SPORT Aerobatics
February 2013
OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

Cassutt in the Box

- World Aerobatic Championship 2013
- Mission to Brazil

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—Greg Koontz

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SPORT Aerobatics
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REGGIE PAULK
COMMENTARY / **EDITOR'S LOG**

Cassutt . . . maybe . . .

What this issue has to offer

IN THE JANUARY ISSUE, WE introduced you to IAC Hall of Fame inductee Giles Henderson. If you read the article, you know he has a couple of very soft spots in his heart for two unique airplanes; his Clipped-Wing J-3 Cub and his Cassutt racer.

You'd think an airplane built for pylon racing at Reno would be ill suited to flying in a relatively small aerobatic box, but Giles has managed to do just that. I asked him if he'd write an article about the nuances of flying aerobatics in his little racer, and he responded with a thoughtful, "Maybe."

While the Cassutt is a unique design, it is by no means a docile and forgiving airplane. As he states in his article this month, a pilot should have considerable experience in the type before even attempting the aerobatic box. Nevertheless, I'm thankful Giles took the time to outline in detail how he gets his wonderful airplane to perform well in the box.

Lorrie Penner is acting as Assistant Contest Director at this year's Unlimited World Aerobatic Championship being held at the same airport in Texas we hold Nationals every year. The U.S. hasn't hosted the Unlimited Worlds in quite some time, and I'll join the chorus of voices who are saying, "If you're thinking about it, you should do it!"

I've had the pleasure of speaking with most members of the U.S. Unlimited team this year, and have to tell you that they are dedicated to doing their absolute best as they compete at home on the world stage. I've said it before and I'll say it again. I think we're in for a real treat.

If you haven't heard yet, you're going to be hearing about the IAC's new website over the coming weeks.

If you haven't heard yet, you're going to be hearing about the IAC's new website over the coming weeks. We're tentatively set to launch this month, but keep in mind that it's an all-volunteer effort, and many members of our web development team have full-time commitments outside of the duties they've taken on as part of the team. I for one can say that the new site is impressive. I'm very proud of the talented folks we at the IAC have the pleasure of calling members. *IAC*

Please submit news, comments, articles, or suggestions to: *reggie.paulk@gmail.com*

NEWS BRIEFS

Greg Koontz Aerobatic Instructor Scholarship

Greg Koontz announced that his aerobatic flight school, Greg Koontz Aerobatics at Sky Country Lodge, Ashville, Alabama, would provide a full scholarship to promote aerobatic instruction.

"The scholarship," Greg says, "is offered to support my interest in promoting and improving the aerobatic instruction field. As it is today, there are no set standards for qualifying aerobatic teachers. It is my hope to improve awareness for this need and help influence industry standards."

The scholarship consists of an eight-flight training program at Greg Koontz Aerobatics. All required ground school is included as well as four nights stay at Sky Country Lodge with its all-inclusive accommodations. The recipient would only be responsible for travel to and from the school.

Greg Koontz Aerobatics has partnered with the International Aerobatic Club to promote and administer the scholarship program. The program is not an initial aerobatic course. For that reason the scholarship is targeted at those certified flight instructors who have some tangible experience in aerobatics and have demonstrated by their activities they are interested in becoming involved in aerobatic instruction. A current instructor certificate, an age under 25 years and a need for the financial support provided by this program are required at the time of the award. The award will be presented to the best-qualified applicant each year at the IAC Annual Membership Meeting at AirVenture.

Those interested in applying should go to the IAC Scholarships page at: *http://www.iac.org/programs/scholarships/*.

Director/Officer Nominations Sought

If you or an IAC member you know is interested in running for an officer or director position, here are the items you'll need to do so:

1. Candidate Petition Form with 10 current IAC members' signatures. You may get a petition form online here (tinyurl.com/b8ahykg). Note that each member can sign a petition form and e-mail it. All names do not have to be placed on one form. Written e-mails as endorsements will not be accepted; it must be on the petition form.

2. Current photo e-mailed as a jpeg

3. Resume/Bio that must be less than 1,000 words. The Nominations Chair must receive the above before the deadline March 22, 2013. Send completed petitions to: Lynne Stoltenberg, 656 Windy Acres Rd, Brenham, TX 77833-7732 - Phone: 979-836-2610 or e-mail to *ljstoltenberg@gmail.com*

Positions needing to be filled this year are Vice President, Treasurer and three directors. *IAC*

OBITUARIES

Fred Cabanas A Legacy Of Experience

By Glenn Pew,
Contributing Editor, Video Editor

Key West-based airshow, ferry, and well-certificated pilot Fred Cabanas, 60, was killed Tuesday along with his passenger Jorge Lopez Vives, host of an extreme sports show, while flying near a private airfield in Cozumel, Mexico. According to the FAA, Cabanas held an ATP, multiengine rating, commercial land and seaplane privileges, plus an A&P license, and advanced ground instructor certificate. He was also an Aerobatic Competency Evaluator for ICAS as well as an EAA Warbird Evaluator. According to his website, Cabanas had flown for TV and movies and had accumulated 24,000 hours total flight time.

At the time of his death, Cabanas owned Cabanas Aeronautics Unlimited, which offered thrill rides and aerial tours of the Florida Keys. Cabanas' legacy is continued by pilots he touched including Gary Ward who credits Cabanas as an inspiration and mentor. As Ward's airshow career developed, Cabanas helped Ward get work, flying with him in the Cayman Islands, Panama, and other locations. One quirky connection won by Cabanas was being credited with reporting a MiG 23 flown by a Cuban military general as it was inbound to the U.S. from Cuba, in 1991. Cabanas performed in the Pitts S-2C, Waco, Cub, P-51 Mustang and other warbirds at air shows, internationally. In 2005, he also raced at Reno. He leaves behind a wife, Susan, and their two children. Cabanas' daughter and son are both pilots. *IAC*

Cassutt in the Box

A small, conventional-geared hot rod

by Giles Henderson
IAC 159

Tom Cassutt designed this little bullet for air racing more than 60 years ago. The fuselage and tail are of fabric-covered steel tube construction. The original design was around a cantilever mid-wing built with a hefty laminated spruce spar, truss-built wood ribs, and 3/32 mahogany plywood covering. The 66-square-foot wing was of unusually low aspect ratio (approximately 15-foot span and 4.5-foot chord), which rendered low parasitic drag and well more than 12*g*'s. Over the years of Formula One racing history, the stubby little Hershey bar wood wings have evolved to high aspect ratio, composite tapered designs. The minimum 66 square feet of wing area allowed for Formula One racers has been reallocated on serious racing Cassutts to a much higher aspect ratio, resulting in a dramatic decrease in induced drag and substantial increase in speeds around the 3.2-mile Reno race course. Formula One racers are all configured with Continental O-200 engines. With tricked-up props, tapered composite wings, engines turning more than 4000 rpm, and considerable attention to minimizing drag, these little monsters are approaching or exceeding 300 mph.

RACING WINGS: Gary Davis' highly modified Cassutt *Midnight Lightning* (race # 54) and Smokey Young's *Sly Dog* (race # 3) pulling *g*'s at pylon 5.

I have restored a Cassutt and have flown it about 800 hours as a sport aerobatic aircraft. I have been asked to share some of my thoughts, experience, and advice on configuring the Cassutt for entry-level competition aerobatics.

CAUTIONS

Gary Davis is a veteran Formula One pilot with years of air-racing experience at Reno. He made the following comments on this article:

"I have strong feelings when it comes to transition training after the carnage I've seen racing and as a pylon racing instructor. As written, I would be concerned that your comment, 'Pilots with less than 1,000 hours of tailwheel time might consider transition training in a Van's RV or a two-place Pitts,' might encourage someone to try flying a Cassutt without a thorough checkout. I don't think any amount of tailwheel time in a Cub, or even an RV, is going to prepare the average pilot to simply jump in a Cassutt and fly it safely, especially in a serious emergency. Actually I feel high time in a non-comparable aircraft could act as a siren's song and give false confidence. I once made the mistake of assuming an experienced Pitts pilot would be good to go with verbal cautions about the Cassutt. He did just fine his rookie year at Reno in a stock Cassutt with no Maydays to contend with. However, a few months later he spun in a Cassutt after an engine failure during a race on a challenging course. He is very lucky to be alive, but he did lose both legs. Beyond the first flight pilot-induced oscillations and prop strike type of concerns, my main worry is too many guys think they are proficient once they get used to the sensitive controls and can make consistent landings. Too many don't realize how quickly a mishandled Cassutt, even with a stock wing, will bite them in the pattern. Without a proper checkout they generally don't figure this out until it is too late.

Perhaps this would be a good opportunity to promote the EAA Flight Advisor program, *www.EAA.org/flightadvisors/*.

MODIFICATIONS

The landing gear on my Cassutt has been increased 2 inches to accommodate a longer and more efficient propeller and a slightly steeper deck angle. The original builder, Pete Myers, also increased the height of the tail 2 inches to give it more authority at low airspeeds. It has a bubble canopy that provides more headroom than the original wraparound racing canopy. Since I have short legs, I installed a retractable step to more easily get in and out of the cockpit. Since my Cassutt has no starter, I installed a Schweizer glider tow release hitch so that I can secure the aircraft while hand propping and then release when I am ready to taxi. Before re-covering

Tow hitch and crankcase breather.

the fuselage I installed an aluminum vent line for the inverted oil slobber tank and crankcase breather.

