



SPORT

AEROBATICS

JULY/AUGUST 2021

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB



We're Back

AIRVENTURE 2021

► CAP 10B PIREP, PG. 10

► UPRIGHT AVIATION ACADEMY, PG. 20

► EXTRA NG PIREP, PG. 34

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ON THE COVER:

Nine-time U.S. National Aerobic Champion Rob Holland, IAC 27724, is ready for EAA AirVenture Oshkosh 2021!

Photo by Glenn Watson

ABOVE:

After more than a year of work, Leigh Hubner, IAC 439393, shows off his project plane – Patty Wagstaff's BF Goodrich-sponsored Extra 300, tail No. N328PW, from the 1990s.

Photo by Leigh Hubner

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

EAA-IAC Membership Services

Tel: 800-843-3612 • Fax: 920-426-6761

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How to Promote Contests and Bring in Spectators

BY JIM BOURKE, IAC 434151

RUNNING AN AEROBATIC CONTEST is no easy task, but it's even worse when no one shows up!

There is a pervasive myth that "We can't advertise contests or allow spectators because that would turn our events into air shows."

Thankfully, there is no truth to this myth. According to our IAC Government Liaison Bruce Ballew, after extensive conversation with FAA Events Coordinator Kevin Raymond, aerobatic contests and air shows are understood by the FAA to be entirely different things. The FAA expects that we will tell people all about our activities, and they assume that the public will want to stop by and check things out. Please help us eject this myth out of the IAC's collective consciousness so our chapters can feel more confident getting more eyes on what we do.

Some great ways to promote your contest:

- Work with the local FBO to offer competitors discounts on fuel and hangarage, and let potential competitors know about it.
- Put up flyers at the FBO. A great place for flyers is in the bathrooms because everyone goes to the bathroom and everyone wants something to read while they are there. Make sure the FBO is okay with this.
- Talk to the local flight schools. A great way to break the ice is to start with a briefing on the when and where of the contest, covering the waivered airspace and everything else the flight

school should know to keep their students safe. From there you can make an invitation. Today's flight school student is tomorrow's competitor!

- Call all the IAC chapter leaders in your area. Make phone calls to potential competitors as well. People like to feel invited. Check in with people the week before the contest and remind them that they are expected!
- Call the local radio station and see if it has a segment on community events. A lot of times these news stations are looking for uplifting content and will appreciate the contact from you.
- Make sure that the newspapers and TV come by your contest. This will help you next year.

Some chapters seem to think that IAC contests are too boring for the public, but I've seen how much delight people in a small town get at the chance to go out to the airport and watch our events. It's not boring to them! Remember, most people aren't around airplanes all the time like you are. Lucky you!

AIRVENTURE 2021

While the exact restrictions have not been finalized as I type this, I am pleased to say that our IAC Aerobatic Center will be *open* at AirVenture! Our informative IAC Forums will be led once again by the able Michael Church, our annual member meeting will be held per the IAC bylaws, and our annual Member Gathering is proceeding, though possibly with limited seating. I will be at the IAC Aerobatic Center or thereabouts most of the week. Please stop by and say hi and tell me how we are doing.

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



Please also show appreciation to the IAC's AirVenture sponsors: Southeast Aero/Extra, Game Composites LLC, and MX Aircraft.

GET YOUR START

The IAC's Get Your Start program is highly successful with many gift boxes sent out to new competitors. In addition to the gift boxes, Get Your Start is about sharing the joy of aerobatic flight on social media. Make sure to use the hashtag #iac_getyourstart when posting your aerobatic videos and pictures.

IAC PRICING STRUCTURE

I've had a couple of contest directors ask me recently why the IAC charges \$55 per competitor and where this money goes. The answer is that the competitor fees are designed to burden the competitors instead of the general membership with IAC headquarters' costs for holding competitions. This largely includes a fair share of the salaries we pay our executive director and editor, but it also includes other ancillary costs like postage. The fees are not earmarked; they simply go into the IAC's general fund, out of which we pay for everything.

Now that I've explained that, none of us should waste one moment of our lives worrying about the morality of policies like these. We can price things in any number of correct ways. The \$55 fee was calculated quite a while ago. It's reasonable to review it every few years. I've been told that reducing the competitor fee would possibly increase the participation rate. That may be true.



AirVenture 2021 – Time to Reunite With Our IAC Aerobatic Family!

BY LORRIE PENNER, IAC 431036

EAA AIRVENTURE OSHKOSH 2021 is right around the corner! So many of us will be looking forward to seeing our extended IAC aerobatic family. One of the many highlights for IAC members is the IAC Member Gathering and Dinner, to be held this year on Friday, July 30, from 6 to 8 p.m. in the EAA Nature Center.

It is an event that almost didn't happen this year. Initially the IAC AirVenture planning team was told that we could have 84 seats. Well, what do we do with that? Hardly the type of gathering we would be used to. Brainstorming one idea after another, we were saved from total despair when we received the update that we would have 168 seats. Even though we heaved a sigh of relief, it still wasn't up to the usual 175-plus in attendance we've had for the last three AirVentures. The solution — create a reservation system. To reserve your seat, please send an email to our executive director, Steve Kurtzahn, at execdir@iac.org.

Between the IAC members participating in the air show and our forums in the Vicki Cruse Pavilion at the IAC Aerobatic Center, there will be a lot of excitement and enjoyment for everyone. If you have a social media account and take photos of aerobatic displays, IAC members, or air show performers, please tag us: #IAC_AV2021 and #IAC_HQ.

Many of the air show performers got their start in aerobatics with the IAC, earned the coveted title of U.S. National Aerobatic Champion, and are still IAC members: Rob Holland (IAC 27724), nine-time U.S. National Champion; Jeff Boerboon (IAC 16931), 2010 U.S. National Champion; Kirby Chambliss (IAC 12086), five-time U.S. National Champion; Patty Wagstaff (IAC 9010), three-time U.S. National Champion; Mike Goulian (IAC 11878), 1995 U.S. National Champion; Gene Soucy (IAC 25), three-time U.S. National Champion; and David Martin (IAC 5128), 2001 U.S. National Champion.

We have a stellar lineup of AirVenture forums starting with IAC Hall of Fame recipient Bill Finagin, whose topic is "What To Do When You Suddenly Find Yourself Out of Control." 2018 Frank Price Cup recipient Dagmar Kress returns with her popular topic "Exploring Aerodynamics Through Aerobatics." And 2018 Giles Henderson Sportsman Award winner Susan Bell will be sharing some pointers in her forum titled "Competition Aerobatics 101."

New to the IAC forum scene will be 2019 Curtis Pitts Memorial Trophy recipient Tony Horvath with co-speaker Josh Pruzek as they discuss the topic "Pitts Model 11 – 11 Years in the Making." Another first-time forum presenter is Cecilia Aragon, 1994 U.S. Aerobatic Team member, and her topic is "The Sacred Circle and Interrogating the Vertical." Bruce Mamont and Renee Brilhante will follow up on their successful webinar with "Affordable Aerobatic Aircraft Ownership." This has proven to be a hot topic in the last several years. See the AirVenture forum schedule on page 4 for more speakers and topics.

During AirVenture I will be out roaming the grounds snapping photos and doing interviews. I'd love to talk to you about your experiences with aerobatics. Let me know if you will be attending AirVenture, and we'll set up a meeting spot: editor@iac.org. **IAC**

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

► TOP STORY

IAC Member Gathering

AT THE IAC'S MEMBER GATHERING at AirVenture this year, 6 to 8 p.m. on Friday, July 30, at the Pober Pixie Tent, we're planning a full dinner. On the menu are fried chicken, barbecue ribs, baby back pork ribs, red potatoes, macaroni and cheese, fresh fruit salad, 50th anniversary cake, soda, and adult beverages. This will be an evening of food, fun, and camaraderie!

Since we will be able to seat only 168 due to EAA health guidelines, we will be taking reservations for this year's Member Gathering. To reserve your seat, please send an email to our executive director, Steve Kurtzahn, at exec-dir@iac.org or call him at 920-426-6574. Please let Steve know your name, how many seats you want to reserve, your cellphone number, and your email address if you call.

If you plan to attend this year's Member Gathering, please don't delay making your reservations — the seats will go fast!

► 2021 FORUMS SCHEDULE

AirVenture Forum Schedule

EAA AIRVENTURE OSHKOSH 2021 will include a full roster of forums at the Vicki Cruse Educational Pavilion at the IAC Aerobatic Center. The forums are scheduled daily from Tuesday, July 27, through Friday, July 30, 2021, and run for approximately one hour and 15 minutes each.

A fantastic lineup of aerobatic and unusual attitude forums throughout the week have been confirmed. Visit IAC.org>AirVenture>IAC Forums for any further updates.

TUESDAY, JULY 27

8:30 a.m. - Budd Davisson
TOPIC: *Aerobatic Classics: How Do They Fly?*

10 a.m. - Gordon Penner
TOPIC: *Flying With Broken Flight Controls*

11:30 a.m. - Dagmar Kress
TOPIC: *Exploring Aerodynamics Through Aerobatics*

1 p.m. - Cecilia Aargon
TOPIC: *The Sacred Circle and Interrogating the Vertical*

WEDNESDAY, JULY 28

8:30 a.m. - OPEN
10 a.m. - Bill Finagin
TOPIC: *Suddenly Out of Control - What To Do When You Suddenly Find Yourself Out of Control*

11:30 a.m. - Bruce Mamont and Renee Brilhante
TOPIC: *Affordable Aerobatic Ownership*
1 p.m. - Tony Horvath and Josh Pruzek
TOPIC: *Pitts Model 11 – 11 Years in the Making*

THURSDAY, JULY 29

8:30 a.m. - Susan Bell
TOPIC: *Competition Aerobatics 101*
10 a.m. - Michael Church
TOPIC: *The Possible Turn – Can You Go Back?*

11:30 a.m. - Skip Stewart
TOPIC: *The Aerobatic Experience*
1 p.m. - Jody Bradt
TOPIC: *The 50th Anniversary of the Decathlon*

FRIDAY, JULY 30

8:30 a.m. - Jim Bourke
TOPIC: *IAC Annual Membership Meeting*
10 a.m. - Mike Lents
TOPIC: *Sequence Design*
11:30 a.m. - DJ Molny
TOPIC: *Alluring Figures – Easy Ways to Improve Your Scores*
1 p.m. - Greg Koontz
TOPIC: *Taming the Taildragger*



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2021 Officer and Director Elections – Candidate Profiles

VOTING FOR THE 2021 officer and director candidates for this year's election began on June 30 and closes on July 27, 2021, at 6 p.m. CDT. All votes must be done via electronic ballot. IAC Ballot Certification Committee Chair DJ Molny will tabulate the election ballots, and those results will be announced at the annual meeting of members on July 30, 2021. The meeting will be held in the Vicki Cruse Educational Pavilion at the IAC Aerobatic Center at 8:30 a.m. during EAA AirVenture, Oshkosh, Wisconsin.

