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Sport Aerobatics

INTERNATIONAL
AEROBATIC CLUB'S

JANUARY 2007



Not Fragile:
Broken Is Not an Option!

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to the members
of the 2007
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Back row from the left: Dan Clark, David Martin, Goody Thomas, Robert Armstrong, Zach Hefley, Michael Racy
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Thomas Shpakow pilots his resurrected Acroduster 2 over Oshkosh, Wisconsin.

Photo by EAA photographer Bonnie Kratz.





Judson Bartlett

Letter from the Editor

By Scott Westover

This year is going to be high-g!

It seems like every year January puts a shine on our optimism. The opportunity to make the most out of "new" times is intoxicating. Of course, the challenge is to manage our collective energy so we don't burn out and turn negative by Valentine's Day. I believe I have found a tool that can help. It's called a calendar.

For the last several weeks I have been thinking about the 2007 calendar for *Sport Aerobatics*. I have been reviewing e-mail and letters, and I took a long fresh look at the member survey conducted last spring. I also pulled out my notes from Oshkosh and the U.S. Nationals, where I had a chance to meet some truly remarkable people who were generous with their ideas and opinions. There is a ton of great insight and advice to consider, and a limited number of pages in which to do the considering. I found myself with a pencil in my hand (yes, a pencil...I am currently building a horse barn, and I usually have a flat carpenter's pencil behind an ear or in a back pocket waiting to ruin the furniture) organizing my thoughts about articles for the coming year.

As I review the calendar I am excited about the pieces to be written by our members. Some of our 2007 authors are competitors or performers and will share the experience of flying some of the highest-performing aircraft ever built. Other writers are aerobatic flight instructors, and they will share their secrets so that all of us can improve our flying skills and confidence.

The group of contributors that provides *Sport Aerobatics* with the most lift as I look at the coming year is our grassroots membership. People like Evan Suits from Massachusetts. This month, Evan shares the experience of flying in his first aerobatic contest, including the logistical challenges of finding an airplane in which to compete and the humbling effect a "zero" can have on your acro self image. When our members share their stories the magazine comes alive.

Looking to the months ahead, I am eager to read the other stories to be written by our members. Topics including noise, airspace, the finer points of flying the 2007 sequences, aircraft reviews, and first-hand member experiences will fill these pages over the next year. There's always room for more, and if you have ever considered writing about one of your adventures, please let me know. I enjoy working with the aerobatic community to tell the stories that should be told...and I am sure you have one or two recorded in your logbook, even if the record is in code to protect the guilty!

I like to think of this magazine as one of those things that keeps January enthusiasm working for you throughout the year. As the pages of the calendar flip, please take a moment to let us know how *Sport Aerobatics* is doing and how we can improve.

Contact Scott Westover with your articles, comments, and suggestions at Tookyflyer@tds.net.

Sport Aerobatics is YOUR magazine. To submit news, comments, articles, or article ideas, please send them to: IAC, P.O. Box 3086, Oshkosh, WI 54903-3086; or email them to Tookyflyer@tds.net.

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President's Page

by Alan C. Cassidy,
Chairman, British Aerobatic Association

Aerobatics in the United Kingdom

Although I have been an IAC member for many years, my association with the club has always been rather ephemeral. So when asked by Vicki Cruse to write a short editorial for *Sport Aerobatics*, I was both flattered and flummoxed. What should I write about the U.K. scene that would be of interest to IAC as a whole?

I competed in some contests in Florida back into the mid '90s. And I visited occasionally in the winter to hold training camps when I was grounded here by England's notorious winter wetness. I flew in both the World Aerobatic Championships (twice) and the Advanced World Aerobic Championship in the United States—'96, '97, '03—and have also had the chance to make friends with many U.S. pilots at international contests in Europe. Now that I am chairman of our British Aerobatic Association (BAeA), I take pleasure in stretching out a hand in friendship to the west side of the pond.

I thought it might be interesting to explain how we are trying to expand our sport over here, and I want to invite U.S. pilots to come to the United Kingdom next season to try their hands at flying our way, over countryside that can be guaranteed to be green. The BAeA has been in operation for 30 years or so and has the same functions as the IAC does for the United States (though we are strictly a U.K. organisation). We have five competition categories, as you do. We call Primary "Beginners" and Sportsman "Standard." We have something between 200 and 250 members, of whom perhaps 60 compete in any one season. We are probably similar to a large IAC chapter in numbers. However, we organised 14 events at 13 different venues in 2006, including three competitions exclusively for gliders.