INVERTED FUEL SYSTEM

A stock Cassutt is competitive in Primary. However, most Cassutts are configured with a short (58- to 62-inch) wood or composite propeller. If the engine quits without a starter from fuel starvation on the inverted downline of a half-Cuban or during a slow roll, the lack of inertia of these lightweight props will generally result in a dead-stick landing. Unless there is a metal prop up front, a Primary pilot flying a stock Cassutt has to compromise these figures a bit to avoid some nerve-racking sputters. The days of picking up the marbles in Sportsman without inverted power are long gone. I prefer a small (1-gallon) header tank between the rudder pedals with an internal flop tube to supply fuel flow while inverted. Enhanced fuel pressure by ram air venting or an auxiliary boost pump is critical on the Cassutt during takeoff acceleration because it has such a small "head pressure" (less than 0.5 psi). I prefer to vent the fuel tank with a ram-air tube in the prop wash under the boot cowl. In addition to an uninterrupted fuel supply, inverted power also requires replacing the float carburetor. Slide carburetors or throttle body injectors (TBIs) all work well on the O-200. I have successfully used the Ellison, AeroCarb, Lake, and Posa injectors with a gravity fuel system. However, inlet fuel pressures on gravity systems are subject to changes in fuel levels and, in particular, changes in *g*-loads. Engines configured with simple slide carburetors like the Posa or AeroCarb lose power as the mixture becomes excessively rich during high positive *g*'s and excessively lean during high negative *g*'s. A relatively new alternative is the Rotec TBI manufactured in Australia. It is configured with an "on demand" fuel pressure regulator—which delivers the precise amount of fuel even with fluctuating fuel levels and pressures. Tom O'Neil of Salem, Ohio, is probably the first to install a Rotec TBI and an electric boost pump on his Cassutt, with great success.

Tom O'Neil's beautiful little Cassutt is configured with electronic ignition, electric boost pump, Rotec TBI, and a full inverted oil system.

INVERTED OIL SYSTEM

Because the negative *g*/inverted flight durations in the Primary and Sportsman sequences are very brief, the momentary loss of oil pressure while inverted is not an issue. However, large amounts of oil can be dumped overboard through the crankcase breather in various aerobatic attitudes. Oil losses can be significantly diminished by simply routing the breather plumbing down below the front of the number three cylinder and then back up above the rear of the number one cylinder and then down to the atmospheric outlet. This geometry prevents any significant oil losses while inverted since the oil would have to flow "uphill" to escape the plumbing geometry. Oil on the belly of the aircraft can be prevented by routing the atmospheric vent line to the tail.

Inverted oil pressure is needed for prolonged inverted flight, inverted ribbon cuts, etc. Contrary to popular belief, the Christen type system can be adapted to the Continental O-200. The internal oil pickup standpipe is removed and plugged. A hole is bored and tapped through the rear accessory case to intercept the oil pump pick-up galley and accommodate an AN fitting. Aeroquip hose and fittings are used to plumb the Christen shuttle valve to the oil pump and to both the top oil supply fitting, located at the top of the starter pad cover plate, and the bottom oil supply fitting, located at the bottom of the oil sump. The crankcase breather line is routed under the number one and three cylinders and then back up to a small firewall slobber tank, located above the mags. This

The Cassutt flies as well inverted as upright with full inverted fuel and oil systems.

tank reclaims any oil losses from the crankcase breather while inverted. The slobber tank is equipped with an internal standpipe connected to an atmospheric vent, routed to the tail. An oil return line connects the bottom of the slobber tank to the bottom of the oil sump.

PROPELLER

The prop on a Cassutt deserves some careful thought. Over the years there have been a number of metal prop failures on Cassutts. Often, an owner would simply chop off a Cessna 150 prop to 58 or 60 inches and repitch it. This is bad news as the geometry and taper of the blades are no longer appropriate for the length. A resonance vibration mode can result in fatigue fracture, often about 6 inches from the tip. The subsequent vibrations from the loss of part of one prop blade can break the engine mount in just a few seconds, and if the engine departs, the shift in CG is fatal if you can't get out (a safety cable that tethers the engine to the airframe is far more effective than the throttle cable). Metal props were outlawed at Reno in '86. Most Cassutt folks are now running wood or composite props. However, the lack of flywheel inertia of a wood prop may be undesirable for a hand-cranked aerobatic airplane. It is not uncommon to stall an engine in a tail slide. If the engine quits for whatever reason, there is little chance of restarting it in flight with a short wood prop and no starter. My Cassutt has a custom built 62-by-64 metal prop that was balanced, raked, thinned, and profiled appropriate for its length. I have had the engine stop on three occasions for various reasons, and because I had a metal prop, it kept wind milling and restarted in flight. A starter would enhance the safety of Cassutts with wood or composite props as well as the ease and safety of competition flightline starts.

IN THE BOX

The light and extremely responsive controls make the Cassutt an absolute joy to fly aerobatics. It does however have some limitations:

VISIBILITY

Given the pilot sits directly over the center of a large chord mid-wing with his head only a short distance above the wing, downward visibility in level flight is seriously restricted. This configuration makes it impossible for a competition pilot to see the box boundary markers while in the box in level flight. Some special compensating techniques are required to avoid penalties for boundary infringements. In order to keep the box markers in view during the initial box entry, the flight path needs to be from a moderately banked turn rather than straight in. Once the aircraft is aligned with the box axis, a steep nose-down wing wag will serve the purpose of signaling the judges that you are commencing your flight and, moreover, will allow one last peek at the box before setting a horizontal level entry line. It is helpful and prudent to have some reference points outside the box that are aligned with box center and/or box edges. One must also exploit every opportunity to update a position fix whenever the aircraft is inverted or in a steep attitude in order to "dead reckon" through level upright segments with confidence.

DIFFERENTIAL AILERONS

The Cassutt was designed with differential aileron action to minimize parasitic drag and adverse yaw while rolling into positive-*g* pylon racing turns. When upright, the down-aileron is deflected only a fraction of the up-aileron deflection to compensate the difference in air pressure above and below the wing. This resulting symmetrical drag eliminates adverse yaw. However, when the wing is loaded negative, it is the up-aileron that is being deflected into the high-pressure air, resulting in large adverse yaw. The transition from positive to negative-*g*'s during a roll requires appropriate rudder input to avoid yaw deviations from the desired attitude. Without some tricky footwork, the unsymmetrical drag at zero angle of attack causes the aircraft to "corkscrew" during vertical rolls. I know of at

least one builder who, for this reason, modified his Cassutt to obtain symmetric aileron action.

CRITICAL ANGLE OF ATTACK

Optimum entry speeds for looping-type maneuvers are comparable to other monoplanes, about 180-190 mph. However, because the Cassutt wing is very thin compared to monoplanes designed for aerobatics, its critical angle of attack is only about 10 or 11 degrees. Thus you cannot push or pull it hard without buffeting and/or snap rolling. This makes some sequences difficult if not impossible to keep in the box. As Gary pointed out earlier, manhandling a Cassutt in the traffic pattern can be fatal.

LANDING THE CASSUTT

The Cassutt touches down considerably faster than a Pitts but has much better forward visibility. I don't have a proper static system on my Cassutt, so my indicated airspeeds may not be accurate. I usually enter downwind at about 160 mph indicated and gradually start reducing power opposite the touchdown spot. I like to reach closed throttle and be at 120 mph as I line up on final. The traffic pattern must be flown with nose low, mild, conservative turns to avoid exceeding the Cassutt's unusual critical angle of attack and an ugly column of black smoke. I maintain a glide pitch that will allow the aircraft to continue to slow such that I am indicating 100 mph over the threshold. The Cassutt will float in ground effect for about 200-300 feet at this speed. If the runway is short and there are no obstructions at the approach end, I will use an aiming point about 200 feet short of the threshold in order to put it on the numbers. Although my Cassutt stalls around 80 mph indicated, the shallow deck angle precludes a normal stall landing. An attempt to make a full-stall landing will result in the tail wheel contacting the runway while the mains are well above the runway, likely followed by a terrible bounce and loss of control. I effectively fly the airplane onto the runway to make a tail-low wheel landing. I bring the nose up just shy of the three-point attitude and the moment the wheels squeak, allow the stick to move slightly forward (maybe 1/2 inch) to "neutral," which unloads the wing and plants the aircraft on the main gear. Once the airplane is on the ground, all of the controls remain remarkably effective for several seconds. You can easily lift a wing, lift the tail, or pull the airplane back off the runway with the slightest stick movement. As it slows down to 75 or so you can gradually lower the tail and cautiously apply brake.

Because the Cassutt is unusually light on the tail, a prop strike can easily result from aggressive braking. Taxiing in a strong crosswind can be particularly risky. There may not be

enough weight on the tail wheel to prevent it from sliding sideways. An attempt to overcome weathervaning with opposite brake can be an invitation for a prop strike.