Following are abbreviated profiles of the candidates. For full profiles, please visit IAC.org/2021-Board-Election.

► CANDIDATE PROFILES



JUSTIN HICKSON

VICE PRESIDENT

I am currently a director representing the Mid-America Region and serve on the Executive Committee. I am the assistant contest director for our 2021 U.S. National Aerobatic Championships. As an active member of Chapter 78, I have served as contest director, president, and vice president. I am an active Intermediate competitor and a national judge, and I volunteer at AirVenture.

One of IAC's stated goals is to have "a better understanding of who our members are, identifying their needs in order to adjust our action plans and resource allocation (human and financial) accordingly." This is why I see it as very important to support the Primary and Sportsman pilots by keeping an eye on category difficulty. I want to see pilots achieve their goals, with safety being the No. 1 goal.



ROB HOLLAND

VICE PRESIDENT

I began flying in 1992 and have been an active member of the IAC since. I am the team coach for the Advanced Aerobatic Team, ran an aerobatic flight school, and am a huge aviation and aerobatic enthusiast. To me aerobatics is about safety, fun, education, community, supporting our members, and building our membership base.

Currently, I am an IAC director. I am a strong believer in the IAC's safety mission. I am also an advocate for Advanced and Unlimited aerobatics. I believe it's important to the IAC's mission that we compete to *win* in world championships. I believe that any sport needs people at the top to look up to, people to help attract the next generation and inspire individuals to get involved in this great sport.



JORDAN ASHLEY

TREASURER

I have served as IAC treasurer for the past year, after being unanimously appointed by the board in 2020. I have been a dedicated volunteer for the IAC since 2009. I am the aircraft coordination chairman for AirVenture and current chairman of the Collegiate Program.

The IAC has been an important influence in my life, personally and professionally. I was an active collegiate competitor in the Midwest Region with IAC Chapter 124 during my time at Purdue University. While at Purdue, I became a CFI providing aerobatic instruction.

If reelected, I will continue working toward modernizing and updating the financial processes of the IAC, and bringing greater transparency and access to information regarding the financial dealings of the organization. I am committed to ensuring the continued financial health of the IAC.



BRUCE BALLEW

DIRECTOR

I am running for the IAC board of directors for another term.

I have been on the IAC board and have led the government relations efforts with the FAA on behalf of the IAC for several years now. My day job is as a corporate pilot for a large flight department in St. Louis, Missouri.

I am an active aerobatic/spin/upset instructor and compete in the Advanced category. I am an advocate for grassroots aerobatics and believe it is essential to the future success of the IAC.



AJ HEFEL

DIRECTOR

First, I believe the board needs to refocus its interaction with governmental agencies in order to preserve our ability to perform aerobatic maneuvers. Without that, we won't have a need for our club.

Second, we should all approach aerobatic flight with a safety mindset. I believe the IAC leadership should interact with insurance leaders to see what safety measures can be done to help mitigate increasing costs. I also believe IAC should make a greater effort into aviation safety aspects with regard to aerobatics and aerobatic training.

Third, I believe pilots who have received some level of aerobatic training are better equipped and more confident when it comes to handling an aircraft upset situation. I'd like to see more interaction with flight schools to ensure quality aerobatic training.

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DAGMAR KRESS

DIRECTOR

I became a professional pilot in the early 1990s and founded a flight school in South Florida. I also competed as a member of the German national team at the 1994, 1996, and later the 2013 WAC.

In 2015, I accepted a faculty position at Metropolitan State University of Denver (MSU), teaching aviation classes. I established and have coached MSU's Collegiate Aerobatic Competition Team since 2016.

While competition is certainly a part of the IAC, and winning is most definitely fun, competition is not the only component that makes up the IAC. Safety, airmanship, teamwork, bonding, friendships, and the humble privilege of participation should also be very important to every member of the IAC. I plan to support all IAC members, with special emphasis on the young people who desire to share in our sport.



BRITTANEE LINCOLN

DIRECTOR

I am an active IAC competitor and currently serve as the president of IAC Chapter 38, Northern California. I am the IAC Achievement Awards co-chair.

I serve the Recreational Aviation Foundation as the social media coordinator and am a speaker/instructor for the AOPA Air Safety Institute seminars.

I consider myself an "IAC lifer" and want to work to help boost membership and increase awareness of and participation in the sport. In addition to my willingness to put in the time and effort required to be an effective member of the IAC board, I believe I will bring energy and enthusiasm for the sport and our organization.



JOHN OSTMEYER

DIRECTOR

It would be an honor to serve this organization and be a voice for our members, especially the grassroots members.

In addition to flying, I am the president of IAC Chapter 15 out of Kansas City, hold a flight instructor certificate, and provide Pitts transition training and aerobatic instruction. I am a national judge and judging school instructor, and have been the chief technical monitor at the U.S. Nationals.

As a board member, my goal will be to help the IAC message get out to the larger pilot community and make sure the grassroots pilot's message gets heard. I believe it is important to help flight instructors find access to upset recovery and spin training, as well as help the Sunday afternoon pilot safely perfect simple loops and rolls.



JEFF PETROCELLI

DIRECTOR

I believe we can ensure the IAC's future by appealing to the younger demographic. We can do this using my social media experience to create and expand our media platforms, such as Facebook, Instagram, TikTok, Twitter, etc. I feel strongly that we need to focus our efforts on being more attractive and accessible to this demographic. The sport of aerobatics is multilevel, but we primarily focus on already established pilots. We should shift gears and create a welcoming community that can streamline new members by educating them on the IAC, even if they do not fly or own an airplane.

There are many opportunities for nonpilots to get involved and strengthen the IAC, such as judging, photography, social media, marketing, in-person networking, fundraising, and community outreach.



PEGGY RIEDINGER

DIRECTOR

I am an active volunteer, serving as an IAC director for the past four years. I have also served as a grading judge or chief judge at many contests across the United States, and have been assistant U.S. judge at four World Aerobatic Championships. I have also served as chief judge and jury member at the U.S. Nationals several times. Locally, I am the president of IAC Chapter 67 in Washington.

If reelected to the IAC board of directors, I will continue to be an advocate for volunteers. Whether you are a chief judge or someone who runs into town to pick up lunches and bottles of water, all volunteers are important and should be valued. I continue to stand for all who support their pilots by volunteering. **IAC**

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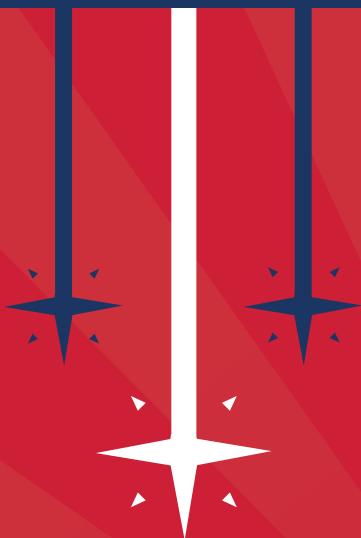
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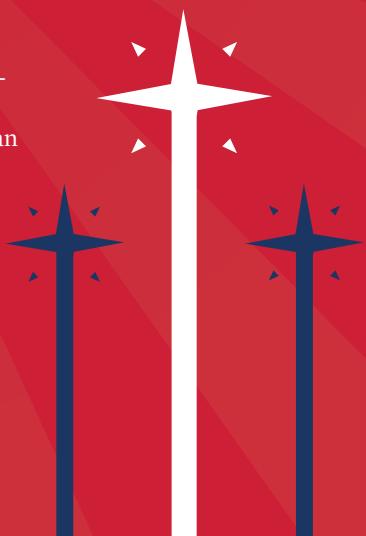


CAP 10B

PILOT REPORT

BY BRIAN LLOYD, IAC 438403

WHEN ONE FLIES AEROBATICS, there are many iconic aircraft that come to mind. The real problem comes when one is looking for a good aircraft for aerobatic training. It is especially difficult to find a good crossover aerobatic aircraft that will be benign enough to provide good training and yet has sufficient performance to make the pilot interested in personal sport aerobatics happy as well as being suitable for competition, at least up through the Sportsman category and even for air show performances.



Brian Lloyd in one of his two CAP 10Bs. He finds the CAP 10B to be an economical best all-around personal aircraft.





For someone looking for a good all-around flying airplane that can be used for both comfortable cross-country and aerobatic flight, it is difficult to beat the CAP 10B.

Today there are very few production aircraft that meet these criteria. About the only current production aircraft that comes close to meeting these requirements is the Super Decathlon. While the Decathlon is a fine aircraft, upon which many of us cut our aerobatic teeth, not everyone wants a high-wing, tandem trainer. Enter the CAP 10B, or rather, the CAP 10B entered a long time ago.

The CAP 10B is a two-place, side-by-side, low-wing, fixed-gear, fixed-pitch-prop, aerobatic trainer. It is constructed almost entirely of wood, with the exception of a fiberglass turtledeck that appeared on later models.

The CAP 10 evolved from the Piel Super Emeraude and was initially designated as the CP100. The prototype first flew in 1968. With the model number changed to CAP 10 when the aircraft went into production, the "B" designation was added sometime later with the addition of the ventral fin and an enlarged rudder. The CAP 10C replaces the wooden spar of the CAP 10B with a carbon fiber spar but is otherwise identical in appearance and performance to the CAP 10B (more on the carbon fiber spar later).

Quite a few CAP 10s were built, many going to various air forces as trainers. France, Morocco, Mexico, South Korea, and even the Royal Australian Air Force have used the CAP 10B for training purposes, making it a warbird to those with that interest.