Over the 20-odd years I have been active in the sport, there has been a noticeable increase in the availability of higher-performance aircraft, and we've adapted the contest repertoire a little to adapt to the big increases seen in the complexity of Unlimited flying. However, we've always kept our Standard-level contests pegged to

low-performance criteria.

Despite this, our Standard competitions have now come to be dominated by Pitts-type aircraft, albeit in the hands of relatively inexperienced pilots. These were Advanced and Unlimited machines in the '80s, and they do perhaps serve as a deterrent to entering the competition for those pilots who love their older, more sedate craft. So, in 2006 we introduced a new class of contest we called "Classic." We restricted entry to non-inverted aircraft or those built before the '60s. This was very successful in widening the net, and for 2007 we will have two such events.

The structure of the Classic sequence is all positive g-loading except for a level roll, and it's a bit shorter than Sportsman. We use the regular Aresti figures that suit but also make use of the lazy-eight and quarter-clover figures that are a strong feature of glider aerobatic flights in their lower-level contests. I guess, eventually, we will probably bring back the barrel roll, too.

At Classic events, the plan is to fly once in the morning and again in the afternoon, with debriefing over lunch. There is talk of a prize for the best "improver" over the two flights on the day, as well as for an overall winner.

This format is also used increasingly at events aimed specifically at Beginners and has proven very popular. In 2007, for the first time, we are even holding a Beginners event especially for aerobatic instructors, so that we might get our hooks into those in this group who are not conversant with what we do for fun. We hope

they, in turn, will stimulate more interest in their students.

As at all of our events, the atmosphere is both friendly and, for some, competitive. We would love to welcome trans-Atlantic cousins to our events, so please feel free to peruse our website, www.Aerobatics.org.uk. Anyone with an FAA airman's certificate can fly a U.K. aircraft day/visual flight rules with no further security qualification, so I hope to see you soon!



Special guest contributor Alan C. Cassidy, Chairman of the British Aerobatic Association. Photo provided by Alan C. Cassidy.

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Photo courtesy of Red Bull Air Race

More than 300,000 fans turned out to cheer horsepower and nerves of steel. The final race was held on November 19, 2006.

Besenyei Wins Perth, Chambliss Crowned Red Bull Air Race World Series Champ!

In the year's most dramatic result, American pilot Kirby Chambliss won the Red Bull Air Race World Series despite a third-place finish, while Hungarian pilot Peter Besenyei claimed victory in the final leg of the competition as 300,000 spectators looked on from the banks of Perth's Swan River in Australia.

With a total of 34 points in the run-up to today's race, Chambliss was the odds-on favorite and was well ahead of his rivals, winning by 38 points overall. With a Series win all but guaranteed, Chambliss played it safe and flew into easy victory behind Besenyei and Britain's Paul Bonhomme, who fulfilled his ambitious goal of a podium finish.

"The chance for the title was very slim, and that's why I didn't think about it," said Besenyei. "Victory in the season finale means a great deal to me. Seeing the hundreds of thousands of fans along the Swan River was an incredible experience, especially from the sky."

"Winning the Red Bull Air Race World Series has become my crowning achievement," said Chambliss.

"There's just no other series like it in aviation sport."

Besenyei finished in 02:39.78, followed by Bonhomme (02:40.37) and Chambliss (02:42.24). It was Besenyei's second win of the season, after his first-place finish in Barcelona in May.

Flying just meters above the water and under a clear blue sky, the pilots flew at speeds of more than 400 kph while negotiating a series of inflatable "air gates" in front of the cheering crowds. It was an outstanding end to an exciting season that has attracted and thrilled more than 6 million spectators worldwide to watch 11 of the world's best race pilots compete in challenging, high-speed, one-of-a-kind courses.

Mark Your Calendar! 2007 Sun 'n Fun Fly-In Set for April 17-23

The 33rd annual Sun 'n Fun Fly-In at Lakeland, Florida, will be held April 17-23, 2007, at Lakeland Linder Regional Airport. This year's fly-in theme is *Living the Dream!* Since 1975, Sun 'n Fun has brought together people who enjoy the event's unique southern hospitality as they participate in an enthusiastic exchange of information on virtually every aspect of aircraft design, construction, restoration, and

maintenance. They also experience an invigorating camaraderie that flourishes whenever airplanes, their pilots, and friends reunite in Lakeland each spring.

John Burton, Sun 'n Fun's president, emphasized the commitment and involvement of Sun 'n Fun's volunteers. "None of this would be possible without our dedicated volunteers," he said. "There is no way we could put on an event the size and scope of Sun 'n Fun without their time, talent, and enthusiasm. We appreciate all of their efforts, which contribute tremendously to Sun 'n Fun's ongoing success."

