painting materials, and by 1982, Christensen had sold more than 1,000 kit starts. The Eagle II had set a new standard for homebuilt aircraft, since most were offered only as a set of plans. The Eagle II system contained completed parts kits that were to be assembled in order while referring to richly illustrated instructions in 3-ring binders; 26 kits in all for construction of a complete aircraft.

The kits were to be purchased and built one-at-a-time in a specific order until the complete aircraft resulted. Absolutely everything was supplied in the kits including parts, materials, tools and the highly detailed and illustrated step-by-step instruction manuals. The system ranged from the ailerons kit all the way to a tie down kit, flight test kit, and aerobatic training kit.

The kits combined professional design with factory-quality parts, raising the bar for aircraft kit manufacturers. It was one of the most complete airplane kits ever marketed. In short, all the parts, materials, and information necessary was supplied to build the Eagle, a boon for first-time homebuilders.

51% RULE: "In a second meeting, the FAA representative told me that for an aircraft to be amateur-built, 51% of the normally-fabricated parts . . . must be fabricated by the builder from raw materials," says Christensen. He continues, "Our computer programmer wrote a program to analyze the raw material contents of all the Eagle kits. It showed that the builder would fabricate less than 51% of the parts from raw materials; however, it also showed that the many wing ribs in the aircraft contained hundreds of simple spruce caps, struts, and plywood gussets that could be easily cut from raw materials. So we created wing rib kits that contained rib templates, saws, glue, nails, and an illustrated manual, and the FAA was forced to approve the Eagle kit system by their own definition."

Photo Captions, see page 30.

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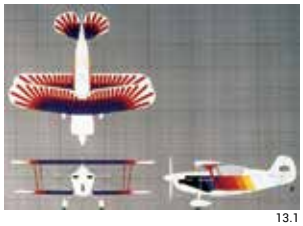

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13. THE EAGLE II

In the beginning, the Eagle II was to be an FAA-certificated production aircraft and Frank Christensen had prepared a complete the FAR Part 23 certification package. Realizing that he would be competing against the Pitts in an already limited market, he later decided that there would be greater potential if the aircraft were offered as a complete homebuilt kit.

Objective 1 - to produce a two-place aerobatic aircraft that could compete with the Pitts S-2A. Objective 2 - to develop a kit system by which the aircraft could be built in limited time by anyone with reasonable mechanical aptitude using only hardware store tools.

While it may seem contrary to the norm that the Eagle II came before the Eagle I, the first Eagle built was the two-place with the pilot and passenger seated tandem. The designation of Eagle II was reserved for the two-place, and the single place Eagle I came later.

Frank made the first test flight in the Eagle II in February 1977. Later, after test flying the Eagle II, World-Class Aerobatic Pilot, Bob Herendeen, stated, "All in all, I like the very light feel of the controls of the Eagle II. Its responsiveness and roll rate give one the feeling of flying in a Pitts S-1S but with stability more like that of the Pitts S-2A. The clean, comfortable cockpit area and control stick position are ideal. I don't see how anyone would not like this airplane."

Frank says, "Equally important, the Eagle is better looking with its dramatic paint design, integrated canopy, clean landing gear, and a streamlined shape."

Eagles have been built by people from all walks of life—doctors, lawyers, airline pilots, women, trade schools, military pilots, and interestingly, people who are not pilots, but just like to build things. Some people have bought the kits and had others build the aircraft for them such as Thomas J. Watson, the retired Chairman of IBM, and singer/songwriter John Denver.

Photo Captions, see page 30.

14. THE EAGLES AEROBATIC FLIGHT TEAM - EAGLE I

The "Red Devils Aerobatic Team" was formed in 1969, with original members Gene Soucy, Bob Heuer, and Marion Cole, all flying the Pitts S-1S aircraft. In time, Bob and Marion left the Red Devils, and two other accomplished aerobatic pilots, Charlie Hillard and Tom Poberezny, filled the slots.

The Red Devils continued to fly the Pitts S-1S until 1979 when friend Frank Christensen invited Tom, Gene, and Charlie to test fly a new aircraft he had designed: The Christen Eagle. The three were immediately impressed, so they switched their team aircraft to the single-place version of the Christen Eagle and renamed themselves The Eagles Aerobatic Flight Team.