Just a bit of background — I own two CAP 10B aircraft, a 1983 model that was originally purchased by the Mexican Air Force and has passed through several hands on the way to me, and a 1992 model that had belonged to a relatively well-known West Coast aerobatic competitor, who had acquired it new. Comparing the two side by side, both on the ground and in flight, one sees that little changed in the nine years and 100 serial numbers that separate them. Performance is identical. Nine years did result in small improvements, mostly in the electrical system and in the seats. The airframes show little or no difference.



The overall instrument panel is very much standard general aviation, with a six-pack of standard instruments in front of the pilot and a center stack for radios.

Perhaps the best-known use and display of the CAP 10B was the formation aerobatic team called the French Connection. Daniel Hélignoin and Montaine Mallet, husband and wife, flew their formation show for almost 30 years, including canopy-to-canopy aerobatics with one aircraft inverted. Performing symmetrical maneuvers upright and inverted illustrates the all-around flexibility and performance of the CAP 10B.



CAP 10B FRENCH CONNECTION

Anyone who attended air shows in the '70s, '80s, and '90s remembers the husband and wife formation aerobatic team known as the French Connection. Their canopy-to-canopy formation aerobatic routine using the CAP 10B, with one aircraft flying inverted, was the signature of their air show routine and remains to this day one of the finest air show performances ever to grace the skies.

In 1972 Daniel Héligoin, former French Air Force fighter pilot and 1971-1972 French National Unlimited Aerobatic Champion, went to work for Avions Mudry as a test and demonstration pilot. While there he met Montaine Mallet, an aeronautical engineer. In 1973 they moved to the United States in order to sell the CAP 10B into the United States market. In order to better represent the CAP 10B and demonstrate its capabilities, they formed the French Connection. In addition to performing at air shows, they also operated an aerobatic flight school that sold and provided support for the CAP 10B aircraft in the United States.

Daniel and Montaine performed their act until May 27, 2000, when tragically, they lost their lives in an accident during practice while performing one of their signature maneuvers, side-by-side formation hammerheads.



FIRST IMPRESSIONS

There is an old saying: Airplanes that look good probably fly well. I think that the CAP 10B looks very good. The all-wood structure lends itself to very smooth lines. There are no rivets or skin joints in sight. Slick is the right word to describe the CAP 10B. The elliptical wing planform brings to mind aircraft like the Spitfire and the P-47.

The fixed landing gear has very nicely faired struts and wheels. The wheel pants look fast and add to the overall appeal of the aircraft. A closer look reveals small but nice details, such as a small door in the cowling for draining the oil, and a fairing on the firewall to improve cooling air outflow. Nearly everything on the aircraft is readily accessible for maintenance. Even the instrument panel is made in sections that can be easily removed for work behind the panel. All the electrics have connectors so it is easy to put the instrument panel on the workbench for service.

Seating is side by side instead of tandem.

Fortunately, Avions Mudry thought this through and provided both pilots with a left-side throttle, allowing both pilots to fly with the right hand on the stick and left hand on the throttle. The left-side throttle has a horizontal handle while the throttle in the center is a general aviation-centric push-pull control. The single vernier mixture control is on the left side of the panel above the throttle and only convenient to the pilot in the left seat.

The overall instrument panel is very much standard general aviation, with a six-pack of standard instruments in front of the pilot and a center stack for radios. Power-setting indications, for example, manifold pressure, rpm, and fuel flow, are also part of the left-seat panel. The standard gauge cluster is in front of the right seat and includes engine temperatures, pressures, fuel levels, and battery amps. Brakes are standard for the right seat as one would expect in a trainer aircraft.

Stock instrumentation from the factory included a full set of electric gyros and an avionics complement sufficient for basic IFR. While not initially certified for IFR flight, it is relatively easy today to do so with very minimal modification, providing peace of mind should one find oneself on top of a layer and needing a clearance to get down safely.

Both of my CAP 10B aircraft came equipped with ratcheting seven-point Hooker harnesses for both seats. The removable back-and-bottom cushions accommodate almost any parachute configuration.

STARTING, TAXIING, AND TAKEOFF

Taxiing, takeoff, and landing are easy because of the excellent visibility over the nose. I am 6-foot, 1-inch tall and can easily see over the nose when the airplane is in a three-point attitude. I rarely need to S-turn when taxiing and have no trouble seeing the runway straight ahead at the beginning of a takeoff roll or while flaring the airplane for landing. Shorter pilots might have an issue, but that problem is easily corrected with a thicker seat cushion.

Takeoff acceleration is good, and the aircraft is off the ground after about 1,000 feet (300 meters). I tend to raise the tail fairly early and then fly it off about 65 knots. I had to break myself of the habit of leaving it on the ground too long, which tends to result in a skittish and sloppy takeoff. There is more than enough aileron and rudder authority near stall to handle crosswind conditions so there is no need to hold the aircraft on the ground. The crosswind capability is specified by the manufacturer to be 20 knots, something I can confirm from experience.

Initial sea-level rate of climb with a single large pilot (I weigh in at 190 pounds and usually end up about 205 with clothing and parachute) and full aerobatic fuel (20 gallons in the forward tank) is around 1,200 fpm at 90 knots.

One of the more surprising aspects of the aircraft is that it is such a good all-around flyer. It is at home in cross-country flight as it is doing aerobatics. Light control forces, a 140-knot cruise at 8 gph, hours of fuel, and a 100-pound baggage area behind the seats make the CAP 10B comfortable for going places. Cross-country in the CAP 10B is as comfortable and pleasant as flying any of Dick VanGrunsven's creations. (He is the CEO of Van's Aircraft.)

MANEUVERING

The CAP 10B maintains its energy pretty well for a trainer. All maneuvers may be entered from level flight. With a 120-knot entry speed, you can complete any maneuver over the top, albeit perhaps not to competition standards. Increasing the entry speed to 135 knots (250 kph) is recommended in the aerobatic manual, and it will produce very nice round loops. Not only that, but also the exit speed will be equal to the entry speed, allowing any number of back-to-back loops without loss of energy.

Vertical penetration is fair. With the standard 135-knot entry speed, a 4g pull to a vertical upline will result in a 750-foot altitude gain.

Turning energy maintenance is likewise fair. The CAP 10B can sustain a level turn at about 2.5g but will bleed airspeed down to best lift-to-drag ratio (L/D), about 80 knots, where it will stay all day.

Roll rate of the CAP 10B is good but not stellar. It is nowhere near that of a Pitts or Extra, but it is adequate. With an entry speed of 135 knots, the roll rate for a ballistic roll is 120 deg/s. These qualities are fast enough to complete a 360-degree roll on a vertical upline if you plan to end in a hammerhead.

Speaking of the hammerhead, the CAP 10B will perform the maneuver nicely with near-zero airspeed. The prop-wash over the large rudder provides effective yaw control at very low airspeeds. There is no need to "fly" the airplane around the hammerhead.

Humpty bumps do require a bit of finesse. These must be started a little early with a quick full-elevator deflection flick before the aircraft reaches zero airspeed. Once it starts over, pumping the stick helps keep it going. Start too late and you will find yourself needing to convert your humpty bump into an ugly hammerhead or just fall out of the maneuver. Don't worry; the CAP 10B won't bite, but it will laugh at you.

The CAP 10B does not have a lot of washout in the wing and therefore enters and exits a stall with ease. This quality makes for easy spin and snap-roll entry and exit. Maximum entry speed for "flick maneuvers" (snap rolls) is 86 knots. I normally give myself some margin and wait until the airspeed approaches 80 knots before starting the maneuver. Roll rate in a snap-roll is about 180 degrees/second, much slower than I initially expected but not too surprising given that it takes two seconds per turn in a fully developed spin.

The CAP 10B allows for some technique when doing snaps and spins. On positive snaps and spins, allowing the stick to come forward after the beginning of the rotation increases the rotation rate.



The CAP 10B does not have a lot of washout in the wing and therefore enters and exits a stall with ease. This quality makes for easy spin and snap-roll entry and exit.



The first CAP 10B that Brian purchased in 2014 from a retired aerobatic competitor.

I was pleasantly surprised to find quite a good discussion of spin behavior in the CAP 10B aircraft flight manual (AFM). Clearly, Mudry felt it to be important as the manual devoted two pages to the subject. Spin behavior, recovery time, attitude, and terminal airspeeds are all discussed for the different spin directions, CG positions, and aileron usage. The AFM discusses how aileron position affects spin behavior, with the clear admonition regarding out-spin aileron (stick opposite the spin direction): “Both together with aft CG conditions, the maneuver turns out to be dangerous, delaying the recovery.” The book goes on to say that using in-spin aileron can lead to the aircraft popping out of the spin and initiating a spiral with a concomitant increase in both airspeed and g-loading. I find this section useful to go over with students when talking about the aerodynamics of spins.

Fully developed spins are interesting. The aircraft does spin differently right and left. In a fully developed spin to the left, the nose of the aircraft will oscillate up and down with the yaw rate changing with the oscillation. On recovery, if the stick is not held fully back until rotation is stopped with the rudder, the rotation rate will suddenly increase just before rotation stops. It can be especially disorienting, not to mention messing up the direction of recovery and entry into your next maneuver. One will want to practice and get the spin recovery right before thinking about competing.

The CAP 10B is equipped with full inverted fuel and oil systems. The AFM does not list any time limit for inverted flight. The aircraft flies very nicely inverted with no tendency to roll off in any direction. Outside maneuvers are listed in the AFM with a slightly increased entry speed, about 15 knots above that for the same maneuver performed upright.

LANDING AND GROUND HANDLING

Of course, everyone who flies tailwheel aircraft wants to know how they handle on the ground. Right off I can say that the CAP 10B is well behaved. The wide-stance main gear with oleo struts is very stable and forgiving. The oleos do a good job of absorbing the energy of an occasional “arrival” and also reduce the tendency to bounce during a wheel landing.

The CAP 10B is equally at home with either a wheel or three-point landing. I personally prefer a three-point landing, but I know others who prefer a wheel landing. The large rudder is very effective well below stall speed so crosswind control and the transition from flying to rolling on all three are clear and precise. There is no excuse for ground-looping this airplane. There is only one caveat here: Once the tailwheel is on the ground, the stick *must* be held all the way back. Forget this part and it will be skittish on rollout.

The tail wheel assembly is unique to the CAP 10B, using a hinged arm with a rubber donut as a spring and damper. It has less tendency to bounce than spring-steel tail wheels. The tail wheel also has a locking detent that requires a fair amount of force to unlock and allow the tail wheel to swivel. This means that once you have the tail wheel on the ground, the directional stability and control are very good.