Activities during the weeklong event center around an expanding schedule of more than 400 educational forums and hands-on workshops plus additional topics offered through the Federal Aviation Administration (FAA) Aviation Safety Center that operates year-round on the Sun 'n Fun campus.

More than 500 commercial exhibitors begin their aviation year at Sun 'n Fun by showcasing the latest and greatest in aviation-related products and services throughout the week of the fly-in.

Sun 'n Fun's air show, which begins at 2 p.m. each day, features many of the world's top aerobatic performers and will also feature a spectacular night air show on Friday, April 20.

The event has an economic impact estimated by a recent University of

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South Florida survey of more than \$27 million annually. Last year, more than 150,000 people from each of the 50 United States and 60-plus countries participated in Sun 'n Fun's seven-day fly-in.

For more information, access Sun 'n Fun's website: www.Sun-n-Fun.org.



Interavia E-3 aircraft N4426X. Photo by Jorge A. Dietsch.

Prius Engineer David Hermance Dies in Plane Crash

The Associated Press reported that the Toyota Motor Corporation executive engineer described as the "American father of the Prius" and who was among the country's top experts on gas-electric hybrid vehicles died in a plane crash. David Hermance, 59, was piloting an experimental plane when it went down on Saturday, November 25,

about 50 yards off Los Angeles' San Pedro area. A search team found the wreckage of the two-passenger Interavia E-3 aircraft submerged in 60 feet of water the next morning, according to county Fire Captain Mark Savage.

CBS News added that authorities believe he was the only person aboard the airplane. Witnesses said they saw the plane "performing loops and dives before it plunged straight down."

Hermance was an executive engineer for Advanced Technology Vehicles at Toyota's technical center in Gardena, California, company spokesman Mike Michels said. He joined Toyota in 1991 as a senior manager, then became a general manager in the company's powertrain department. Before that, he was with General Motors for a quarter-century, working on vehicle emissions and durability test development.

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recreational aerobatics: Uncoordinated Flight

By Rich Stowell, MCFI-A

"You know the nearer your destination, the more you're slip slidin' away!"

—Paul Simon



In the December 2006 issue of Sport Aerobatics, Rich Stowell provided an excellent article titled **Putting It Together**. That article reminded us that, as certificated pilots, we are already flying sequences. He wrote, "The ability to string together a series of individual maneuvers into a well-executed sequence surely represents one of the ultimate expressions of piloting skill. Of course, "flying sequences" is a familiar concept to air show and competition pilots. But all pilots—aerobic or not—are taught a number of useful sequences during flight training. For example, not only is the traffic pattern among the earliest sequences pilots learn, it is also the most common sequence we fly."

This month, Rich helps us understand that controlled uncoordinated flight requires the same skill and finesse as coordinated flight. Once again, we'll learn that taking the skills we already have and applying them in new ways makes us become better and safer pilots.

What better way to ring in the new year than by practicing some intentional uncoordinated flight? Let's take a moment to distinguish between coordinated flight and coordinated inputs first. Coordinated *flight* occurs whenever we proactively cancel the adverse yaw effects associated with power (engine/propeller effects), aileron inputs, and airplane rigging. Otherwise, we would experience uncoordinated flight, which is what we'll explore in this article. Note that this is different from coordinated *inputs*, which simply means that our control movements are applied in concert. For instance, we coordinate aileron and rudder inputs when rolling into a coordinated turn. We should likewise coordinate aileron and rudder inputs when establishing a slip. In the former case, we remain in coordinated flight throughout; in the latter case, we intentionally cross-control our inputs for uncoordinated flight.

Uncoordinated flight comes in two basic flavors: skid and slip. For our purposes, skidding occurs when the deflected rudder points earthward. Slipping occurs when the airplane is stabilized in cross-controlled flight with the deflected rudder pointing skyward.

Skidding, as loosely defined above, has very limited utility. We normally avoid skidding at all costs, especially when in the traffic pattern. However, we can use an intentional skid to accomplish two specific maneuvers: an aggravated stall/spin entry from turning flight, and the pivot at the top of a hammerhead. Intentional spins will be discussed in the next installment of "Recreational Aerobatics." Suffice it to say that, unless you intend either to spin or to hammerhead, don't ever point the rudder toward the ground in uncoordinated flight!