SUMMARY

Some people get claustrophobic in a Cassutt. Others describe it as the most "twitchy" airplane they ever flew. And of course there are the usual horror stories of difficult, white-knuckled landings that seem to go with small, conventional-geared hot rods. I find the Cassutt a simple, well-designed aircraft with an established track record as a Formula One racer and a great sport plane. It is a thrill to fly and attracts considerable attention wherever it goes. It is a nice flying airplane, very responsive, inexpensive to operate (gets about 25-30 miles per gallon), and very strong. With appropriate experience, a properly configured Cassutt is an inexpensive candidate for Primary/Sportsman level competition. IAC

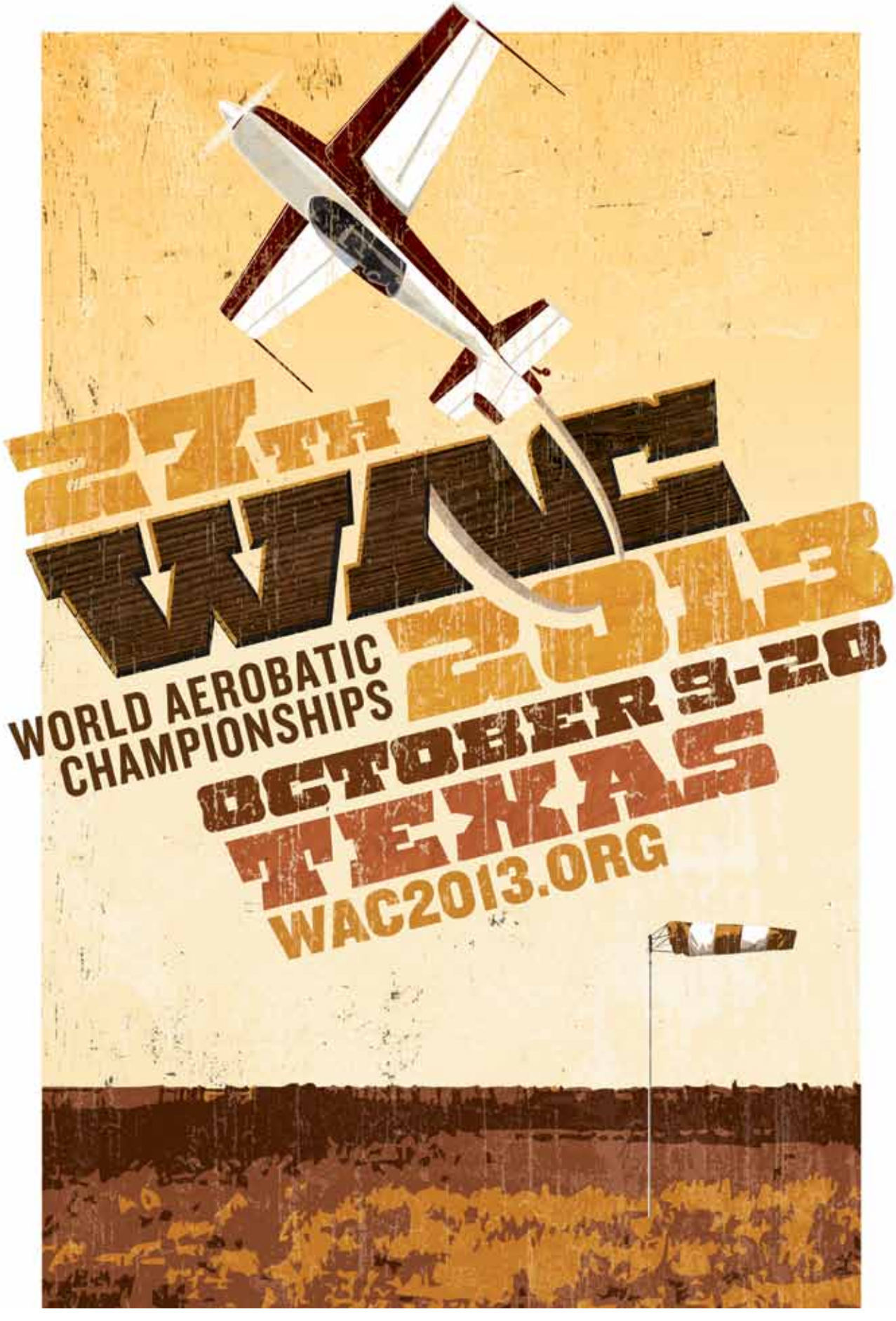
World Aerobatic Championship 2013

A World Class Event

BY LORRIE PENNER
ASSISTANT CONTEST DIRECTOR, WAC 2013

Sometimes, while shooting the breeze over a fence, you get knee deep in an exciting event that you weren't planning on. I saw Chris Rudd at Sun 'n Fun in April, 2012, and we chatted about many things, but one of the main subjects was the upcoming World Aerobatic Championships (WAC) to be held in 2013. Chris and I both participated as volunteers at AWAC 2008 in Pendleton, Oregon, so we did a bit of reminiscing about the great time we had there. This reminiscing ended up getting me excited about working with him as his assistant contest director for WAC 2013. So, we shook hands over the fence, and now begins our production of a world-class event.

Producing a successful international event such as WAC can be challenging and exciting at the same time. I don't think it really hit me how global and *big* this event is until I was writing the narrative for the application for our 501(c)(3) tax-exempt status. It is humbling to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WAC
2013
WORLD AEROBATIC
CHAMPIONSHIPS
OCTOBER 9-20
TEXAS
WAC2013.ORG

So, what can you expect to see at WAC 2013? Projections initially indicate that at least 12 countries will attend with a total of 50 pilots.

be planning an event that began in France in 1934, was part of the 1936 Olympic air display in Berlin, and was held for the first time in the United States in Oshkosh in 1980!

One important step to staging a successful event such as a World Aerobatic Championships is lining up the key volunteers. We have been fortunate to have more than 25 folks step up immediately to help plan the event. From California to New Jersey, IACers from across the nation have thrown their proverbial hats into the ring to make this event the best it can be. I will look forward to once again working with IAC friends I have made over the years such as Tom Adams, Bruce Ballew, and Joe and Carol Brinker. We have been fortunate to recruit some folks from the West Coast that I am looking forward to working with for the first time, such as Margo Chase and Marilyn Dash. I want to give a special shout out to Helen Johnson, who is our liaison for all three chamber of commerce organizations in Denison, Sherman, and Pottsboro, Texas.

The special challenge in hosting this event at North Texas Regional Airport, Sherman/Denison, Texas, is that it takes place two weeks after the U.S. National Aerobatic Championships. That might seem like a good thing, but we felt that we didn't want to wear out our volunteers, our sponsors, or our host airport. To avoid some of this, we have tried to recruit a few people that might not normally have attended Nationals, and our potential sponsor list aims at new companies and individuals who have not sponsored Nationals or, in some cases, an aviation event. We are working closely with 2013 Nationals CD John Smutny to avoid as much as possible any duplicate efforts and to coordinate the transition from Nationals to WAC at the airport.

So, what can you expect to see at WAC 2013? Projections initially indicate that at least 12 countries will attend with a total of 50 pilots. Because the event takes place in the United States, we have already begun receiving preliminary entry forms from independent pilots, which we expect to number as many as 15.

Opening and closing ceremonies are in the process of being firmed up. During the opening, we know that local city and county government representatives will attend to welcome all our competitors. There will be professional air show performers, a sky dive jump team, and a live country western band.

The closing ceremonies are tentatively scheduled to take place at the Choctaw Nation Casino. Evening events include native dancers, a full dinner in a very nice banquet hall where the awards will be presented, and a complimentary gaming card for everyone to use in the casino after the awards presentation. Additional planned events over the course of the championship will include a wine tasting evening and a collegiate rodeo.

As for the contest itself, John Gaillard has been appointed chief judge, and the jury members are Jury President Lars-Göran Arvidsson with members Alan Cassidy and Mike Heuer. Operations will be improved at the site by the addition of new radios for boundaries and the chief judge table as well as improved sighting devices. Plans are underway for the formation of the International Village, aircraft and pilot licensing for foreign pilots who want to rent U.S. aircraft, merchandising, transportation, and accommodations.

Plan to come to WAC 2013! Share in all the excitement and meet other aerobatic enthusiasts from around the world. For the first time in 10 years this is a great opportunity to enjoy and participate in an international event right here at home. Get news and updates online at *www.WAC2013.com*. ***IAC***

Lorrie serves as achievement award chair and annual awards chair. Additionally she serves on the WEB team for the IAC website rework as Content Editor. On a local level, she serves as the webmaster for IAC34. She is a private pilot SEL and Glider, who flies aerobatics recreationally.

RUSS MUNSON

One Man's Style

Safety, Ken Stout

By Jean Sorg

REPRINTED FROM *TECHNICAL TIPS, MANUAL IV*

An Intermediate competitor, he flies an 8KCAB or 180 HP Super Decathlon that's basically factory stock. Any alterations have been STC'd ones so that the aircraft could remain in the certified category. Although he has opted to add spades as a purely competitive-edge type of mod, he has primarily enhanced his aircraft, its equipment and his preflight inspections to give him an edge in the area of safety.