QUIRKS, LIMITATIONS, AND GOTCHAS

All airplanes have their design limits and operating quirks. The CAP 10B is no exception. The biggest limitation is an AD that has reduced the original +6g/-4.5g rating to +5g/-3.5g for single pilot, and +4.3g/-3.5g for two-person operation. The same AD reduces the snap-roll entry speed from 97 knots to 86 knots.

The reason for the AD is that several CAP 10B aircraft have been lost due to spar failure during aggressive aerobatics. Inspection of the failed spars showed a compression failure of the top spar cap near the fuselage attach blocks. In addition to the reduction in max loads and snap-roll entry speed, the AD calls for visual inspection of the top spar cap every 55 hours. This step is a very simple inspection, requiring only the removal of the wing root fairing and examination of the spar cap with a magnifying glass while using a bright light. Since it is so quick and easy, I have it performed on my aircraft every 50 hours when I change the oil.

My gut feeling is that the aircraft is safe at the original g-limits and that the spar failures were the result of abuse, i.e., excessive asymmetric loads, or rot in the spar's wood structure. (The latter was reported on accident reports.) I think that in-flight failure of a properly cared for and flown aircraft is unlikely. Regardless, the new limits are the rule for the CAP 10B with the wooden spar.

Lest you think that the reduced maximum loading is a limitation, it is useful to note that the published recommended entry speeds for the maneuvers are below the maneuvering speed (V_A) for the airplane at the reduced load limits. You just don't need more than 4.3g to do anything you want with this airplane.

In response to the AD, Avions Mudry came out with the CAP 10C in which it substituted a carbon fiber spar for the all-wood spar. It eliminated the g-limits and the recurring inspection AD. The fly in the ointment is that the CAP 10C spar is life-limited, and Mudry (later Apex) is gone. There will be no new wings for CAP 10Cs once they time out. This limitation suggests that the CAP 10B is the better deal, especially now with a new spar mod available from Air Menuiserie.

The French company Air Menuiserie (<http://Air-Menuiserie.com>) was formed by the people who worked in the Mudry factory building the original CAP 10 aircraft. They have come up with a modification to the CAP 10B wing that removes the recurring inspection AD and returns the limits to +6g/-4.5g. The mod involves laminating the CAP 10B top and bottom spar caps with carbon fiber, forming a new composite structure. They call the modified wing/aircraft the CAP 10BK. The BK wing has been tested to +12g/-12g, which should remove any concern about future structural integrity.



There is an old saying: Airplanes that look good probably fly well. Brian thinks that the CAP 10B looks very good.

There is one other operational “gotcha” that has bitten several pilots and resulted in unnecessary off-runway excursions and ground loops. The problem is the placement of the brake pedals on the rudder pedals. The brake pedal is small, a little more than 1 inch in diameter and placed right at the outside edge of the rudder pedal. If you center the ball of your foot on the rudder pedal with your heels together, your toes will be on the brake pedals. If your feet are more upright, your toe only engages the edge of the brake pedal. If you then apply the brakes with any force, one toe can pop off and get caught behind the brake pedal, requiring you to momentarily take your foot off the rudder pedal to reposition it. Doing so early in the landing roll is almost guaranteed to have you heading off the side of the runway. If it happens, the best solution is to refrain from further brake use. Keep the aircraft going straight with the rudder until it slows down and you can safely move your foot.

Because of this quirk, I take pains to address foot position with my students, and I have added a rudder and brake callout as part of the landing checklist. “Feet up, brakes checked” is called on base or final. My personal choice when landing is to move my feet outward until my toe is clearly centered on the brake pedal with the outside part of my foot hanging off the rudder pedal. I quickly apply pressure to the brakes to be sure of both proper toe position and that the brakes are holding pressure. After adopting this procedure, I have not had any more problem with losing control due to brake problems.

FINAL COMMENTS

The bottom line for me is that I really like this airplane. For someone looking for a good all-around flying airplane that can be used for both comfortable cross-country and aerobatic flight, it is difficult to beat the CAP 10B. The fact that it also flies under a standard aerobatic airworthiness certificate also means that it can be used for instruction. If one could only own one airplane, the CAP 10B is certainly a candidate for economical, best all-around personal aircraft. **IAC**

BRIAN LLOYD learned to fly at age 14 when his father, Jim Lloyd, a retired U.S. naval aviator, stuck him in the left seat of the family Cessna 182 and said, “If you are going to fly with me, you are going to have to learn to fly this thing.” Thus began his 52-year love affair with things that go up in the air. He holds CSEL/CSEL certificates with an instrument rating and holds CFI-airplane and CFI-instrument airplane ratings, which he acquired in 1998. His logbook is rather full, with almost 90 different types of aircraft and more than 12,000 hours flown, around 2,000 of which are doing flight instruction. He is currently pursuing a rotary-wing rating in his 1951 Hiller UH-12B helicopter. Brian acquired his first CAP 10B in 2014 from a retired aerobatic competitor. Since then, he has amassed about 500 hours flying and giving instruction in the aircraft. In addition to instructing in aerobatics and formation flying, he completed a solo circumnavigation in his Mooney Spirit in 2017, following Amelia Earhart’s route around the equator.



ARRIVE SAFELY

Thank you to all of the EAA members who took advantage of the Express Arrival program this year, and to our friends at Airbus for their support. We're so excited to welcome everyone back to Oshkosh — safely and efficiently — and look forward to making this year's EAA AirVenture Oshkosh one to remember.

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JULY 24

Top Gun

(8:30 p.m.)

SUNDAY

JULY 25

*Artistry in the Air:
The Story of the Younkin Family*

Flying Boat

Red Horizon

(8:30 p.m.)

MONDAY

JULY 26

Tora! Tora! Tora!

(8:30 p.m.)

TUESDAY

JULY 27

30 Seconds Over Tokyo

(8:30 p.m.)

WEDNESDAY

JULY 28

Disney Planes

(8:30 p.m.)

THURSDAY

JULY 29

*Return to the Big Skies:
The Story of Miss Montana*

Into Flight Once More

(8:30 p.m.)

FRIDAY

JULY 30

Midway (2019)

(8:30 p.m.)

SATURDAY

JULY 31

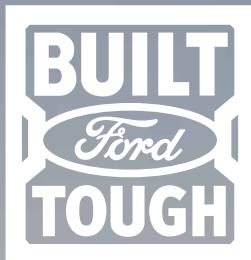
Up

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UPRIGHT AVIATION ACADEMY

Aerobatic oasis in Ontario, Canada

GEOFF ARMSTRONG, IAC 435460, WITH
LORRIE PENNER, IAC 431036

“They all want to try everything the first flight – they want accelerated maneuvers,” said Geoff Armstrong, Upright Aviation Academy’s founder based at Burlington Executive Airport (CZBA), Ontario, Canada. “The precision and difficulty of advanced maneuvers really opens their eyes. We stick to the basics and work on each figure individually, though. Maybe throw in a hammerhead or lomcevak on the way back to the airport for the new students.”



I've known since I was 18 years old that I wanted to fly aerobatics. I had my first aerobic ride with Jerry Younger, eight-time Canadian National Champion. I flew with him a bunch of times in his Pitts Special S-2A. Since that time, I have earned two jet ratings and have been a chief pilot for over 65 pilots and 15 aircraft across Canada.

Aviation is a family tradition; we have three generations of pilots in our family. Both my mom and dad were pilots. My mom was the youngest female commercial pilot in Canada in 1968. My dad has six jet type ratings and has been a chief pilot for a major airline as well. He has been an instructor for airline pilots with a simulator company for Boeing 787/767/737 and CRJs. He's also a seasoned bush pilot. Between my father and me, we have over 71 years and 30,000 hours of flying experience.

It wasn't until 10 years ago that I started the idea of setting up a flight school to concentrate on enhancing pilot training and safety. The main idea was to provide upset prevention and recovery training (UPRT). When UPRT became mandatory in Europe (2018) for EASA Part FCL – Flight Crew Licensing, and in the United States (2019) for Part 121 pilots, we thought it wouldn't be far behind for Canada. Our initial focus was to offer this one-of-a-kind safety training – to be in on the ground floor. We have been looking at four main areas to offer this training: 1) UPRT contracts with flight colleges, 2) UPRT for corporate operators, 3) spin training for a test pilot school, and 4) working with insurance companies for discounts for GA pilots if they take a UPRT course.

The flight school's Extra 300L serves a dual purpose: as the vehicle for the upset prevention and recovery training and thrill rides!

In the first year we opened (2019), our five-hour aerobatics course was very popular. In fact, most students turned it into eight hours with 50 percent of them ready to move on to sequences for competition. We have a 100 percent return rate for additional aerobatic training. There is a huge interest, and because there is no one else in this market sector, we have customers flying in from other provinces to get the aerobatic training. Almost all our initial success as a company was from our aerobatic students.

Because of COVID-19, our UPRT course geared toward companies and flight colleges was only 20 percent of the business. For the rest of 2020, even though a lot of the aerobatic students were returning, word of mouth and social media were getting out another option – thrill rides. A lot of people were buying thrill rides for gifts for friends and family. It also seemed to be a bucket list item for a lot of people. By the end of our 2020 season, 80 percent of our business was thrill rides. The most popular package was Thrill Package 1 – a 30-minute ride allowing the customer to try out the controls.

The thrill ride idea came to me after my experiences in California. I spent some time flying with a U.S. airline with bases in Chicago and San Diego. While living at the San Diego base, I had a chance to work at an Extra 300/330 operation that gave me some experience.

In addition to the aerobatic inspiration that Sean D. Tucker triggered in me from a young age, as an adult I had an opportunity to spend some time with Rob Holland, who was always willing to talk. Through him, I met Steven Fiegel and spent three weeks training in Houston in an Extra. Steven helped me with some of my business ideas and gave me focus and some great tips about the care and control of the company I was planning to build. Before we bought our Extra, I also flew University of North Dakota (UND) alumni James Jacobson up to Canada for a couple of weeks. He helped me get back into currency and also assisted with some of the course content for Upright.