Compared to skidding, slipping offers a variety of practical and beneficial uses. For example, we can slip to:

- Lose excess altitude on final approach
- Improve forward visibility in blind airplanes, such as the Pitts, Great Lakes, and Stearman
- Cancel crosswind effects during landing

- Regain command of the airplane should we encounter a jammed aileron or rudder control
- Counteract a split flap or an asymmetric thrust scenario in a twin-engine airplane

We'll focus on slipping in the rest of this article. However, a few words of caution before we go any further: *The layout of fuel systems in some airplanes can result in fuel starvation during prolonged slips, especially in low-wing aircraft feeding from wing tanks.* The A36 Bonanza, for example, places a 20- to 30-second time limit on continuous slipping; in some instances, slips in the RV series can fuel-starve the engine in a matter of just a few seconds. Please consult cockpit placards and your airplane flight manual for warnings about slips before attempting the exercises described below.

Stalls During Slips

How an airplane behaves in a slipping stall depends on several factors. For the power-off, no-flaps slip configuration, three reactions are possible. First, a Decathlon will retain its rudder and aileron authority during the slipping stall. Thus, it's possible to remain on your track in the slip as the Decathlon gently bobs into and out of stall buffet, albeit descending rapidly.

The Cessna 150, on the other hand, loses its rudder authority; consequently, the 150 begins a slipping spiral toward the low wing, bobbing in and out of stall buffet along the way. Even though you cannot keep the Cessna 150 on its original track, the opposite rudder remains suf-

ficiently effective to prevent spin entry. In fact, you can perform a 360-degree stalled slipping spiral if you're so inclined. Airspeed will remain low and constant throughout the high-drag turning descent.

Potentially the most dangerous stall behavior in a slip typically occurs in low-wing airplanes (and some high-wing airplanes with rather poor roll authority, such as the J-3 Cub). The A36 Bonanza, for example, loses its aileron authority in a slipping stall. The Bonanza suddenly and automatically rolls toward wings-level flight, i.e., toward the deflected rudder. If allowed to proceed, the airplane will transition from a slip into a skid. All the ingredients necessary for an over-the-top spin entry are present if we don't respond appropriately: stalled flight plus yaw and roll coupling.

Yet regardless of the airplane or how it reacts to a slipping stall, we still need to deal with stalled flight in the usual manner: break the stall with forward elevator. Reattach the airflow first; then release the slip inputs.

Straight Slips

Let's practice slipping along a straight line. At altitude, configure the airplane as if you were on downwind for landing (no flaps). Take a moment to memorize your pitch attitude. Since the airspeed indicator is inaccurate in a slip, our objective will be to keep the pitch attitude constant as we move into and out of our slips. We'll also leave the throttle set as is. This way, we won't have to climb quite as often between slips. Select a nice section line to follow,

**Unless you intend either to spin
or to hammerhead, don't ever
point the rudder toward the
ground in uncoordinated flight!**

or a distant point over the nose as an outside visual reference.

Begin the slip by smoothly and slowly yawing the nose to the right of the reference line you want to track. Simultaneously apply sufficient left aileron to roll the left wing tip below the horizon. Establish a comfortable slip angle, and do whatever is needed with the elevator to hold a constant pitch attitude. The maximum amount of slip possible is usually determined by the amount of rudder available. A full-rudder slip in a typical nose-wheel Cessna, for example, results in a relatively small amount of slip compared to a full-rudder slip in a Citabria. Depending on the airplane, your "comfortable" slip could range from full rudder in the Cessna to only half of the rudder in the Citabria to perhaps only one-third or less of it in a high-performance aerobatic airplane.

When pilots enter slips, they often instinctively shift their bodies away from the bank angle in order to remain vertically upright to the horizon. This will throw you off of the roll-yaw-pitch axes of the airplane.

Furthermore, leaning away from the bank will effectively shorten your arm's throw, limiting the amount of aileron you can apply even though more aileron deflection may be available. Once you've set your slip, make sure your upper body is relaxed, with your head and spine aligned with the airplane, not the horizon. Here's a tip: If you release all tension from your upper body, gravity will pull you into the correct position.

Do you have good slip posture? Okay, now check your track: The line you're slipping along extends from your chest to a point on the horizon. The nose of the airplane should be to the right of that line; the left wingtip, down and to the left of the line. Feel free to vary your rudder pressure to see how the nose moves as a result of too much and too little rudder for the particular slip angle. Similarly alternate aileron pressure from too much to too little. Readjust your slip inputs to track the line once again.