For instance he removed the rear stick. Some Decathlon front seat backs have broken and fallen back against the rear stick, jamming it into a fixed position. Occasionally belts or other items may entangle it as well. A side benefit in competition is the stick removal helps lighten up the controls, just a little bit he feels. "And in a Decathlon, everyone knows that anything we can do in that area is a plus," he commented.

Not satisfied with the factory installed harness system, he decided to go with one from Hooker Custom Harness complete with a ratchet tightening device. He was concerned about problems other IAC members had encountered with their factory installed seat belts and harnesses in their Decathlons and Citabrias. These included rear stick entanglement, failure of seat belt attach fittings, inadvertent release of the belt buckles, and loosening up of the belts

Some lap section of Ken Stout's Hooker Harness is visible in foreground above. Centered under the instrument panel and ahead of the control stick is the header tank with its fuel lines. Below it and mounted on the firewall between the rudder pedals is a Halon bottle for the fire extinguisher system. A round release button is above it to right of tank and just under panel.

and harness while flying, particularly during aerobatics.

Another of his concerns centered on the factory harness' single attach point to the seat. Hooker's setup has separate attach points for the main and secondary seat belts, a requirement of IAC contest rules. The main belt is attached to the same tab to which the rear legs of the seat are fastened and the secondary, to a cross member between the two lower longerons beneath the floor boards. In addition the primary and secondary belts are parallel to each other as opposed to one being on top of the other. This aids the comfort factor as the load is then spread over a large section of the pilot's hips and legs.

Since the fasteners/buckles for the Hooker primary and secondary belts face in opposite directions, this prevents accidental release of both belts by a shirt or jacket sleeve catching on a buckle. Shoulder straps are attached to a cross member between the two upper longerons or basically the rear spar carry-through and to the bottom of the seat where there is a yoke to keep everything pulled down to the proper restraint angles — again providing for more comfort.

It also delivers a more effective shoulder strap angle, getting away from the typical automobile type setup which also on occasion got hung up in the wires of his helmet/headset. "My old strap was just in the way," said Stout.

He swears his Hooker Harness is stronger and keeps him more securely in place. "I used to be floatin' all around the cockpit thanks to the belts loosening up and the automobile-like, across-the-shoulder bit," he stated. Now if a little more give develops than he wants while performing maneuvers, he can reach down without letting go of the stick, give the ratchet a quick click and be instantly snug again in his seat. This produces another fringe competition benefit in that firm, secure bodily restraint aids one in flying maneuvers better.

However, he didn't entirely discard his original harness system either. He simply installed it in the back seat.

Like all pilots, fire worries him. Hence he started wearing a Nomex flight suit which he puts on just prior to any aerobatic flight, practice or contest situation. He admitted it can be hot. "But at the same time it's not really that bad," he maintained. "You know you're not going on a long cross country with it. And it gives you a few seconds of fire protection."

That could spell the difference in a safe evacuation on the ground or in the air. He indicated that some day he'd even like to acquire a heavier, automobile racing quality Nomex suit along with the fire retardant underwear. He already has the Nomex gloves.

Originally intending to only wear leather ones for better grip on the stick and some possible fire protection, he learned from conversations with other contestants that the leather "will shrink in a fire and you won't be able to move your hands. So I went to the regular stock military Nomex gloves which are very comfortable and pliable," he noted. "You can still pick up things easily and they keep your hands from slipping off the stick. Sweat is just absorbed. In addition the military style grip is a lot better than the old rubber bicycle grip."

Another safety feature this aerobatic competition pilot and judge incorporated is a custom fitted helmet. "One year at Oshkosh (the annual EAA Fly-In convention) I went to the Flight Suits Limited booth and had myself measured for a mold to make me a custom fitted Kevlar helmet," he stated. "It's the stock military high G helmet. Kevlar is an option that adds lightweight

strength. A composite, it's the state of the art in space age lightweight, real strong material."

He also arranged for his Dave Clark headset to be installed in this helmet. He explained his rationale here, "First of all you need to wear some type of a headset anyway because it's just too noisy. It's hard on your hearing if you don't wear one or ear plugs for noise attenuation. And a headset tends to just fly off; so you need a leather or cloth helmet to hold it on. They don't provide much protection however in a severe crash or from an accidental bump in an emergency exit of the aircraft."

The use of a helmet made a lot of sense to him which was reaffirmed when "a couple of guys on the circuit started showing up with them. I know," he conceded, "some guys may think it's not very macho to wear all this stuff. But when I'm up there I'm not really trying to impress people that way. The helmet is phenomenally comfortable and easy to wear and only took me about one hour to get used to it. In fact I wear it on cross countries and everywhere now."

He claims it's not as hot as wearing a leather headgear which can actually absorb heat coming through a windshield or canopy. In addition, his Nomex skull cap helps absorb any moisture and has a cooling effect he says.

An image of Darth Vadar from Star Wars pops into mind as one glances at him in his helmet with the darkened visor over his face. He noted the visor is an option that most order. He has a gradient shaded one which gets darker at the top. This feature allows one to look into the cockpit and read gauges while the darker area at the top keeps the sun out of the eyes. Both it and his eyeglasses are shatterproof. It also lends a little bit of reflective heat protection. In his experience as a volunteer fireman while wearing plastic face shields, he finds the visor would also reflect heat away.

In another trip to Oshkosh he ran across the booth operated by International Safety Systems, Inc., a Georgia firm. What attracted him was not just their small Halon fire extinguishers for aircraft use, but their complete Halon fire extinguisher SYSTEM for aircraft. With it the entire cabin and engine compartment are flooded, which is certainly more effective than a directional handheld extinguisher that is even useless under the cowling while airborne. Then, too, the system delivers considerably more punch in quantity than the small handheld bottle. In addition, the system affords faster access and release. There's no fumbling around to reach and operate it like there can be with the handheld.

With the system in his Decathlon, one nozzle is pointed right at the header tank which is "right there almost in your lap." The other points downward at both sides of the engine and its cylinders via tubing from the top. The theory behind this is the natural airflow will suck the Halon down and around the engine very rapidly. Of course, no one has actually set a Decathlon on fire to test it, but Stout has confidence in the premise. At any rate he contends that if worse comes to worst and any fire isn't completely and/or permanently extinguished in either area, the system should make it possible for one to safely vacate the airplane.

What he identified as a large panic button (actually about a two-inch red one that reads, "PUSH, FIRE,") releases the Halon. Once released, the system stays on. There's no shutting it off. What about accidental release? Or what about some youngster coming up and crying, "Hey, Mom, what's this?" A safety pin fills the bill here and it's easily pulled before striking the button.

Halon is not supposed to harm any of the aircraft's components, including electrical. Its common use is in computer rooms. Although it's not wise to breathe one hundred percent of it in high concentrations as it may replace your oxygen, it's doubtful this would occur in a Decathlon he believes. As he points out, there's a window vent up by one's head and if nothing else, "you could stick your nose in the vent to breathe outside air. So I don't think that would be a problem. I think you'd have more problems keeping the Halon in there than out."

He still carries his handheld bottle as an emergency backup. "It's always nice to have a second option, you know," he concluded. And he definitely prefers Halon over any dry chemical or C02. He's flown with the full system for more than 15 aero hours now and says the installation shows no signs of being in the way or loosening up. It's mounted on the firewall right behind the header tank.

Realizing that some pilots might be concerned about the added weight all these safety enhancements might entail, he scoffed at such concern. "Safety equipment is a lot better than worrying about weight," he pointed out. "And if you're that worried about weight, then quit crying about it and just go on a diet. Most of the guys who do worry about weight are carrying a lot of extra pounds themselves." He estimates the Halon system's weight at about seven pounds.

As to expense, well it all adds up. But what's more important — your neck or dollars? In his opinion the most expensive item is the custom made helmet which might run about $600 to $800 depending on make, model and degree of fanciness. Flight suits don't come cheap either, anywhere from $85 to roughly $200 unless you're lucky enough to find one second hand or like he did in a tradeoff situation. His Hooker setup ran about $200 and the Halon system, about another $200 or so. He reminds us that a regular harness checks in at about $100 anyway and the stick removal is definitely inexpensive.

But the biggest safety precautions gained are even the least costly he quickly stresses. Falling under this category are such things as preventive maintenance, thorough knowledge of one's aircraft and very thorough preflight and technical inspections.

"Now most who fly aerobatics know this, but someone new to the sport might not," he began. Then he continued, "A lot of things tend to end up in the tail assembly. You wouldn't believe some of the things that drift back there from pockets or whatever—like keys, coins, screwdrivers, pens, glasses, anything. So before every flight you want to take off the inspection plate under the horizontal stabilizer and check visually and by feel."

He acknowledges it might be a bit

"It forces you to go over every inch of the airplane and look at it."

dirty in there and sometimes it might be inconvenient to do it, but taking the time and trouble is far better than the alternative — an object caught in an elevator cable. Landings alone can sometimes be tricky enough even with fully operational elevators and rudder.

About every ten hours he also carefully scrutinizes the interior of his wings. Nails working up or out is one item he's looking for here. If one is working out, he simply taps it back in. He has inspection plates that he pulls for the task.