Upright has an Extra 300L, which we use for the UPRT courses, thrill rides, and the aerobatic training. We are using the Extra 300L because it is the only commercially certified fully aerobatic aircraft in Canada. The plane was once the UND's Aerobatic Team plane that was donated to them by a UND alumnus. It is the same plane flown by UND alum Cameron Jaxheimer, who made the 2016 Advanced aerobatic team. Cameron placed fifth overall out of 55 pilots in Poland, and Team USA finished in the silver.

We are adding a Super Decathlon this year, which we will use primarily for tailwheel training. The Super D was rebuilt and is ready for summer training. We have been fortunate to team up with partner companies to sponsor this project: Aerotec Engines out of Halifax, Nova Scotia; David Clark Headsets; Garmin; Bonehead Composites; Brant Aero custom paint to match the silver and red livery of the Extra; and AeroLEDs in Utah for lighting.

In addition to the Super D, we are looking at doing a leaseback from a local pilot who has a beautiful Stearman. It will be a "ride" airplane to start with, but we will consider adding on aerobatic training in it.

Besides Dad and me, we have two other excellent instructors at Upright: Liam Pearson (IAC 441140), who flies the North American Harvard Mk. 2 with the Waterloo Warbirds, and Trevor Rafferty (IAC 406142), who was a regular competitor flying his Javelin in the Mid-America region in Intermediate through 2016. He also does air shows and is expanding his routine to include the beautiful red and white Pitts Model 12 that was four years in the making.

The Super Decathlon was just added to the flight school's stable of aerobatic aircraft in June 2021.



AEROBATIC OASIS

The only flight school in Ontario, Canada, dedicated to aerobatic training.







All the instructors find that students experience the same hesitation about how they will react to aerobatic flight — will I get airsick? Within two to three flights, that reaction is mitigated. It also helps when they learn to use visual references — where to look and when. Getting used to the control inputs, starting to think about spatial orientation, and acclimating to a three-dimensional world all contribute to calming the nerves and settling into the joy of aerobatics.

Fear of doing inverted spins is very common as well. We approach this challenge by letting it happen and guiding them through the recovery. We usually can see it coming — especially on the Immelmann. On the hammerheads, if an inverted spin begins, the instructor takes over and does the debrief on the ground to dissect the experience.

One of my ambitions this year is to bring our planes to aerobatic competitions, which will allow our students the opportunity to experience the thrill and camaraderie of aerobatic contests. Although some are interested in owning an aerobatic airplane, the school airplane is the best option right now. We have aerobatic enthusiasts from various walks of life from airline pilots to IT guys who are very interested in competition. There are five of them right now who are flying sequences and hoping the border will open so we can get through customs and go to the United States. We are all looking forward to a marked box.

Thirty-minute thrill rides go over nearby Toronto.



**"FLYING WAS
YOUR CHILDHOOD
FANTASY. AS A
GROWN-UP, BRING
THAT FANTASY
TO LIFE."**

— UPRIGHT AVIATION ACADEMY WEBSITE

In our area, we don't have an aerobatic box. Rather we have individual regulated airspace that is restricted below 2,000 feet AGL at the bottom. We usually fly between 3,000-6,000 feet AGL for aerobatics over the countryside. Before aerobatic flight, we have to communicate with Toronto, and they always can reject the request. Our flight school works a lot with Nav Canada (equivalent of America's ATC), and we always receive the approval needed due to mutual trust.

It is a wonderful time for pilots of any level to take an introductory aerobatic flight or take a UPRT course. We offer courses tailored to pilot experience, type of flying, and type of aircraft operated by the customer. If you haven't already, take a UPRT, emergency maneuver training, or pilot confidence course and feel what it's like to fly aerobatics! **IAC**

GEOFF ARMSTRONG has flown around North America from the Arctic to the Caribbean, Mexico, and all over the U.S. and Canada in charter, corporate, air ambulance, and U.S. airlines based in Chicago O'Hare and San Diego. He has two jet ratings and was previously a chief pilot for over 65 pilots and 15 airplanes across Canada. He has flown aerobatics in a Pitts Special and an Extra Aircraft.



The new Decathlon's primary purpose will be for tailwheel endorsements and secondarily for aerobatic training.



A Tale of TWO CAPS

BY DAVID VALAER, IAC 439899



T

his story begins in 1976 at Aero Country Airport in McKinney, Texas, with Gene Soucy, Larry Sandell, and a trio of spunky, all-wood, yet fairly unknown at the time Mudry CAP 10B aircraft. The CAP (*Constructions Aéronautiques Parisiennes*) 10B was just beginning to get known in the aerobatic world through the famous air show couple the French Connection, whose incredible air show video is available on YouTube.

In those days, Gene ran a flight school that used the CAP 10B for aerobatic training, and a young 15-year-old Larry fell in love with the CAP his dad had purchased from Gene. Larry flew that airplane all over the country, sometimes even without the permission of his father!

Fast-forward to 2019. Larry told me about a restored 1981 CAP 10B for sale with 10 hours on a new Lycoming AEIO-360 engine, new Hoffman prop, and all-new panel and painted for doing air shows in Mexico.

This last bit is important to the personality of the airplane and goes all the way down to the details of having gold metal flake in the

clear-coat paint. “Piloto Juan José Flores” flourishes on the side, the Mexican flag is painted on the tail, and the plane has awesome gold-plated seat belts! Some have said I should remove these “adornments” from the airplane, but instead, to embrace them, I now proudly sport a “grande” sombrero and wear the hand-painted CAP 10 jacket that Larry’s mom had painted for him in 1985 whenever I arrive at a contest.

At the time I was shopping for the CAP, I owned a Pitts S-2C named *Tiffany*. That name happened after I told my girlfriend I had purchased this plane that was fast, sexy, and responsive, but she would kick your butt if you didn’t treat her right. She said, “That sounds like Tiffany on the Hot Crazy Matrix YouTube video!” and so the name stuck. As much as I loved the competition prowess of my Pitts, I missed the multirole capability of the RV-6 — being able to fly at night, go on long comfortable cross-country trips, fly into my friends’ short grass pastures, and do light IFR. I was also intrigued with the challenge of going against the “category creep” that Robert Armstrong saw taking place in the International Aerobatic Club (IAC) sanctioned contests.

David embraces the adornments of his CAP 10B, including the previous owner's name embellished below the cockpit.





During my three years of aerobatic competition experience with the Pitts, I was pleased with improving my competition scores, but the CAP 10 was a perfect challenge for me; could I purchase a lower-performance multimission airplane and still effectively compete in IAC aerobatics while enjoying a more versatile multirole flying machine?

After several more months of wrangling with the seller, I was the proud owner of a CAP 10 that I had never seen. (Yes, I did have an annual inspection and prebuy done on the airplane.) The day after placing first in the Sportsman category at the 2019 U.S. Nationals, I delivered my “sold” Pitts S-2C to Marlin Fullerton (Mark Fullerton’s brother) and then caught a flight to California to pick up my CAP 10.

I like “projects” as long as it is reflected by the purchase price, and this CAP had plenty of items that needed to be addressed – just like the Pitts I purchased before. The original U.S. owner had not gotten a Certificate of Conformity (C of C) from France, so in the eyes of the Federal Aviation Administration (FAA), it was in the experimental category. After dozens of emails and calls to the French Directorate General for Civil Aviation (DGAC), I was finally able to obtain the coveted, signed C of C from France. With the help of Lucky Louque of Air Salvage of Dallas, one of the most knowledgeable qualified mechanics with an FAA inspection authorization (A&P/IA) in the country, we performed a three-month extensive annual and paperwork cleanup. Before I purchased the airplane, I asked Lucky what he thought of the CAP 10, and he responded that it was a “great airplane, very strong.” He had been the accident investigator on a CAP 10 that had structural failure in flight due to extreme negligence on the part of the A&P mechanic and owner who overlooked wood rot on the main spar that resulted from the airplane sitting outside in the rain for two years! Lucky used the failed spar as a display during his A&P seminars.

Finding a good designated airworthiness representative (DAR) who can check his ego at the door and understands the unique nature of aircraft importing is key. Regarding the first DAR I gently walked away from, it was clear he wanted to impress with making the job impossible as opposed to working in a proactive manner to ensure all the Federal Aviation Regulations (FARs) were met. Always feel free to get a second opinion on the FARs or change the DAR if necessary, as the devil is in the details. One such item was on the Type Certificate Data Sheet saying seemingly simple things such as the words “should” versus “shall,” which can spell the difference between obtaining your standard airworthiness certificate or having an experimental bag of bolts. Fortunately, through finding a great DAR and having Lucky (who was a former DAR) make all the paperwork, aircraft markings, and placards perfect, on April 15, 2020, I received my aerobatic/utility category airworthiness certificate, and the fun flying began!

The first flight illuminated the differences of the CAP 10 compared to my RV-6 and the Pitts. First, there were only about 12 CAP 10s flying around America. So, it draws a great deal of attention, and it seemed like everyone was drawn to the CAP 10. Its side-by-side seating is wider than the RV and very comfortable, the cockpit visibility is great, controls are very well harmonized, the elliptical wings are a work of art, it has over a 500-mile range with 40 gallons of fuel on board at 140-150 knots true airspeed and 10 gph fuel flow, and maintenance is minimal except for part of the canopy glass blowing out while wagging into the aerobatic box during my training camp with John Morrissey. That is another story in itself!

David looks forward to seeing if he can be competitive in his CAP 10B. Currently he ranks fourth in the South-Central regional series.



The CAP 10 is an all-wood constructed aircraft including fuselage, tail, tail surfaces, and wings. Even some of the inspection cover plates are made of wood. The airplane is quite a work of art because of the difficulty of the build; the cost was almost double the price of a new Pitts S-2A in the early 1970s due to the hours it took. The control inputs are well-balanced with the pitch and roll forces being harmonized with less stick forces than the RV-6 at slower speeds. The CAP and RV use the NACA 230 series airfoil, but because of the CAP's higher drag, it has the advantage of not building up speed as quickly as the RV on the down-lines, and the judges have said it presents well; that is assuming the pilot does what he is supposed to be doing with the controls!

Spins are more predictable than the RV-6 (Richard "Van" VanGrunsven recommended against spins in the RV-6 after he scared himself during the test flight), but be prepared early with more input on the rudder to stop the spin than the Pitts. Upright, inverted, accelerated, and flat spins are stable and predictable, and the Beggs-Mueller spin recovery is a "must read" for all types of aircraft regarding inadvertent spin recovery, including the CAP. The CAP's visibility is one of the best of any tailwheel aircraft I have ever flown. You can easily see the runway in front of you even with the tail down, along with much easier crosswind landing characteristics than the Pitts.