Now sight down the left wing and notice that the left aileron is sticking up, yet the airplane is not rolling. Glance at the slip/skid ball. Listen

to the sound of the airflow in the slip. Return to coordinated flight by smoothly yawing the nose back to your reference line while simultaneously rolling the wings to level. The nose will usually want to drop as well, so take care to keep the pitch attitude constant as you remove the slip inputs.

Next, move into a slip with left rudder and right aileron, performing the same coordinated actions and paying attention to the same details as before. Check your posture and your track. Remove the slip. Alternate your slips in this fashion until you can move smoothly into and out of them while consistently tracking your reference line. Then try transitioning the slip from one side all the way across to the other side. Make smooth, slow, and controlled inputs at first. Stay on track, keep the pitch attitude constant, and make your body move with the airplane.

In all likelihood, you'll descend during these slips. Don't try to compensate for the altitude loss; focus instead on your inputs, your track, and your posture.



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Intentional and controlled uncoordinated flight requires coordinated control inputs and practice. Photo courtesy of Rich Stowell.

Slipping Turns

Not only can we track a straight line in a slip, but we can also perform slipping turns. Try the following at altitude: Configure the airplane for slow-cruise. Note the pitch attitude relative to the horizon, which should be lower than the slow-flight pitch attitude used during your straight slips. Keeping this new pitch attitude constant, smoothly transition into a straight slip using left aileron and right rudder.

Let's now keep the rudder position constant. We'll vary only aileron and elevator for a left slipping turn. Smoothly increase the bank angle another 10 degrees or so. Next, smoothly apply a small amount of aft elevator. Allow the airplane to turn, and don't change the rudder! The slipping turn rate will seem quite a bit slower than a comparable coordinated turn. Also notice that the nose of the airplane appears to be lagging – to be following you – in the turn; thus, you should be looking ahead of the nose in the direction you're turning. Acknowledge the heaviness

**When pilots enter slips,
they often instinctively shift
their bodies away from the
bank angle in order to remain
vertically upright to the horizon.**



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Mastering uncoordinated flight will improve forward visibility in blind airplanes such as the Pitts. Robert Bismuth.

you feel in the left side of your butt. Check your body posture. Lean into the turn, not away from it. Glance at the slip/skid ball which is resting left of center.

Let's now transition back to our straight slip by reversing the order of inputs applied to initiate the slipping turn. First, release the additional back elevator. Second, reduce the added bank angle. You should now be in a straight slip, tracking a straight line.

You'll find that the difference between the straight slip and the slipping turn is a subtle difference in aileron and elevator pressures. From that standpoint, think pressure changes rather than measurable movements of the controls. Also, make two separate inputs at the start and at the end of each slipping turn: aileron followed by elevator to start; elevator followed by aileron to stop.

Try a four-point, 360-degree slipping turn to the left, briefly transitioning to a straight slip every 90 degrees of heading change before resuming the slipping turn. Do the

same to the right as well. You can also experiment with holding the ailerons constant and modulating only rudder and elevator pressures. In this case, release a small amount of rudder pressure followed by a bit of aft elevator pressure to start the slipping turn. Release the aft elevator pressure and reapply rudder pressure to straighten the slip.

Controlled Yaw Exercises

Okay, we're ready to play around with moving the nose of our airplane to scribe various shapes in the sky. Let's create our shapes as follows: We'll draw horizontal and vertical lines only (for now), we'll keep the corners between horizontals and verticals square (no rounding off!), and we'll keep the wings perfectly level at all times.

Draw a box. Start in level, slow-cruise flight. From here on, leave the throttle alone. Pull the nose up along a straight line 15 to 20 degrees above the horizon. Pause there for a second. Now yaw the nose left, keeping the nose parallel to the horizon and

the wings level. Pause. Now push the nose down along a straight line 15 to 20 degrees below the horizon. Pause. Yaw the nose right, parallel to the horizon, wings-level, back over to the starting heading. Pause. Return to the slow-cruise flight attitude. Do the same thing to the right. Keeping the wings level and your lines perfectly horizontal and vertical will require continuous adjustments as speed, control authority, engine effects, and gyroscopic precession vary and interact.

Once you're comfortable with that, spell out "CATS" in big block letters. Then "DOGS." Etch the numbers zero through nine and the various letters of the alphabet. Spell out your name. When you're proficient with block figures, try scribing a few wings-level, 45-degree lines with the nose. And when you get really good, cursive skywriting awaits you!