Jim Batterman of Milwaukee, a long-time and active IACer who instructs in Decathlons and frequently serves as the chief technical monitor at contests including Fond du Lac, recommends more than just tapping. He suggests the use of a hypodermic syringe or any device one can use to syringe epoxy glue in around the nail before tapping back into place. Otherwise it'll just work out again. The best and recommended/required fix per an AD is to cut open the wings and redo the nails with ringed ones and epoxy glue. He said some install inspection covers between each rib and then install nails through them. "But that's a lot of covers per wing," he commented.

Stout also recommends checking routinely to see that the battery is still securely in place. And he encourages waxing the airplane regularly. The safety element derived from that he explained is, "It forces you to go over every inch of the airplane and look at it. You'd be surprised what little nicks and dings you'll find by going over the whole airplane just an inch at a time. Then you can stop problems before they start. If you do find something starting to fray or come off, you just put a little fix to it." Or, in other words, an ounce of prevention is invaluable.

Header tanks have their own unique set of problems he indicated. Its aluminum tubes are very brittle he says and tend to develop cracks from vibration or metal fatigue. "You may not notice it until all of a sudden you see a little stain on them," he said. "The cracks may not be big enough—just hairline—to actually allow any dripping, but some seeping may occur and then if you bump them or try to tighten them you could break the whole tube. Then you'd be running around with coffee cans trying to catch 40 gallons of gas before it goes all through your airplane — or worse."

Normally the big tip-off that all is not well is the smell of gas or one might see a little "gooey" green stain down around a fitting. At the first sign of either, Stout strongly urges the drainage of the tanks and replacement of the tubes. He's had to replace all three of his tubes which broke within about five hours of each other right after the five hundred mark on his airplane.

He doesn't think there's any magic number regarding time. "I would be simply suspect of aluminum fuel lines at any fitting because that is where vibration and wear seems to take place," he declared. "You just have to be careful with them because they won't take much stretching and bending. From experience just trying to tighten them up doesn't work. All you'll do is break them then . . . I think what happened to mine was the nuts on the ferrels were overtightened at the factory causing the tubes to be crushed, binded or kinked . . . It's not that they're a very big problem from what I understand from other pilots, it's just that you do have to be careful and do thorough inspections."

He mentioned he'd like to be able to install some fuel shutoffs in the wing root where somehow a person could just reach up and close the fuel source. That would eliminate the hassle of having to drain fuel to replace the lines and/or much of the mess if a line from the header tank does happen to break. But he's not sure what the FAA stance would be for an STC for such an alteration even though one would be doing it for the ultimate purpose of safety in his opinion.

"Although we're only required to do annuals, actually what we're doing in our 100-hour inspections are full annuals and that entails some expense if you fly a lot," he admitted. "But again it's just part of the safety system. You just can't inspect the aircraft too much. It's mechanical. There's going to be wear and tear. And you never know when someone is going to back into it or a kid is going to poke his finger through something."

He strongly advocates practicing fast emergency exit of one's aircraft while on the ground. Being prepared is good policy. Additionally he firmly believes in buying and frequently reviewing the information in the TECH TIPS I and II manuals. "Every so often I get those books out and just remind myself of some of the things to look at all over the aircraft," he said. "And another thing, I talk to other Decathlon owners a lot to find out what they have had problems with and what breaks on their airplanes and why.

"Also I never take offense with the thorough inspections by the technical monitors at contests. It may be a pain and disappointment if your aircraft gets rejected for anything. It may be hot on the ramp and upsetting with some of them acting like little old ladies poking all over your airplane, but they're trying to do their job to protect you and our sport. After all if you've been practicing a good inspection maintenance system you won't be finding out at a contest something you

should have done back home.

"And besides in the 20 contests I've been in during the last two years I've always picked up something from somebody on what to look at or how to look at the aircraft, not to mention general tips for flying maneuvers." You can learn a lot by observing and listening.

One of the tips he picked up was actually more beneficial from a flying standpoint than a direct safety measure he indicated. It involves the taping of all tail surfaces to gap seal them. "It gives you much better performance," he claimed, "and you don't have to load up the airplane as much G-wise to get the same maneuver. I figure I save almost a G on a maneuver by having my gaps sealed and I can use the same amount of muscle pull as before to produce an extra G if it's needed without straining to get it.

"The side benefit here, I feel, from a safety standpoint is the aircraft is much more controllable with the gap seals. It really makes a difference in the elevator and rudder handling performance. It won't hold knife edge without the tape and does quite nicely with it."

By the way the tape is cheap. He uses 3M book binding tape for about a buck fifty. It does get yellow and old and eventually peels off. Then one simply replaces it.

"Now if only I could fly the figures better," he jokingly moaned. Yes, it still takes plain old practice and skill for that, plus a little expert critiquing from fellow competitors or judges. *IAC*

Mission Braz

Got the paperwork in order and on my way

by Greg Koontz

I'm never quite sure where the next student is coming from. I'm never really sure if they're coming at all. When you work for yourself you're always wondering when the calls will just stop. But an e-mail arrives or the phone rings. Often, a new person introduces himself or herself at a show. They're always the most unlikely characters and the biggest variety of personalities. Every now and then, when my wife is giving me her concerns over how much I work, I start wondering, "What if the phone just never rings again?" But, thank goodness, it does. So I keep very busy and count my blessings.

The next call can be like getting a mission. It could be a challenge to help launch someone's future in competition or even air shows. Maybe it will be training a new aerobatic instructor. These people could go on to be anybody or do anything. It could be like the call from Portugal to start a first aerobatic school or the guy in Hawaii who wanted to learn how to land on a truck (for real!). You've got to take these things seriously because they really happen.

So this time it came via Facebook. Flipping through my messages I saw it, "What would it take to get you to come to Brazil?" A mission request was on the table! (Imagine the *Mission Impossible* music in the background going dum dum dum-dum dum dum dum-dum). The scope of the whole thing was running through my mind. Yeah, what would it take, indeed? I wondered for a second if these guys would accept my personal check, then it dawned on me, I'm being HIRED to go to Brazil! They speak Portuguese there. The same Portuguese I couldn't understand when I went to Portugal. Works for me! I returned with a note about my standard fees, and a deal was quickly set. Mission accepted (dum dum dum-dum).

This ended up being scheduled right behind my January trip to the air show in El Salvador. So I returned to the United States through Houston, picked up my bags, and walked over to the airline counter and turned them back in to start the adventure to Brazil. As the nice lady at the counter looked over my passport, she said, "I can't find your tourist visa," and I just gave her my dumbest look and said, "Duh what?" It seems that diplomatic relations with Brazil and the United States are in some kind of "if you do that, we'll do this" tug-of-war, and a touring visa is now required for U.S. citizens. Just like Tom Cruise, I was running into snags. This one turned into a ticket purchase for home instead. I was feeling a little dum dum right then.

Luckily my Brazilian client, whom I communicated with through his son Renato, was equally surprised. We agreed on a later date, and I got to work applying for this touring visa. It ended up that the thing cost 299 bucks for us U.S. chaps and about 49 bucks for the rest of the world. So what's going on? It's beyond me; if it isn't aerobatics, I don't know much about it. I paid the fees, got my paperwork in order, and a few weeks later was on a red-eye out of Miami for Sao Paulo. Renato picked me up at the airport at 5:55

Renato, Greg, and Villela.

a.m. and we transferred to a TAM flight to Ribeirao.

Renato's dad, Villela, picked us up for a 45-minute drive to Bebedouro, the final destination. Along the way I discovered the main villain of this mission. Villela speaks about as much English as I do Portuguese. (I can say thank you, and I noticed the stop signs say PARE, so I think I can say stop). Thank goodness Renato is an English teacher!

After a comfortable stay in this little town's local hotel, we were off to the airport. Villela owns a very nice crop dusting business in the heart of the world's biggest agriculture district. His operation is spick-and-span like no ag operation you have ever imagined. He has a separate hangar for his aerobatic addiction that houses an immaculate Super Decathlon. This place is set up for good times complete with big screen video, lounge, fridge, and of course, a bar. A beautiful glass table was the center of a conference/classroom so

Villela cooking.

Everyone is invited to the table.

Villela and his wife.

Villela and I, along with our interpreter, son Renato, sat down for our first ground school for some acro.

Renato, bless his heart, is not a pilot. He is, though, a patient and good-natured sort that was the only reason Villela and I could communicate at all. We painstakingly inched our way through my initial ground instruction, over an hour's worth of material in just under three and a half hours! Villela is a 15,000-hour hands-on flier, but if I've learned anything in the acro instruction business, it's don't assume nothing! High-time guys are flying on well-earned muscle memory and need a good refresher on the fundamentals even more than a new private pilot. Poor ol' Renato had to figure out just what I was talking about and then get it across to Villela in Portuguese; a slow process for sure.

We did get one thing figured out. We were not going to have any communication in the cockpit. So we established a short "key words" list on paper to take along and outlined the course of our lesson plan while we were on the ground in front of Renato for help. With a plan for flight lesson number one we were on a mission.