The CAP 10 cruises quite a bit slower than my old RV-6. It has a fixed-pitch Hoffmann prop, so the take-off distance is quite a bit longer. Obviously, it wouldn't hold a vertical line as long as the Pitts S-2C. Its roll rate is significantly slower than the Pitts.

I expected the CAP 10's ground handling to be fairly benign because of its wide main gear stance with the main gear mounted on the wings versus the firewall. In actuality, it is trickier on the ground than the RV but has much more stable ground handling than the Pitts. It feels somewhat like a T-6 on the ground with a tendency to "wallow" back and forth at about 40 knots on the ground. The Pitts is much more responsive on the ground (and in the air), so mistakes can be more quickly corrected in the Pitts. But one needs to be more careful of large rudder inputs in the CAP. The CAP 10's huge, oversized rudder is effective but is less efficient, as one would expect. It seems like Avions Mudry & Cie (now Apex Aircraft) just kept making the rudder bigger to finally get it effective enough!



There were about 300 CAP 10Bs built, and David's is serial No. 140, which is about the middle of the production run in 1981.



How is it going for me trying to go against the flow of "category creep" and competing in a lower-performance aircraft? Well ... challenging, which is exactly what I wanted it to be! It's not completely like starting over from the basics of working the box, knowing the Aresti figures, building a free, having a rhythm to a sequence, box positioning, wind correction, g-tolerance preparation, and mentally preparing for a competition. However, the CAP versus the S-2C with 100 less hp, weighing at least 200 pounds more, slower roll rate, not having a symmetrical airfoil for inverted flight, less g capability, and a fixed-pitch prop makes the *piloto* work harder for solid judges' scores. The off-center, side-by-side seating does not seem to create a problem as I was used to it from my U.S. Air Force T-37 days. We will see what the judges think over time!

Seemingly simple maneuvers like the Cuban-eight or the shark's tooth with 2 points of a 4-point roll are challenging (at least for me right now)! The 45 downlines require balancing the length of downline to not lose too much energy, yet rolling with its slower roll rate, especially with 2 points of a 4-point roll like the 2021 Sportsman Known while ensuring the 45-degree angle inverted and upright are the same on the downline. Immelmanns are a unique challenge to roll at the slow airspeed on top that requires full rudder in the direction of the roll to enable a roll out on heading. Hammerheads are great. In fact, I enjoy them so much that I have two of them in my Free sequence.



Amazingly the whole airplane, including the fuselage, tail, tail surfaces, wings, and even some of the inspection cover plates, is made out of wood.

One of my goals is to compete at Nationals to see if an airplane with side-by-side seating can win the Sportsman category, because I do not think it has been done before. For me, the key thoughts I have going to a competition are 1) be safe, 2) have fun, and 3) fly the very best I can. How can I fly the best I can in the CAP 10 versus the Pitts? Just like in any airplane, I will be running plenty of fuel through the tanks and availing myself of ground coaching from very experienced IAC 24 judges such as Tom Rhodes, Tony and Julia Woods, Erick McDaniel, and Curt Richmond. We have an active Dallas/Fort Worth IAC chapter that makes practice and critique fun and allows us to be the best we can be.

As a parting thought, here is something for mentally preparing to roll into the box during a competition. During one of my U.S. Air Force F-16 military checkrides, the colonel said to me with a very serious face, "Captain, I will tell you whether you will pass this checkride by the way you walk to the jet." It wasn't about cockiness but instead, "Are you on your game? Are you ready for this, because I will sense it before you ever strap into the jet?"

Ever since this point, I have loved checkrides because it is a chance to "water their eyes" with the perfection of the flight. So, for me, when I roll into the box, I do not think anything about the scores; my thoughts are focused on "Let's do this; time to water their eyes!" with confidence knowing that I am ready! This approach has worked well in competitive aerobatics as well as FAA checkrides.

Several years ago, I made it a goal to obtain almost every aircraft category and class rating, including five CFIs, four ATPs, three type ratings, two commercials, and a partridge in a pear tree! I never failed a checkride, even on my commercial helicopter rating with only 18.2 hours of total helicopter time when the examiner told me up front that he was going to put me through the wringer! Feel free to ask me my story about that one when we see each other at the next competition together!

As John Morrissey would say, "Keep the Mach up and power full!" **IAC!**

DAVID VALAER is a retired U. S. Air Force F-16 pilot and has been competing in IAC competition since 2017 in the South Central Region. He is the 2019 U.S. National Aerobatic Champion in the Sportsman category.

The CAP 10 design is based on the Piel Emeraude, designed in France by Claude Piel in 1954.





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THE EXTRA NG



Michael's Extra NG, N813MJ, is freshly painted and ready for shipment to Texas.

The Extra NG

BY MICHAEL STEVENS, IAC 440629

I GOT MY FIRST glimpse of it at EAA AirVenture Oshkosh 2019. Looking incredible dressed in metallic silver and bright red, surely an Extra that beautiful must have been a mirage? Next thing you know, it was March 2020; I was here at Southeast Aero in St. Augustine, Florida, waiting on my Extra 300L's annual. Here was my chance to find out more about this carbon fiber Extra NG mirage I had seen a few months ago — I saw it in the corner of the hangar with no wings? Where was Doug Vayda? I got questions. I wanted answers right now!

Rounding up Doug, I dived right in and asked for the rundown on this new aircraft. He was eager and excited to show me the NG, the latest Extra. It honestly looked a little off in the hangar: no wings, just the shell and engine on the main gear, and the tail wheel. Was this just another Extra?

As I approached the plane, I started drooling like a kid in a candy store, and I got a warning from Doug. "Michael, this might not be a good idea," he said. What does he mean by that? It's stable. It's got its own gear. Why the warning? Just as I was about to ask, Doug clarified, "The warning is for your wallet!" He knew that once I take the plunge and crawl in, I'll be hooked! Surely not; I've got self-control. What makes this craft the Next Generation?



Doug Vayda with Michael and Jennifer, Michael's wife.



Doubt began to dissipate as I opened the canopy to get a closer look. I saw the diamond-stitched leather encompassing the seats, the G3X staring back at me, and an all carbon fiber cockpit. What was this? Did I really see luxury? With certainty, this was a new Extra. The customary steel tubes were nowhere to be seen nor were most of the basic analog gauges, and unlike the very unfinished look of my 300L, this machine looked just like the interior of a high-end German automobile. As I slid into that cockpit, I felt giddy, luxury at its finest. I have owned fancy cars and have seen nice interiors before, but for an airplane? This specimen was roomier, better designed, and divine compared to my 300L! Despite all that, I was not hooked, not yet.

My Extra 300L is an incredible machine and certainly more capable than my growing aerobatic skills. I remembered talking with my wife, Jennifer. To continue training and honing my aerobatic skills, we agreed it would have to be in an FAA-certified aircraft. The Extra NG is experimental. Doug's wallet warning made sense, but experimental will not fulfill my agreement to Jennifer. So, the NG memories faded off as I flew back to Texas in N929EX, my awesomely able and faithful little Extra 300L.

By chance on December 8, 2020, my real job – flying an Embraer Legacy 500, a fly-by-wire technical marvel – was sending me to St. Augustine, Florida, for the day. Knowing as I do that corporate flying means hurrying up to wait and usually not much to do besides sit in the pilot's lounge and admire the gorgeous sunshine on this nice crisp morning, I had an idea! Let's call Doug and see how the Extra NG was doing, and maybe even get a chance to fly it. As usual, he answered in happy Vayda style and said sure to my request for a demo flight.

As I was taxiing in the Legacy, he was taxiing the airplane over to his hangar. I grabbed the courtesy car and was on my way across the field. As I arrived, Doug explained that another pilot on the field wanted to own an NG more than Doug wanted to keep a demonstrator. Even though the N-number was clearly for Doug – N307DV – and he was no longer the owner, he borrowed the NG to accommodate my request. Thanks to the actual owner, by the way! We grabbed two parachutes, and we headed out to the hangar.

Doug gave the usual brief on the plane, and he warned we had fuel in the wing tanks and that we needed to be gentle on any maneuvers. He showed me some of the differences in the new NG. With a larger wing and tail, lighter weight, and mostly looking the same to an amateur like me, it's a different flying beast, for sure. He said it

performed much closer to the World Aerobic Championship leading Extra 330SC than my 300L. He emphasized that it was light, fast, and very responsive in all three axes. He cautioned me to watch my control inputs so I wouldn't hit my head on the canopy. *Sure, sure, I was thinking, be quiet, Doug; let's go flying.*

I crawled into the cockpit using the now integrated handholds. There were no more doubts about where to grab or what to hold as I got in. As I slid down into the new carbon fiber seat, the parachute magically fit perfectly between the torso supports on the sides of the seat. As I adjusted myself, I noticed that all of the controls were exactly where my hands fell. Everything felt custom designed for me. I toggled the battery on, and the gorgeous G3X glowed. Wow! *That screen would look way more at home in my business jet than an aerobatic aircraft,* I thought.

The bigger AEIO-580 started instantly, and quickly the cockpit checks were done. We headed for Intersection 20 departure on Runway 31. We got the clearance for takeoff. I flipped the new switches on the carbon fiber panel to turn on the strobe, boost pump, and started the takeoff. With both of us and half tanks, the plane was right at gross weight. The big six-cylinder had us rolling quickly and airborne in well under 1,000 feet.

I initially lowered the nose to accommodate seeing something in front of me other than Doug's head, but in air show pilot style, he wanted me to see what this plane was all about. I pitched for 80 knots indicated airspeed (KIAS), and as I settled into 25 inches manifold pressure and 2500 rpm, I saw 3,850 fpm climb on the big G3X's screen. I thought, Holy moly! This is badass! Doug's wallet warning flashed before my eyes. We quickly got up to 3,500 feet MSL and started off to the practice area. On the way over, at 3,500 feet, I noticed that unlike the 155-160 KIAS on the 300L I was used to, I was seeing 188 KIAS and a true airspeed of 192 knots, thanks to the fancy G3X. Dang, that's fast! Fuel was about 20 gph, but we were really moving for a fixed-gear aerobatic airplane. Seat belt checks done, it was time to get to know its aerobatic prowess.