Don't worry about holding a constant altitude during any of the slip exercises. Plan on starting high enough to compensate for the attendant altitude loss, and regain altitude

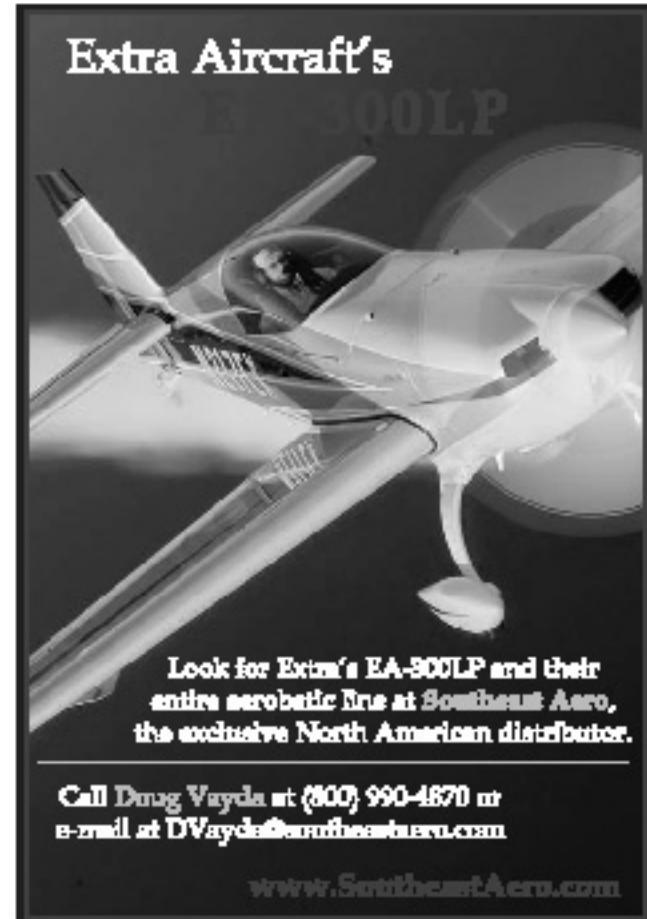


... you'll descend during these slips. Don't try to compensate for the altitude loss; focus instead on your inputs, your track, and your posture.

between maneuvers. Be vigilant for other traffic, too. And as mentioned in the previous installment on sequences, abort the exercises if either altitude or stalling becomes an issue. 

Rich Stowell is a NAFI Master Instructor-Aerobatics. His much-anticipated new book, The Light Airplane Pilot's Guide to Stall/Spin Awareness, hits bookshelves in February. For more information, visit www.RichStowell.com.

Editor's Note: In 2007, Sport Aerobatics will continue to provide how-to articles designed to increase the safety, skill, and knowledge of our recreational and competitive members. Please let me know what topics you would like to read about in upcoming issues. Do you have a maneuver that remains a mystery? What about emergency procedures? How are those "forward blind" landings working out? Please send your suggestions to me at tookyflyer@tds.net. This is an opportunity to fly with the very best aerobatic flight instructors without worrying about the price of avgas!



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NOT-FRAGILE ...Broken Is Not an Option

there's more to a goal than winning

by Thomas Shpakow

I moved to Colorado in 1979, and that's where I make my home today. My wife, Kathy, my son, Tom, and I enjoy all this beautiful state has to offer, including mountain climbing, snowshoeing, biking, motorcycling, and flying. The view from the air is hard to beat...especially when it's from an airplane that you brought back to life.



Bonnie Kratz

When I first mentioned that I planned to fly at the U.S. National Aerobatic Championships, a lot of people thought it would be quite a challenge. To me, the idea seemed logical. I was rebuilding an aerobatic airplane, a beefed-up Acro Duster 2, and my life has always involved horsepower. Today I am the owner and operator of Tom's Performance Repair, known as "T.P.R." to the people who call me their "car doctor." My business repairs everything from "A to Z," or at least through "V," as in Acura through Volvo. I consider myself lucky to make a living by solving mechanical problems and making machines perform at their peak. I poured a lifetime of experience tinkering with engines and competing in motor sports into making N28KT the best airplane I could.

A lot of the inspiration came from motorcycle drag racing. In the 1980s I raced drag bikes and developed quite a reputation for off-the-wall concepts that were designed to make more power. By the early 1990s, I was looking for the next level of engineering challenge, and I had always been fascinated by aviation. The answer was obvious, and I started to research airplane kits. Soon I had an RV-6 kit taking shape in my garage and was spending hours in my Cessna 172 to finish my private pilot certificate. Like most pilots, the lessons that resulted in earning my ticket were not my first attempt at becoming a pilot.