After a few turns and a stall, lesson one was on its way and going smooth. Anyone who knows me might remember my favorite warm-up maneuver. It's a left and right wing-over thing that resembles a lazy-eight. Mine is a big maneuver with almost 90 degrees of pitch and bank, so I call it a crazy-eight. It looks like a kid on a skateboard in a half-pipe. It's a great way to teach good orientation and to teach students to move their head around to keep a reference in sight. Villela had his lesson plan list in his hands, so when we got to that part he pointed to this maneuver, looked back at me for a nod, and then turned around and started ripping through this maneuver in his best crop duster style.

You can just imagine how well a crop duster could do this crazy-eight.

I felt like George Jetson yelling, "Jane, stop this crazy thing!" while the dog Astro ran him too fast on the treadmill . . .

Villela was out to prove his expertise here so this was no less than a 3*g* figure. After a few of these I had enjoyed all I could stand. I said, "Great, Villela, that'll do." No response. "You can stop now." Another 3*g* pull immediately followed. "Villela, let's move on to aileron rolls." No response. "STOP!" I yelled but there was no end in sight. Apparently we were going to do crazy-eights until we exhausted the last of the fuel. I was trapped in perpetual crazy-eight land.

Luckily, Renato was near the hand-held radio. But Renato wasn't a pilot, and most pilots can remember those early flying days when we were trying to understand what was being said on a radio. Scratchy and coarse, the words are hard to understand. That they are coming across in a foreign language just adds to the confusion. "Renato, tell your dad to stop." Nothing. "Renato, come in Renato!" I felt like George Jetson yell-

True to every trip I have made south of our border, I've found some great new friends. Every evening was a social event with cooking out on the porch, enjoying good wine, good food, and good company.

ing, "Jane, stop this crazy thing!" while the dog Astro ran him too fast on the treadmill (you've got to be an old cartoon nut to remember that one). Finally Renato heard his name and called us back, causing his dad to stop for a moment to answer. Later I learned the Portuguese that was spoken just then was something like, "No, I didn't call you," and then we went right back into the crazy-eight twilight zone.

On flight two I had a plan. We would put Renato on the radio in front of the hangar where it worked well, and I would, slowly and clearly, give my instructions to Villela by transmitting to Renato who would translate. This sounded like a brilliant idea. In execution it was a flop. It was impossible to critique much of anything without going into some sort of detail, and poor ol' Renato, not really knowing exactly what was going on, was getting confused fast. In 20 minutes we were back on the ground.

Plan C: We will sit at the nice glass table, Renato the interpreter at our side, and run through a short lesson plan along with the most possible common errors. Then we'll jump in the plane for a quick 20-minute lesson focused on that one thing. For the most part, this worked. Bunches of short flights and then back on the ground to critique with the interpreter. Villela is actually an accomplished acro pilot with a few years of inactivity, so we got a long ways in a short time this way. The last step in this progression was me staying on the ground with Renato by my side and critiquing from there through Renato. This was just what Villela needed and what made the whole project a success.

True to every trip I have made south of our border, I've found some great new friends. Every evening was a social event with cooking out on the porch, enjoying good wine, good food, and good company. Villela's crop dusting company employs family and those he calls family, and they're automatically invited every evening. Babies, wives, grandmothers, friends; all gathered around the table for hours while food drifted off the grill and wine poured. Grandmama tried to feed me to death, and Villela tried to drink me under the table! Lots of laughter and good times. It was no surprise when they decided to start each new day around 9:30 a.m. We needed the recovery!

Communication, simply put, is the essence of instructing. If you can't make the point, all you have is an airplane ride. I have found almost everywhere I travel the local pilots are required by ICAO rules to speak English. This makes my job much easier. But a local airline pilot in Brazil told me that Brazil doesn't particularly follow ICAO rules. Even their airline pilots don't always have English skills, making a pilot who does a great candidate for advancement to international flights. In Portugal I had a close call with a student who misunderstood my directions and pulled out the mixture control on takeoff. It was also there where I learned the English word PULL and the Portuguese word PUSH sound just alike (contemplate the possibilities there!). Villela was a very experienced pilot, so this was not a worry. But be careful; your mission, should you decide to accept it, could lead down any number of risky experiences. Be a smart instructor. IAC

TECH TIPS

Reprinted from the International Aerobatics Club
Tech Tips Manual, volume IV

POTENTIAL CONTROL STICK BLOCKAGE

Control stick blockage is a very serious problem and over the years many different blockage problems have been reported. We have had bolts and screws jam controls. We have had mike buttons, seatbacks and loose stick grips give problems. The following report from an IAC member illustrates one more potential control stick blockage problem.

"I have the longer extended aerobatic control sticks in my Citabria and there is very, very little clearance between the end of the stick grip and the bottom of the instrument panel. Because of past safety articles in SPORT AEROBATICS, I am aware of the possibility of the control stick grip working loose, sliding up the stick, and jamming under the instrument panel. Therefore, I keep a close check on stick grip security.

"However, on a recent annual I found a potential problem of the instrument panel coming down to jam the control stick—well, not exactly the whole instrument panel coming down, but part of it, the primer. The jam nut on the back of the primer was slightly loose — with a little force the primer could be rotated so that part of the behind-the-panel portion of the primer would drop below the lower edge of the panel and contact the control stick.

"I really believe that even if the jam nut were completely loose, the lines extending out of the primer would probably prevent the primer body from rotating, but strange things happen and would not want to trust in having the primer lines save my . . ."

Whenever you think that all possible situations have been encountered, at least one more will pop up. With the above report in mind, all of us should make a quick check of anything attached to the instrument panel which could drop down or rotate down and cause control stick blockage. An IAC thanks goes to the member making the above report. Remember, everyone's input to the IAC Tech Safety program is needed.

TAILWHEEL ALIGNMENT & OTHER TIPS

IACers are continually fighting the battle of the tailwheel. There have been numerous reports in SPORT AEROBATICS related to tailwheel problems. An IAC member recently sent in the following report outlining how he checked tailwheel alignment and made adjustments on a Haigh tailwheel on his Pitts. At the end of his report he also makes several suggestions to ensure good ground handling.

"I just put a Haigh tailwheel on my Pitts, and this information might save time for another person doing that.

"Of all the Pitts and other aerobatic airplanes I photographed at Sebring last year, there were two-thirds with Haigh tailwheels and one-third, steerable. I do not say which is best as I don't know at this writing.

"The instructions tell you to take the airplane out on the runway after the tailwheel is installed temporarily, and determine if it runs straight when locked in . . . So it doesn't; what to do about it?

"Well, the airplane is something like four yards from the tailwheel to the wheels. Measure off 40 or 400 yards; just pace it off on the taxiway and taxi the airplane along it with the tailwheel in the locked position. It is nice to have a centerline but you can line up with whatever is handy.

"In my case the airplane veered eight degrees off in 200 feet which is 66.6 yards. So you would divide eight (degrees) by 66.6 (yards) and multiply by four (yards, the length of the airplane) to find the number of degrees you must change the tailwheel. This equals 0.48 degrees that the tailwheel must be set over from where it is.

"You will have to somehow shim the tail rod over at the rear bent bracket supplied with the tailwheel to change it

that much. To do this I made two square aluminum blocks 1/4-inch thick cut from a piece of 1/4-inch angle. The quarter inch hole in the center of each block was set off enough to give the change needed, more on one block, less on the other, of course, determined by the AN 4 bolts that hold the bracket. The blocks, of course, push against the tailwheel rod to locate them when the bolts are tightened. The distance from the big bolt to the bent bracket is one quarter the length of the tailwheel rod.

"So to find the amount to set the bent bracket off, you determine by laying the degrees out on a board or piece of paper for 22 inches (the length of the rod) and find how far the tailwheel is set off. To find out how much to shim at the bent bracket (this is easy) just change the number of 16ths at the tailwheel to the same number of 64ths at the bent bracket.

"File the holes oval in the bracket (and may I suggest you purchase a chainsaw sharpening file one quarter of an inch in diameter, exactly, to file the holes — a couple of bucks well spent), and make the aluminum square blocks just the size to hold the bracket over the right amount related to the bolts. Then go out and try it as it may not be quite right.

"There is something about the main wheels, say toe-in or toe-out or a combination of the two, that make the airplane run skewed a little, and this changes some when you taxi a few feet, different than it may be on the hangar floor where you may have backed the airplane in. This is why you have to actually go out and try it on the taxiway. The important thing is that by measuring it rather than guessing at it you can hit it right the first time, which beats trial-and-error and oh-shit-try-again.

"While I am at it, save yourself a lot of trouble with a newly acquired Pitts of some previous date construction. First, check the brakes. The pedals should be HARD, no sponginess. Bleed them if they are spongy at all and if that doesn't help do what you need to do to make the brakes work right.

"The next thing is the tailwheel. By all means, you do not want the tailwheel springs to come off. Look at them—if the springs have openings at the end hook, DON'T fly it until you positively prevent the springs from slipping off or the chains from falling out of the openings. Wire on the springs, or get the kind that have 'W' shaped internal wires, making compression springs out of them so that there is no opening for them to fall off by, and check the little attachment rings for wear as well as the chain links.