One of the greatest tributes to Frank Christensen's design is that Tom, Gene, and Charlie chose to switch from the Pitts S-1S they were flying to the specifically-designed single-place Christen Eagle I. Without so much as a formal contract between Frank and the three men, they flew as The Eagles Aerobatic Team from 1979 through 1995. They flew the Eagle I solely because of its superior aerobatic performance and spectacularly beautiful, show-stopping, paint scheme.

The Eagles Aerobatic Flight Team is legendary in the airshow industry, of course. And as expected, they drew much attention to the Christen Eagle aircraft and its kit construction system. Frank enjoyed tremendous success through their airshow exposure.

The pilots of the Eagles Aerobatic Flight Team flew together in their Pitts Specials and Christen Eagles for more than 25 years and 1,000 performances, setting a record for the longest-running aerobatic team with the same members. All three Christen Eagle I's hang from the lobby entry ceiling in the EAA AirVenture Museum in Oshkosh, Wisconsin.

Photo Captions, see page 30.

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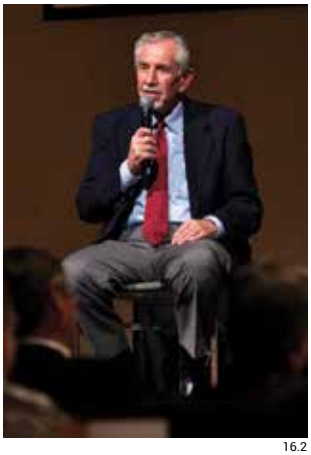
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15. CHRISTEN EAGLE II IN AEROBATIC COMPETITION - EAGLE PEOPLE

IAC's Former President Gerry Molidor describes aerobatic homebuilders like this: "Another great asset of the IAC is the wealth of knowledge that exists regarding the building of strong aircraft. I started in this sport by building a Christen Eagle in the 1980s. That airplane is now in South America. A corporate pilot by the name of Eduardo Fabiano purchased it. Interestingly, he flew that airplane all the way down to Brasilia, Brazil, from Florida! It's truly a small world. While building that aircraft, I was amazed at how many people would bend over backward to help with advice, materials, and labor to make the project happen. At that point I fully understood how natural and powerful it is for the IAC to be a subsidiary of the EAA."

A few of the many Eagle II pilots who built or purchased their aircraft for aerobatic competition over the years:

15.1 Bill Donaldson
15.2 Bill Gordon
15.3 Clyde Cable
15.4 Harry Barr
15.5 Roger Brown
15.6 Gene McNeely
15.7 Jim Piros
15.8 Danny Duewall
15.9 Frank Chenevert
15.10 Dick Bertrand
15.11 Gerry Molidor
15.12 Matt Chapman
15.13 Mick Harrelson
15.14 Ed Bowes
15.15 Clyde Johnson

16. CHRISTENSEN AND AVIAT AIRCRAFT - THE CHRISTEN EAGLE II TODAY

The Christen Eagle II became the Aviat Eagle II in the mid-1990s. Frank went on to purchase the Pitts factory in Afton, Wyoming, designed and certified the Husky, and eventually sold the company to Malcolm White of Aviat Aircraft. Stu Horn bought the company next and still sells complete Eagle kits.

From the Aviat website - "The Eagle II is a better homebuilt aerobatic aircraft than any other. It has become the standard by which all others are judged. Offering aerobatic flight in a two-place aircraft, the Eagle's performance capabilities make it flyable in advanced aerobatic competition. Once you have seen its regal appearance, and have experienced its magnificent performance, it will become apparent why we called this model the Eagle."

"The Eagle II is really much more than just a high-performance, two-place aerobatic airplane you can build at home. It is a whole new approach to homebuilt aircraft construction. Each of the 24 kits required to build the Eagle II contains a separate section of the aircraft, and every part, every piece is available now...today. Each section contains a comprehensive manual detailing the construction methods through diagrams and instructions."

Frank says, "I would revel in undertaking the Eagle adventure again if I could find clones of the great Christen people whose knowledge, talent, and skill enabled me to realize my vision. Unfortunately, many of them are gone now."

The Eagle II is still available as a kit, but it can also be factory-assembled for the non-builder. The Eagle II's simplicity and Christensen's remarkable "total concept" design have given the Eagle II kit an extraordinary completion rate of nearly 90%. Since its introduction 40 years ago, hundreds of Eagle II kits have delighted their owners and found homes with both professional and general aviation pilots alike. There are approximately 400 Eagles still flying today.

Photo Captions, see page 30.