My first flight was a couple of decades earlier in 1973 at Bishop airport in Flint, Michigan. As a kid I dreamed of becoming a Top Gun fighter pilot (and that was long before Tom Cruise made it cool!). However, with one brother, two sisters, and parents living on teachers' salaries, money for flying lessons was not a part of the family curriculum. So, at the age of 12, I got a paper route. When I was 13 I paid for my first flight in a Cessna 150 Aerobat, and \$30 for an hour, including gas, seemed outrageous. I can still see my instructor's face when I spilled two five dollar bills, a handful of wrinkled singles, and a random collection of quarters, dimes, and nickels onto the counter. I asked to buy a logbook and an hour of his time.

Over the next eight hours I graduated to a Grumman Tiger, and I con-

tinued to take lessons that were too far apart to make fast progress, but as close together as my paper route income would allow. At 14 I took the written exam and scored only a 67 percent. My instructor took that opportunity to redirect my dreams. Reality began to settle in as he told me that I would be "lucky to fly bananas out of Brazil." He was right. My eyesight is terrible. I'm also colorblind and flat-footed. The Air Force was probably all set with airmen fitting that description. I took his advice and left the airport for the last time. By the time my bike was leaning against the house I was thinking about cars. I shut off the part of my heart that I had given to aviation and redirected that energy to engines and mechanical applications. As most of us "mature" pilots know, you can't turn off that addiction so easily. It will come back at some point when you least expect it. As I mentioned, my passion resurfaced when I ran out of track at the drag strip. I knew there was a better way to use a straight, paved mile.

Early in 1994, with the RV looking more and more like something that might fly and my pilot certificate finally in hand, I found myself strapping into a Citabria 7GCAB. A friend of mine had offered to take me for an "aerobatic ride," and I thought it would be a fun change of pace. We flew a roll, a Cuban-eight, and a loop. I liked those smooth aerobatics, and I became a student of basic maneuvers. I joined another flight school that had a Citabria 7KCAB for sale with a good rental history. I ended up purchasing the airplane, continued to build time in my own Citabria, and became more interested in aerobatics. In an effort to gain some more aggressive experience, I sought out an instructor who offered instruction in a Pitts.

I flew with John Blum at New Attitude Aerobatics in his S-2B. After spending some time orienting me to

the airplane, he showed me parts of the flight envelope that I had never experienced before. After the flight, he enlightened me that the RV-6 is really not a good hard-core aerobatic airplane. It was time to make a decision about my project plane and to get serious about my flying goals. What did I want to accomplish with aerobatics?

Some of my "helpful" friends who knew about my interest in aerobatics started to share different opportunities with me. For example, Chad Graves, who is now flying with Southwest Airlines, is a three-time U.S. Nationals competitor. He took me up in his souped-up Pitts and

showed me how precise and competitive aerobatics are flown. Flying inverted and then pushing outside into a hammerhead, 360-degree rollers, inverted flat spins...after that flight I was really hooked. Then my good friend Gary Eilers, who is my trusted airframe and powerplant mechanic, told me about an Acro Duster 2

that was "for sale cheap." I wasn't very interested, but the idea of an open-cockpit aerobatic biplane got me thinking. I decided to take a look, but the airplane was downright ratty. I got in, fired it up, and taxied a little. I shut it down without leaving the ground. I had a funny feeling about the airplane, which is hard to explain to non-fliers.

Soon after that visit the airplane was nearly destroyed in a ground loop. After hearing that the prop and engine were fine, I made an offer. The next thing I knew I was the owner of an Acro Duster 2. It sat in the hangar for a year and a half while I continued work on the RV-6. Just as I finished the wings I decided that the right thing to do was to sell the RV and start again with the Acro Duster 2. After more than 3,500 hours of building, I fly the airplane I really want—a two-winged, mechanical-supercharged hot rod that I call *Power Play*, and as a



At 13 years old, Thomas moved from models to the cockpit of an Aerobat.

Photo provided by Thomas Shpakow



Thomas created a logo to remind himself that both he and his airplane are "not fragile."

tribute to my gear-head past, I even put fireball flames on the cowling.

I have always been drawn to competition, and as the paint was drying I decided that was my goal. Aerobatic competition is the ultimate personal competition. Each pilot competes more with themselves and their airplane than the other pilots. The idea of being judged on how close to "perfect" you could fly a set of figures is appealing to me. You have the chance to set your own goals for each flight, and the sense of personal accomplishment is more important than the trophies.