"Experience has been said to be a teacher of fools. So take advice from one and don't let it happen to you like it did to me. A groundlooped Pitts will as often as not go over on its back and that can be expensive. Mine just went up on its nose which was also expensive."

A large IAC thanks to the member who made the above report. Remember, we are ALL soldiers in the battle against the tailwheel — and other service difficulties that relate to aero aircraft. By pooling our knowledge/experiences we can all benefit. *IAC*

Bailing out

We're well into a new year, but it's not too late to wish everyone a Happy New Year. Some of us are lucky enough to live in areas where flying is a year-round occurrence. The rest of you will be waxing your winter skis for a few more months or working on your aircraft.

I've had a busy year and just moved onto one of the neatest small airports in California. It's hard to work when I can see from my shop window the aircraft taking off (see photos). I'm now on the Columbia, California, Airport (O22) nestled in the foothills of the Sierras, where gold was first discovered in 1848. Check it out online. Those of you who wish to fly in and visit are welcome to do so. It has a grass strip as well as a 4,600-foot paved strip, no tower, overnight camping sites, and a 10-minute walk puts you into the past. The town of Columbia is a state historical park and looks like something from the 1850s. No vehicles are allowed downtown, which consists of four or five blocks. You can walk, ride a horse, or ride the stagecoach. It's a great destination for you and your family. Now down to business.

Since I write a lot about bailing out, I thought I would discuss the meaning of those two words from a different perspective. Recently I read an article that talked a lot about bailing out. Yet this article was about making rational and timely decisions and had nothing to do with physically bailing out of an aircraft.

That got me thinking. Bailing out is something each of us does on a routine basis. We often bail out of bad business deals, bad relationships, bad investments, bad working conditions, and maybe bad ideas gone awry. Or, it could be as simple as bailing out your leaking boat. I'm sure you can think of many more to add to the list. Unfortunately, over the years I've seen the

Time continues to fly by and the seconds are ticking off. *What will you do?*

tragic results of a poor, an untimely, or no decision to bail out.

The key to your survival is you made the decision to bail out before you were harmed physically, emotionally, or maybe financially. The point is you survived to make other decisions and begin the process of bailing out all over again. We all do this. Life is exciting, but it's also interspersed with the occasional need to bail out. Hopefully you'll learn from these mistakes and are able to keep your feet firmly planted on the ground, or in your aircraft. A longtime and very successful friend of mine said he made many bad business decisions over the years and bailed out of many before disaster struck. He also said, "I seldom made the same mistake a second time."

Bailing out of your airplane is not unlike the aforementioned scenarios. It requires making a conscientious decision to do so, before time runs out. The big difference, when flying your aircraft, is that you are not afforded the luxury of discussing it with your family, friends, and peers or mulling over it for a day or two. Time continues to fly by and the seconds are ticking off. *What will you do?*

You need to make the correct decision and make it now. I've discussed this before in many of my articles and at my seminars. You must have a plan. Bailing out might mean turning around and heading back to the airport because the weather is deteriorating. Maybe getting to that destination is not that important after all. Flying to visit a friend for lunch or that long-awaited fishing trip can wait when the weather turns a little iffy. They'll understand. Remember, planes do have a reverse. It's called a 180-degree turn. Bailing out might mean that funny noise you hear as you're about to go over the mountains should be checked out before going any further. It could mean sitting on the ground when you're not feeling so hot. It might mean postponing your takeoff at an airport with a high density altitude. Maybe the snap roll on the 45 downline is something you might consider eliminating from your routine.

The sad thing is we've all read articles where people should have bailed out earlier, but something clouded their decision-making and they didn't. As a DPRE (designated parachute rigger examiner) for the FAA, I occasionally do accident investigations and have seen the results of people who should have bailed out earlier, but for whatever reason didn't.

You don't physically have to jump from your aircraft to have a successful bailout. You just have to remember to take that first giant leap of faith and just say *no*! *I will not continue with what I'm doing or plan on doing.* This is especially true if it involves a passenger, who has put his or her trust and life in your hands. That aerobatic ride you promised him or her can wait another day. A rain check can always be cashed in later. A bad decision cannot always be cashed in. It may be crashed in instead. When the hair on the back of your neck starts to tingle and stand up, maybe you should consider bailing out.

Fly safely, fly often, and don't be afraid to bail out.

If flying in the area, drop in and say hello.

Keep the questions coming: *allen@silverparachutes.com*. IAC

CONTEST CALENDAR

Mark your calendars for these upcoming contests. For a complete list of contests and for the most up-to-date contest calendar, visit **www.IAC.org**. *If your chapter is hosting a contest, be sure to let the world know by posting your event on the IAC website.*

Ben Lowell Competition (Mid-America)
Friday, April 19 - Sunday, April 21, 2013
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: USAF Academy Airfield (KAFF), USAF Academy, CO
Region: Mid-America
Contest Director: Jeffery W Riddlebarger
Contact Information Primary Phone: 719-499-4501, Alternate Phone 719-282-9550
E-Mail: *F15Cheese@gmail.com or jeffery.riddlebarger@us.af.mil*

Sebring Aerobatic Championships (Southeast)
Thursday, May 2 - Saturday, May 4, 2013
Practice/Registration: Saturday, April 27 - Friday, May 3
Power: Primary through Unlimited
Location: Sebring (SEF), Sebring, FL
Region: Southeast
Contest Director: Mike Mays
Contact Information Primary Phone: 561-313-8503, Alternate Phone 561-734-1955
E-Mail: *soaerobatics@aol.com*
Website: *www.iac23.com*

Los Angeles Gold Cup - Duel in the Desert (Southwest)
Friday, May 3 - Saturday, May 4, 2013
Practice/Registration: Thursday, May 2
Rain/Weather: Sunday, May 5
Power: Primary through Unlimited
Location: Apple Valley (APV), Apple Valley, CA
Region: Southwest
Contest Director: Chris Olmsted
Contact Information Primary Phone: 831-334-7232
E-Mail: *chris@olmstedaviation.com*

Wildwoods AcroBlast (Northeast)
Thursday, June 13 - Sunday, June 16, 2013
Practice/Registration: Thursday, June 13 - Friday, June 14
Power: Primary through Unlimited
Location: Cape May County Airport (WWD), Cape May, NJ
Region: Northeast
Contest Director: Craig B. Wisman
Contact Information Primary Phone: 717-756-6781
E-Mail: *cwisman@comcast.net*
Website: *www.iac58.org*

Ohio Open (Mid-America)
Friday, June 14 - Saturday, June 15, 2013
Practice/Registration: Thursday, June 13
Rain/Weather: Sunday, June 16
Power: Primary through Unlimited
Location: Union County Airport, Marysville Ohio (KMRT), Marysville, Ohio
Region: Mid-America
Contest Director: Sheri Davis
Contact Information Primary Phone: 614-448-7392, Alternate Phone 614-890-9711
E-Mail: *sdavis_1985@yahoo.com*
Website: *iac34.com*

U.S./Canada Aerobatic Challenge (Northeast)
Saturday, June 22 - Sunday, June 23, 2013
Practice/Registration: Thursday, June 20 - Friday, June 21
Power: Primary through Unlimited
Location: Olean Municipal Airport (KOLE), Olean, New York
Region: Northeast
Contest Director: Patrick Barrett
Contact Information Primary Phone: 716-361-7888, Alternate Phone 716-649-8486
E-Mail: *cbpbmb@aol.com*
Website: *IAC126.blogspot.com*
Comments: Olean Municipal Airport (KOLE) Located in south western New York State-Detroit Sectional June 20-21 2013 Practice and Registration June 22-23 2013 Contest dates Hotel-Microtel in Olean,NY #716-373-5333 Ask for the IAC 126 rate for a great discount!

Midwest Aerobatic Championship (Mid-America)
Friday, June 28 - Sunday, June 30, 2013
Practice/Registration: Friday, June 28
Power: Primary through Unlimited
Location: Seward (SWT): Seward, Nebraska
Region: Mid-America
Contest Director: David Moll
Contact Information Primary Phone: 402-613-5422
E-Mail: *davidmoll66@gmail.com*
Website: *IAC80.org*

Green Mountain Aerobatic Contest (Northeast)
Friday, July 12 - Sunday, July 14, 2013
Practice/Registration: Thursday, July 11 - Friday, July 12
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Hartness State Airport (VSF), Springfield, VT
Region: Northeast
Contest Director: Bill Gordon
Contact Information Primary Phone: 803 585 0366
E-Mail: *wsgordon@earthlink.net*
Website: *http://iac35.aerobaticsweb.org*

2013 Upper Canada Open (Mid-America)
Saturday, August 24 - Sunday, August 25, 2013
Practice/Registration: Friday, August 23
Power: Primary through Unlimited
Location: Chatham Kent Municipal Airport (CNZ3), Chatham ON, Canada
Region: Mid-America
Website: *http://aerobaticscanadachapter3.blogspot.com*

East Coast Aerobatic Contest (Northeast)
Saturday, September 7 - Sunday, September 8, 2013
Practice/Registration: Friday, September 6
Power: Primary through Unlimited
Location: Warrenton-Fauquier Airport (HWY), Midland, VA
Region: Northeast
Contest Director: Scott Francis
Contact Information Primary Phone: 703-618-4132, Alternate Phone 703-327-3135
E-Mail: *s.francis@ieee.org*