ADDITIONAL PHOTO CAPTIONS

1.1 1968 MEETING. Left to Right: Mike Heuer, Bill Dodd, Bob Heuer, Carroll Dietz, John Gosney, unknown and Jim Morgan. Jim Morgan was chairman of EAA's Aerobatic Division at the time. Bill Dodd had preceded him in this job. There were no members or any activities except the EAA contest at Harvard. This meeting was held in early 1968 and Bill is holding something that was pretty important at the time – aerobatics' first contest rule book. It was a real milestone in aerobatics and Mike Heuer still has that first issue.

1.2 BOB HEUER WITH STEARMAN. Active in the airshow industry as well, in later years Bob flew a beautiful, highly-modified 450 Stearman and Pitts S-2A.

1.3 SCORING TEAM – FOND DU LAC 1973. Long before computers, the volunteers in the scoring room used manual adding machines and later calculators to produce the final scores for each competitor – it took a lot of people to get it done, often staying up all night calculating scores. Standing third from the right is Boots Grogan. Boots was the chief of scoring for many years in Fond du Lac.

1.4 BILL DODD. Standing next to his 1938 Ryan ST. Bill was was the first chairman of what was then called the EAA Precision Flying Division (the predecessor to IAC).

1.5 FIRST FIVE IAC PRESIDENTS. Bob Heuer, Verne Jobst, Carl Bury, Mike Heuer and Steve Morris. Photo was taken in 1990.

1.6 IAC RULES AND ARESTI. 1970 IAC rules along with the first membership promotional brochure IAC printed and an IAC decal. Also pictured, is the first decal made in 1973 for the championship held in Fond du Lac.

1.7 1973 FOND DU LAC. This was a group of pilots and volunteers at Fond du Lac 1973. There were 67 competitors with 39 of them in the Sportsman category.

2.1 UNITED STATES AEROBATIC TEAM 1982. IAC inherited the task of raising funds for the U.S. Aerobatic Team scheduled to compete in the biennial World Aerobatic Championships in Austria in August 1982.

2.2 IAC BOARD 1992. Past Presidents served together on the IAC Board as shown here in a photo taken in 1992. Front row left – Mike Heuer; center – Steve Morris; second from right – Linda Hamer.

2.3 1997 USA ADVANCED TEAM, LAWRENCE, KANSAS. Gerry Molidor, back row left, with the gold medal winning U.S. Advanced Aerobatic Team.

2.4 IAC BOARD OF DIRECTORS 2016. Front row L to R: Mike Rinker, Margo Chase, Debby Rihn-Harvey, Louis Andrew, Mike Heuer, Bob Hart, A.J. Hefel. Back row L to R: Norm DeWitt, Lynn Bowes, Gerry Molidor, Ron Schreck, and Doug McConnell.

2.5 TODD CRIST'S KRIER CUB. An aircraft emblematic of "grass roots" aerobatics.

3.1 FRANK PRICE. 1960 World Aerobatic Championships sole competitor from the United States in the first championship held in Czechoslovakia.

3.2 LEO LOUDENSLAGER. Seven time U.S. National Champion and World Aerobatic Champion in 1980.

3.3 1986 UNITED STATES AEROBATIC TEAM. Patty Wagstaff with the Unlimited team (back row, third from right) and Debby Rihn-Harvey (back row, third from left).

3.4 GLIDER AEROBATICS. Gliders from the US Air Force Academy Glider Aerobatics Team, morning lineup waiting for their turn in the aerobatic box.

3.5 2016 U.S. NATIONAL AEROBATIC CHAMPIONSHIPS. The last time the championship will be held in Sherman-Denison, Texas.

3.6 ROB HOLLAND. Six time U.S. National Aerobatic Champion (2011-2016) and three time consecutive World Four-minute Freestyle Champion.

3.7 HENRY HAIGH. U.S. National Aerobatic Champion in 1980 went on to become the third American to hold the title of World Aerobatic Champion.

4.1 ACHIEVEMENT AWARDS. IAC Chapter 38 in Northern California holds a practice day and 10 of their chapter members earn achievement awards.

4.2 LITTLE STINKER. Betty Skelton flies Curtis Pitts' first aircraft design.

4.3 HAROLD NEUMANN. In 1935, Harold Neumann won the Thompson Trophy Race and the Greve Race. He was then awarded the Collier Trophy for outstanding aviation accomplishments and named "Air Race Pilot of the Year."

4.4 HAROLD NEUMANN FOND DU LAC 1972. An active competitor in his Monocoupe, Little Mulligan, and an aerobatic judge into his 70's.