We started with a slow roll. With the warning on fuel in the wings, I made it nice and gentle. Controls were as harmonious as expected and nothing too eventful. Doug, always in demonstrator mode, said, "Let's do that again but faster." With 180 KIAS, which was plenty of speed, I briskly moved to about 75 percent left aileron input. Things moved quickly: The first thing I noticed was my head bouncing off

the canopy as the horizon flew by in a blur. Even though that one was faster, I rolled out almost perfectly on heading with wings level. Next, a hammerhead. Again, no diving needed since the plane was still in level flight at 180. A nice 4g pull on the upline, and with no wing sight, I guessed the feel and vertical speed were dropping off, and before I kicked it, I noticed we were at about 5,800 feet, which was a 2,300-foot vertical line! That's pretty impressive with no diving needed to gain energy. I firmly slid in the left rudder and started down with the speed coming back quickly. In the 300L, I hold the downline to about 1,000 feet above the desired pull-out, and that works great. This day, it clearly was not going to work. I was passing 200 KIAS and quickly accelerating to the V_{NE} of 220 as I started the pull for a 6g pullout, and I was at 4,100 feet and at 210 KIAS. Doug chuckled, "Don't leave full power in on the downline, or you will exceed V_{NE} when you pull out on altitude." I tried a couple more times, and he was right. I almost had to pull to idle on the downline and then bring back power before I could level off at the same starting altitude. Even then, I was close to 220 KIAS.

There were a few more maneuvers: a double Immelmann, knife edge flight, and high alpha passes below stall speed. The engine was so strong that the plane just sat on the prop, ailerons working perfectly even with a full sideslip going. Acro time was over for this short demonstration. I leveled off and headed to the blue water tower, the VFR reporting point for KSGJ. We were cleared straight to number one for landing, so I pushed over the nose and off we went again. I modulated the power to keep us under 220, which took more work than expected. As we approached the threshold, I held in a nice sideslip, as usual, to bleed off speed. As I got to 80, I straightened it out and touched down back to Runway 31. I did get the tail wheel a little at first, since you have a little better forward visibility and a slightly different sitting position, but it is still an extremely easy-landing tail-wheel aircraft by any standard.

RIGHT: The original NG with its red and silver paint scheme.

After the flight, we discussed the plane further, and Doug noted that the certification is imminent in the acrobatic category and possibly in the standard category, as well. We also compared some of the positives and negatives of the certified versus experimental exhibition classification with regard to avionics options, autopilots, etc., understanding both gives prospective owners a lot of options as to how they want to best equip and use the airplane.

RIGHT: Michael's own Extra NG, N812MJ, is on its way from Germany.





Walter Extra

As I departed that day, it was clear that Walter Extra and his team really did deliver a Next Generation aircraft. I was able to keep my rationale for the NG to stay out of my life since I was not going to buy an experimental aircraft. And my bank account was safe! Well, what happened the very next day? The NG received its FAA certification on December 9, 2020. In true Michael fashion, I convinced Jennifer to put in a contract for Serial No. NG025. And as you are reading this article, I am hoping to be flying a beautiful silver and blue N812MJ around its new home in Texas. **IAG**

MICHAEL STEVENS is a corporate pilot and aircraft manager for an oil industry company in Houston, Texas. He has around 11,400 hours' total time and 300 acro hours. Michael earned his private pilot certificate in 1989. He now holds an ATP as well as CFI, CFI, and MEI. Michael

SPECS

AIRCRAFT DIMENSIONS

Wingspan	27.2 ft / 8.30 m
Length	23.3 ft / 7.11 m
Height	8.3 ft / 2.52 m
Wing area	117.3 ft ² / 10.94 m ²
EASA certified load factor	+/- 10g

WEIGHTS

Typical equipped empty weight	1,400 lbs. / 635 kg
MTOW normal category (+6/-3g)	2,094 lbs. / 950 kg
MTOW acro category (+10/-10g)	1,808 lbs. / 820 kg

AIRSPEEDS

Never exceed speed (V_{NE})	220 kts
Maneuvering speed (V_M) (acro)	158 kts
Max cruise speed (V_c) (acro)	202 kts
Stall speed at 2,094 lbs / 950 kg	56 kts
Stall speed at 1,653 lbs / 750 kg (V_s)	50 kts

FUEL

Total capacity	51.8 gal / 196 l
Usable fuel	51 gal / 193 l
Usable fuel - acro tanks only	19.3 gal / 73 l

AIRFRAME

- Carbon fiber wing assembly with integral tank
- Fuselage assembly: carbon monocoque
- Steerable, soft tailwheel
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is PIC type rated and current on EMB-550 Legacy 500, CL604 Challenger 604, EMB-505 Phenom 300, and Citation 500 series and SIC in Lear 24 and Lear 60. General aviation aircraft he has flown include Piaggio Avanti, Pilatus PC12, Piper Meridian, Piper Twins, Seneca, Navajo, Seminole, 400 series Cessna, most single-engine Cessnas and Pipers, a few Mooney, T-34s, Citabria, Decathlon, Pitts, Extra 300L, 330LX, and now an NG. He owned a flight school for 10 years in there, too. Michael said, "I got into gentlemen's acro many years back in a Citabria and Decathlon with Joy Bowden at Texas Taildraggers. Flew a couple of Extras at Sky Combat over the last five years that really got the juices flowing. My Extra 300L was purchased in 2019." Featuring an all-carbon rigid base frame — a first in aerobatic aviation history — the Extra NG represents a quantum leap forward by offering its owner not just a stunningly beautiful silhouette but also an ergonomically advanced cockpit. It is designed for maximum pilot comfort and equipped with state-of-the-art avionics. Improved aerodynamics permit an even higher degree of maneuverability. The NG represents the next step in Extra Aircraft's 30-plus-year tradition of experience and innovation.

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- Trig TY91 COM
- Trig TT2XPDR
- Ad. seat
- Leather upholstery
- Carbon interior

SYSTEMS

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- Pitot static system
- Trickle charger socket
- 60-amp lightweight alternator
- 12V battery
- Gomolzig, 6-in-1 exhaust system
- Beringer brake system

STANDARD PANEL EQUIPMENT

- Garmin G3X Touch
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- Altimeter (feet, inHg/hPa)
- Accelerometer
- Digital rpm indicator
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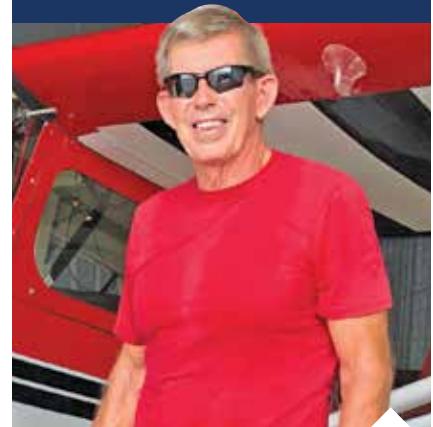
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Spin Training – Beyond the Basics, Part 3

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

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



WE HAVE TALKED A LOT ABOUT AERODYNAMICS and such, so it's time to go fly and see what happens. Our practice area is over the Gulf of Mexico just off Clearwater, under the Tampa Bravo lid at 6,000 feet.

Climb to 4,000 feet and the first order of business is a couple of warmup steep turns; get the feel of the Decathlon and pull some g. We talked on the ground about lift making the airplane turn, so an aerobatic competition turn gives a perfect demonstration. Roll in 60 degrees of bank, but the airplane doesn't turn unless we apply some lift by pulling. Pull, turn. Stop pull, stop turn. Immediately!

Next up are a couple of power-on stalls. The lesson here is to use rudder to level the wings and keep the ailerons neutral — one straight ahead, one out of a turn.

Then we will go to 5,000 feet and do a power-off stall to a falling leaf. Hold the stick back and keep the wings level with rudder, which is still effective even though the wing is stalled. A turn to a heading is still possible.

After the falling leaf, a spin entry follows. Power out, pull to a stall, full back stick and full rudder. The airplane will roll almost inverted and begin to rotate. We will let it go about one-half turn and then recover, which will happen almost immediately. This part is the incipient phase of the spin.

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Now we'll do a full spin entry; same setup but let the spin develop. After about one turn, the spin will stabilize and rotation rate will increase significantly. We'll let it go three turns, then recover with full opposite rudder and forward stick. We'll count the turns by a half as the beach goes by. (Section lines in Kansas were much better!) Recovery takes about one-half to three-fourths of a turn. Spins in each direction show that entry to the left is a little delayed, while right spins happen immediately due to gyroscopic precession.

Next up is a cross-controlled power-on stall simulating a departure stall. V_y at 80 mph, pitch up, and start adding left rudder. Try to maintain heading with right aileron. When the stall breaks, the airplane will snap really hard over the top to the left and enter a fully developed spin. Power out, ailerons neutral, opposite rudder, and recover. I usually have the student let it go at least one turn to experience the startle factor when this happens in the real world. This part is a really disorienting event when experienced for the first time!



Alison Abellenada and Ben Phillips, two CFIs at Tampa Bay Aviation where Tony instructs.

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Tampa Bay Aviation is a busy flight school with over 16 CFIs teaching in fixed-wing and helicopter including Tony. Pictured are Eddie Ruiz, Clive Charpentier, Emily Leist, Ryan Polder, and Casey Kalita.

Now we climb a little higher, 5,500 feet but staying under the Bravo for an accelerated spin. This move is to reinforce the concept that recovery should be in an orderly fashion; stop the rotation before you unload the wing. Spin entry, let it develop (usually one turn), and then full forward stick. The spin accelerates dramatically, nose drops, and rotation rate increases really fast. It is aerodynamically due to the lowering of angle of attack with resultant decrease in induced drag.

Everything basically winds up; trying to recover from this situation will potentially result in a transition to an inverted spin in the opposite direction. If you have never seen an inverted spin, it will really mess with your mind and your ability to recover! I have the student then bring the stick back to return spin to normal and recover. Recovery typically takes about two turns as the rotational inertia is pretty significant. Remember, PARE – Power to idle, Ailerons to neutral, Rudder opposite the spin, Elevator forward – in that order.