Sebring Aerobatic Championships (Southeast)
Friday, November 1 - Saturday, November 2, 2013
Practice/Registration: Saturday, October 26 - Thursday, October 31
Power: Primary through Unlimited
Location: Sebring regional (SEF), Sebring,FL.
Region: Southeast
Contest Director: Mike Mays
Contact Information: Primary Phone: 561-313-8503, Alternate Phone 561-734-1955
E-Mail: *soaerobatics@aol.com*
Website: *www.iac23.com*

Tequila Cup (Southwest)
Friday, November 8 - Saturday, November 9, 2013
Practice/Registration: Thursday, November 7
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Marana Northwest Regional Airport (AVQ), Marana, AZ
Region: Southwest
Contest Director: Jim Ward
Contact Information Primary Phone: 603-860-4456
E-Mail: *cd@tequilacup.org*
Website: *www.tequilacup.org*

Sun N Fun Aerobatic Speakers Schedule

April 10–13


Greg Koontz


Patty Wagstaff


Jim Alsip


Johnny White


Allen Silver

Wednesday, April 10	Time	Title of Presentation	Speaker
	11am	Rolls–if you have a good roll you have aerobatics figured out	Greg Koontz
	12pm	Aerobatics – Why get into competition?	Patty Wagstaff
Thursday, April 11	11am	"Oh Shucks!" Moments: Stall, Upset and Spin Recoveries	Jim Alsip
	12pm	How to Teach a Basic Aerobatic Course	Greg Koontz
Friday, April 12	11am	The Tail Wheel	Johnny White
	12pm	"Emergency Bailout Procedures for Pilots"	Allen SIlver

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ADVERTISING INDEX

BY GARY DEBAUN, IAC #4145

Grant Nielsen

GD: Grant, let's start with the standard first question: How did you become involved in aviation/aerobatics?

GN: My father was a pilot, and my brother was always interested in planes. I thought they were cool but unattainable. In the summer of 1994 I went to an air show in Mankato, Minnesota. I vividly remember seeing the MiGs flying the cobra maneuver and the Eagles team. It was the coolest thing I had ever seen.

GD: Tell us about your first contest.

GN: A couple of months after that air show I went to an IAC competition at my local airport. I got a ride in a Great Lakes and was hooked. A month later I was taking flying lessons. As soon as I got my private I bought a share in a Decathlon.

GD: Do you volunteer at any of the contests? If so, what job do you like the best and why?

GN: I love the judges' line. You learn so much; recording lets you see the figures and learn what the judges are looking for. Assisting teaches you to read Aresti figures quickly and accurately. Of course a VC or starter job will let you meet everyone. The corner judge position might be the only time all weekend you get some time to yourself.

GD: What airplane are you currently flying and in what category? Any plans on moving up?

GN: I have a great S-1 Pitts. I haven't flown a contest in a long time so I'm thinking Sportsman to warm up, but I'm looking hard at the higher categories.

GD: Who, if anybody in the IAC, has been a mentor to you, someone you looked to for advice when you first got started?

GN: Well, this list is long. I know I'll forget several important folks. The last few years would not have happened without Pete Tallarita mentoring me. Pete gave me my Pitt's insurance checkout. We did a great spin refresher. As an IA in the hangar next to me he has been invaluable keeping my plane safe, and as a coach he has been invaluable keeping me safe. Darrel Massman has always been encouraging and motivating. His confidence keeps me going when mine is low. Jim Taylor and Rich Stowell were super helpful when I was getting started. Loren Smith, Mike Niccum, and Dick Schultz were my original practice day training partners, and they taught me a lot. Guenther's Exploder and the people on it are a great resource also. Gene Soucy and John Mohr both showed me that you can be an aerobatic superstar and a great guy at the same time.

GD: If you could change anything in the IAC, what would it be and why?

GN: The website. It's terrible, hard to navigate, and confusing. Not worth the effort of logging in unless you need something specific. Steve Johnson's improvements and the added safety info are good. I think it's the confines of the EAA 360 architecture that holds it back.

GD: What/where is your favorite contest?

GN: The Doug Yost Challenge is great. I got my first win at the Henry Haigh contest in Jackson, so that was fun. The Chicago guys are always a blast. I really want to get to some in Dallas because they seem like a great group.

GD: What is your opinion of contest banquets?

GN: Exhausting and distracting, but they are so much fun I'll never miss one!

GD: If you had unlimited funds, what airplane would you be flying?

GN: I would have to try them all. I love the MX, and the fact it's made in the U.S. is icing on the cake. The Extreme Air offerings will become major players very soon. I'm not sure there is anything out there that will outperform a well-flown Sukhoi. If the funds were truly unlimited, there is a civilian Harrier out there, and I've heard rumors of a civilian F-18 being rebuilt.

GD: Are you coming to the Nationals this year?

GN: I'm not sure what I'm doing next week! We'll need to see what the summer brings. *IAC*

IAC 23156
Occupation: Pilot (I thought I was signing up for pirate school, but my dyslexia tricked me.)
Chapter Affiliation: 78, The Minnesota Cloud Dancers
***Age: I'm old, but my immaturity makes up for it.**


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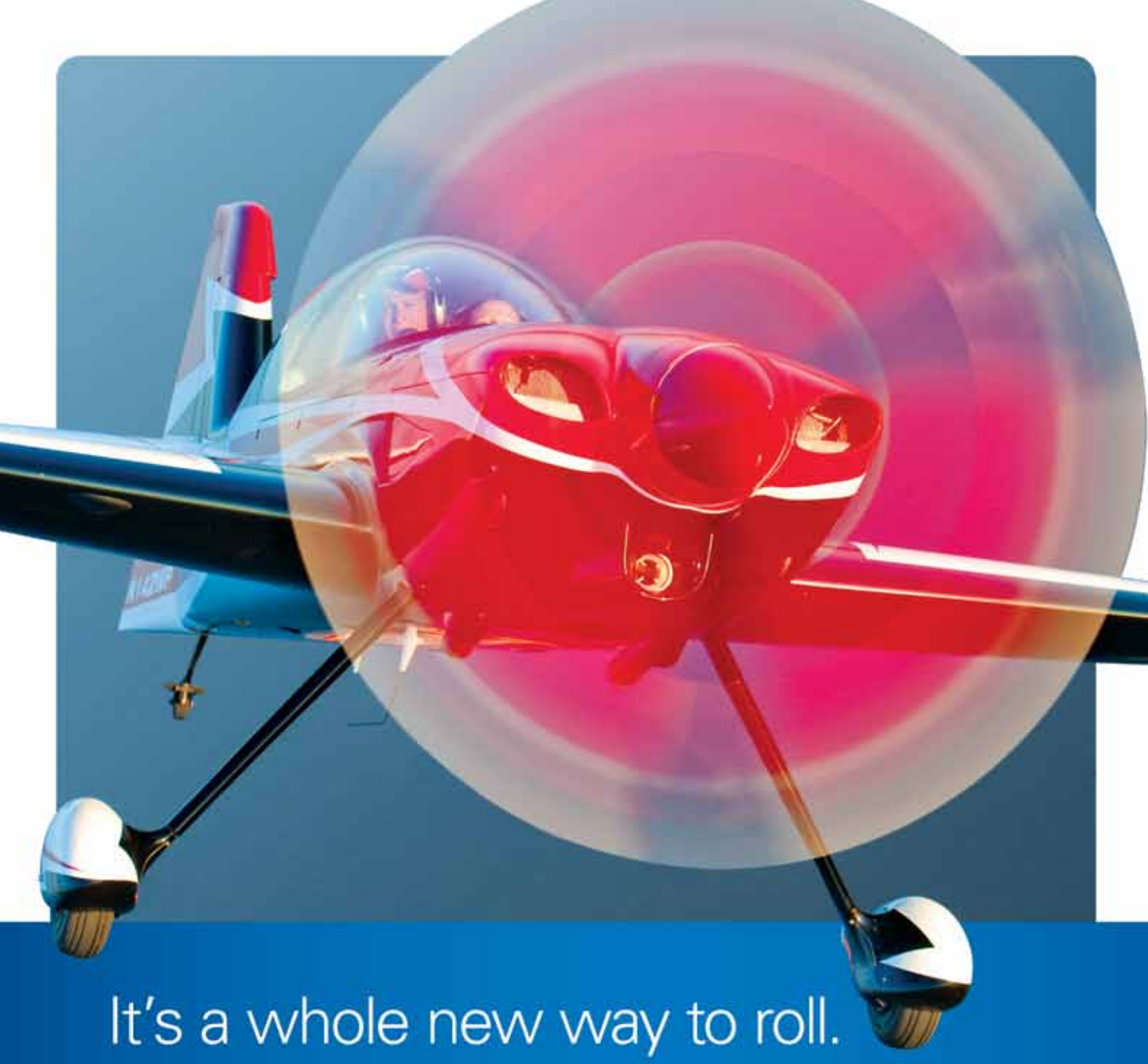

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