4.5 GILES HENDERSON & BOB HEUER. After making slight modifications to his 65-hp Cub, Giles first major victory was in Fond du Lac as the IAC Sportsman Champion in 1971. Giles would later become a regular fixture in the Mid America region as an aerobatic judge and go on to induction in the IAC Hall of Fame in 2012.

4.6 UNIVERSITY OF NORTH DAKOTA. The Collegiate Team from UND has won the IAC Collegiate National Championship Team Award for nine consecutive years.

4.7 INTRODUCTION TO AEROBATIC JUDGING. During the two-day course the class will learn about the aerobatic notation system, Aresti Aerobatic Catalog of figures.

5.1 - 5.4 Walter Extra through the years.

5.5 IAC Director Tim Just with Walter Extra at the EXTRA factory in Germany.

11.1 Frank taught himself aerobatics in the Pitts S-1S that Curtis built for him, entered aerobatic competition, and in 1969 won the Advanced National title.

11.2, 11.3 Christen 801 Inverted Oil System and 844 Manual Fuel Pump.

11.4 Eagle II display booth at Oshkosh 1977.

12.1 First Christen Eagle insert, Christen draftsman Don Lee.

12.2 The Eagles are Coming advertisement.

12.3 The Eagles are Here advertisement.

12.4 Eagle rib drawing.

12.5 Eagle II kit notebooks.

12.6 Eagle rib kit.

13.1 Eagle II 3-view drawing.

13.2 Eagle II in flight.

13.3 Eagle II AirVenture Museum.

13.4 John Denver.

14.1 Frank in the VW with Tom, Gene, and Charlie.

14.2 The Eagles Aerobatic Team - Tom Poberezny, Gene Soucy, and Charlie Hillard.

14.3 The Eagles Aerobatic Team in flight.

14.4 N2309N, 260hp - Black Eagle I, Serial No 0001.

16.1 Frank Christensen and Herb Andersen at the Afton, Wyoming factory.

16.2 Frank Christensen speaking at the Christen Eagle display dedication in the EAA Museum in 2012.

AIRCRAFT

2000 Sukhoi SU 31 for sale, Very low hours. The best one in the world! Please call Pete Shepley for details and price: 520-906-0770.

BOOKS

Amazon book: *To Look Upward: One Flight Instructor's Journey.* A spiritual journey with challenges, accomplishment, and even abuse! Rob Mixon

SPORT AEROBATICS, WARBIRDS OF AMERICA and VINTAGE AIRPLANE

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2017

REGIONAL AEROBATIC CONTEST CALENDAR

WESTERN

8/10-8/12 | BEAVER STATE REGIONAL CONTEST
Eastern Oregon Regional | PDT | OR

9/01-9/03 | HAPPINESS IS DELANO
Delano Municipal | DLO | CA

9/01-9/03 | ROCKY MOUNTAIN HOUSE
Rocky Mountain House | CYRM | CANADA

9/07-9/09 | APPLE TURNOVER
Ephrata Municipal | EPH | WA

10/12-10/14 | BORREGO AKROFEST
Borrego Valley | L08 | CA

11/08-11/11 | THE TEQUILA CUP
Marana Regional | AVQ | AZ

CENTRAL

8/11-8/13 | DOUG YOST CHALLENGE
Spencer Municipal | SPW | IA

8/18-8/20 | UPPER CANADA OPEN
Hanover Saugeen Municipal | CYHS | CANADA

9/08-9/10 | ACE'S HIGH AEROBATIC CONTEST
Newton City | EWK | KS

9/20-9/29 | U.S. NATIONAL AEROBATIC CHAMPIONSHIPS
Wittman Regional | OSH | WI

10/06-10/08 | THE CLYDE CABLE ROCKY MOUNTAIN AEROBATIC CONTEST
Lamar Municipal | LAA | CO

10/12-10/14 | HILL COUNTRY HAMMERFEST
Llano Municipal | AQO | TX

EASTERN

8/24-8/27 | KATHY JAFFE CHALLENGE
South Jersey Regional | VAY | NJ

9/08-9/10 | EAST COAST AEROBATIC CONTEST
Warrenton-Fauquier | HWY | VA

10/19-10/21 | MASON DIXON CLASH
Farmville Regional | FVX | VA

10/28-11/04 | EAST COAST CHAMPIONSHIPS, SEBRING
Sebring Regional | SEF | FL

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