I generally fly the next maneuver myself, unless the student has some aerobatic background-inverted spin. Roll inverted, power out, push up to the stall, then full right rudder. The aircraft rolls almost upright before settling into the spin without much incipient phase. My emphasis is for the front-seater to recognize the condition, and most important, be able to identify the direction of rotation by looking over the nose and seeing which direction the shoulders are moving relative to the ground (or in our case, the water). Recovery is almost immediate, usually less than one-half turn, as there is a lot more effective rudder area compared to the upright spin.

Last demonstration is the skidding base-to-final overshoot. We set up in a 70-mph power-off glide, roll in about 25-30 degrees of bank, and then start feeding in bottom rudder. This part will drive the nose down, so simultaneously maintain pitch attitude with back stick. Depending on how aggressively the inputs are applied, the aircraft will depart into a spin to the inside. There will be no pre-stall buffet as the wing is behaving like a swept wing, and the stall warning will usually go off less than a second or two before the departure. I usually fly one first, then have the front-seater try it a couple of times. It is definitely an eye-opener for most.

We need to lose a couple of thousand feet to duck back under the Bravo shelf going home. If the student is feeling up to it, we do a high-g steep spiral to demonstrate the effect of loading the wing to produce drag – 20 inches manifold pressure, 100 mph, roll in 60 degrees of bank, and pull. With about a 3g pull, we can descend at 2,500-3,000 fpm with no increase in speed, which is thought provoking for most pilots.

Hopefully, we are able to get through all of these. I always stress that it is not a test of manhood (or womanhood); not everyone is able to tolerate the rotation and somewhat disorienting sensations first time out. As long as we can complete some upright spins and recoveries, I will sign off the endorsement. The rest of it is icing on the cake. The majority of folks get through it all, although sometimes just barely! I have yet to have anyone complain they didn't learn a lot. Personally, I truly enjoy teaching this stuff, with the side benefit that my airplane gets regular exercise, I get to meet a lot of pleasant people, and sometimes I even make a little money to supplement my retirement income! **MAC**

TONY JOHNSTONE has been instructing aerobatics and tailwheel since 2003 and has given over 2,000 hours of dual in his Super Decathlon. He is a FAASTeam rep with the Tampa FSDO and a retired general surgeon who practiced in Canada and then Kansas for a total of 30 years.

WELCOME NEW MEMBERS

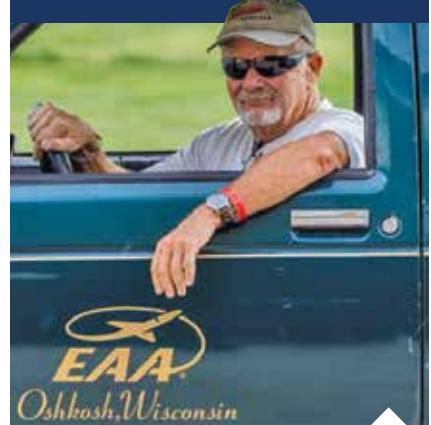


MEMBERS ARE THE HEARTBEAT OF THE IAC, and our heart continues to beat at a healthy pace. In the second half of 2020, the IAC greeted 216 new members into the ranks of aerobatic competitors, regional aerobatic pilots, and enthusiasts from around the United States and the world. In addition, we recognize the members joining or upgrading to a lifetime membership, demonstrating a commitment to enhance the safety, education, competition, and enjoyment of aerobatics.

LIFETIME	David Colemann Clayton Conrad Shanna Crawford Bob Driver Luke Gray Raquel Hall Richo Healey Sophia Hillard Cameron Koutz Glen Lally Jason Maddox Terri Mauricio Joseph McMurray Donald Milton Randy Mitchell Geraldo Ortiz Thomas Raczkowski Sarah Reese Cindy Santoso Michael Saunders Katherine Scott Kevin Smith Andrew Spak Ronald Surratt Soyla Tostado Supreet Wahi Andrew Wait James Webb Ashley Winchell	Josh Calcanis Donna Engelbrecht Michael Hare Jack Leach Johnny Meredith Benjamin Poffenberger Tim Rhyne Justin Rivera Slobodan Savic Valerie Talbot Shane Thomas Diana Topping Daniel Vasquez Velez	Zachary Schaeffer MISSISSIPPI Christian Clement William McCain	SOUTH CAROLINA Bobby Buckner Milton Thomas
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What's in Your Flyaway Kit?

BY GARY DEBAUN, IAC 4145, A&P/IA



HEADED OUT TO A CONTEST? One of the items you might want to consider bringing along is a flyaway kit, a bag of tools and parts you might need to repair your aircraft. Lots of pilots carry a flyaway kit, and I've always wondered what they feel is necessary to carry. The tool bag can get pretty heavy. And you can only put so much weight in that turtledeck, so you must be choosy. Many pilots elect not to carry a toolkit and rely on local maintenance — but that isn't cheap. Others rely on someone at the contest to bring tools and parts — or maybe a mobile shop like I had done at the U.S. Nationals and World Aerobatic Championships in 2013. It was well visited those two weeks.

I thought it was an interesting topic (especially for us mechanics), so I'm going to share with you the contents of my flyaway kit. Most items I list are just plain self-explanatory, others I will comment on. What you carry may be way different, but you know, it's a personal thing.

The bag: I use a personal toiletry bag from REI — the size is just right, and total weight with my tools is about 10 pounds. Most folks opt for the standard military tool bag, which is a bit larger and will hold more tools. Once, I stuffed one full, and it exceeded 17 pounds. Then there is a nice tool roll made by Atlas 46. I like its smaller one because it fits fine in the turtledeck. It's of superior quality and has zippered pouches to separate your tools. I have three large ones for my road trips to Arizona Soaring Inc. where I work on Pawnees and gliders several months out of the year. Warning: They are not cheap — well over a hundred bucks — but they are absolute top quality.

What's in my bag (most self-explanatory):



Gary evaluates what to put in his flyaway kit.

1. WD-40 – to loosen up things that are too tight, also to help break the bead on that tire that just flattered on the runway
2. A small scuff pad – to clean up corrosion and stuff or your pots and pans if you are camping out on the airfield
3. Hex wrenches – complete set SAE
4. A small roll of abrasive paper – to clean up corrosion, spark plug electrodes, and stuff
5. A sharp pick of some sort – a variety of uses – but mostly for cleaning out lead deposits from your spark plugs
6. A plastic bag of small pliers – needle-nose, vise grips, diagonal pliers
7. A 1/4-inch socket wrench with extensions and a universal joint
8. A full set of shallow 1/4-inch sockets
9. Small tube of super glue (Someone is always asking for a tube.)
10. Red gasket maker (high temp) – to temp fix that induction leak
11. The all-important J-B Weld
12. Small roll of 0.032 safety wire
13. Multi-tool (wear on your belt)



Gary's tool bags.



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14. Pair of latex gloves (for you who are afraid to get your hands dirty)
15. Pair of Ace general use gloves (for hand propping and carrying heavy stuff around)
16. Small roll of electrical tape
17. Some zip ties for securing your battery
18. A ratcheting stubby screwdriver with a bunch of extra bits (\$6.50 from Walmart) — I carry one in my *everyday carry* items (EDC)
19. Tactical pocket knife
20. Tactical flashlight with extra batteries
21. Telescoping magnetic pickup
22. A package of miscellaneous hardware (You know you or somebody is going to need a screw or nut or something.)
23. A bag of short combo wrenches
24. A bag of (a) wire brush for cleaning spark plugs (b) an inspection mirror (c) a couple miniature clamps (d) valve stem removal tool (e) valve stem extender, and finally, (f) a 6-inch tape measure

Not shown but is a must — a spark plug ratchet and socket and small roll of duct tape.



Some of the contents from Gary's flyaway kit.

Okay, that's it. I'd love to bring my whole shop with me, but that's impossible (if I'm flying). So, I picked out what gets used the most with the idea of staying under 10 pounds. **IAC**

GARY DEBAUN built his first airplane in 1973. (It was a Smith Miniplane in which he logged over 1,000 aerobatic hours over the years.) He entered his first aerobatic competition in 1980 at Borrego Springs, California. Gary was the U.S. Nationals starter from 2010 to 2019 with a three-year interruption from 2015 to 2017 as contest director.



2021 IAC CONTEST SEASON CALENDAR



DATES	HOST CHAPTER	NAME	REGION	LOCATION	AIRPORT
July 16, 2021	35	Green Mountain Aerobatics Contest (GMAC)	Northeast	Vermont	KVSF
July 17, 2021	12	High Planes Hotpoxia Fest	South-Central	Colorado	KFMM
Aug. 7, 2021	78	Doug Yost Challenge	Mid-America	Iowa	KSPW
Aug. 13, 2021	77	Corvallis Corkscrew	Northwest	Oregon	KCVO
Aug. 13, 2021	52	Kathy Jaffe Challenge	Northeast	New Jersey	KMJX
Aug. 20, 2021	12	IAC West Open Championship	South-Central	Colorado	KSTK
Aug. 21, 2021	61	Giles Henderson Memorial Challenge	Mid-America	Illinois	KSLO
Aug. 27, 2021	27	Tennessee Music Highway Aerobatic Jam	Southeast	Tennessee	KMKL

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 PRESIDENT'S PAGE CONTINUED FROM **PAGE 1**

I could ramble about a lot of different thoughts on pricing, but here's the deal: I believe in trying things out. I believe in doing different things, paying attention to what works, and then making adjustments. I believe sometimes that we are going to make mistakes and must reverse course. Again, there is no morality to these decisions. We must do only what is effective, and we can admit that we don't know what "effective" looks like until we try something different.

So, I will take these concerns to the board in the fall, and maybe something will change. If you want input into this decision, then email me your thoughts at president@iac.org. **IAC**



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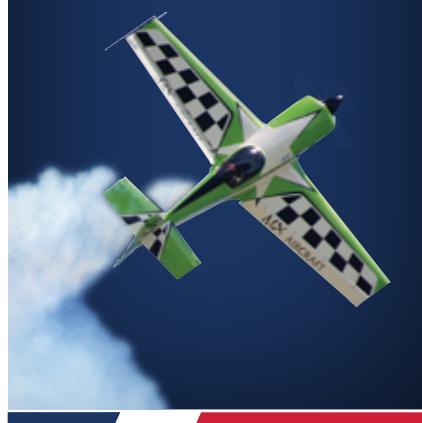
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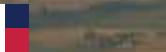
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