When the airplane was ready for prime time, the contest season was well underway. I flew from Colorado to EAA AirVenture 2006 and connected with other IAC members on

the aerobatic flightline behind the IAC building at show center. As I talked with people, I started to get an idea that competing at the Nationals was an opportunity to learn. Where else can you fly "wing to wing" with, and get advice from, the best pilots in the country? The Nationals provides the opportunity to be completely immersed in aerobatics and to fly what you learn every day.

When I arrived, I found that aerobatic competitors and judges are much more helpful than their counterparts on the drag racing circuit. Pilots are eager to share their knowledge. As soon as the prop stops, it seems like someone is there to offer some helpful comments. Fellow pilots conspire to help each other place better and hide mistakes from the judges (lots of

luck with that!). Above all, everyone there was pulling for me to do well, and I am positive that every pilot felt that same support.

My goal heading into the competition was ambitious. I wanted to finish in the top 10. I ended up landing in the 19th spot, but by the end of the week my placement mattered little. Don't get me wrong, I am a competitive guy, and someday I'd like to win. I learned more that week than I thought possible, and I get to take that experience home and become a better and safer pilot. That experience is available to every IAC member who is interested in competition.

If you are thinking about making the trip to Texas in 2007, stop thinking and plan your vacation. Just commit to a category and learn to fly it well, and get ready to learn to fly it better with help from fellow competitors. You should also expect to learn more about yourself and your airplane in the process. By the way, I am still flat-footed and colorblind, but I am "Not Fragile...Broken Is Not an Option," as it says on my airplane. I think I'll e-mail my first instructor and ask how he's doing flying bananas out of Brazil. I'm perfectly happy flying inverted over Colorado. ✈



Bonnie Kratz



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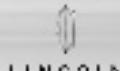
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Bring on the Newbies!

Everyone
starts out knowing
nothing.

Airplane photo by Robert Bismuth, photo illustration by Phil Norton

Are there rumblings of dissatisfaction out there in the hinterland? Are there signs of distress at the gates that indicate all is not avgas and roses in acroland? Of course there are. It's impossible to spend time with any aviation group and not hear negative comments about attitudes being ascribed to aerobatic pilots and, by association, to the IAC. We appear to have an image problem that is largely our own fault. Read on and let us know your thoughts and comments.—BD.

By Budd Davisson

Jt goes without saying that everyone starts somewhere. From Kirby Chambliss to Chuck Yeager, from Patty Wagstaff to Charles Lindbergh, there was a period of time in each of their lives where none of them could find their butts with both hands in a cockpit. Everyone starts out knowing nothing. The next time someone at the airport starts asking what to us are embarrassingly naive questions about airplanes and aerobatics, we need to remember that at one point that was us.

The reason we bring up this rather controversial subject is that too often we're hearing sentiments like the following, which, by the way, is an actual e-mail.

"I decided I wanted to get into aerobatics and maybe even compete, so I went to the contest at (name is withheld to avoid embarrassment), and I was totally turned off. Everyone treated me as if I was an idiot. I don't need that kind of [stuff]. So, I've gone another direction and bought a bush plane."

If this were an isolated incident, it could be written off as sour grapes, but it's not. What's more, we, the aerobatic community, are fully aware that this kind of thing is happening much more often than we wished it did. We know there are a small number of our friends in the sport who are guilty not so much of rudeness, but of a shortness of memory: they forget how they felt the first time they approached someone who is established in the sport and what kind of reception they were hoping to get.

Aerobatics is a tiny community. Think about it: Outside of your closest aviation friends, how many other pilots do you know who have even ridden through a roll, much less become adept at perverting gravity to do their will? Not many, right? In fact, IAC membership only accounts for about one out of 100 certificated pilots. Does that mean that only one out of 100 pilots wants to do aerobatics? Not if air show attendance is any way to measure interest. Of course, of the people who will pay to watch aerobatics, only a tiny fraction will take the first step toward actually getting involved. That tiny fraction, however, is critical to the survival of the sport. Each one represents a spark of interest that, if we fan it just right, will burst into flame and another acrobat is born. If, on the other hand, we inadvertently brush it aside and ignore it, the spark dies out and we miss the chance to broaden our sport.

We don't have droves of people wanting to jump into aerobatics. So, when someone does show an interest,

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Aviation writer and flight instructor Budd Davisson. Photo courtesy of Budd Davisson.

it benefits the entire community if we reach out and drag them in. But, what's the best way to do that?

First, we need to develop empathy for the newbie: picture ourselves as a raw beginner innocently stepping through the front door of the sport. It's the "do unto others" thing in action: Treat them as you'd like to be treated.

People usually come into aerobatics in one of two ways. Either they get a flight with a friend, or they pick an aerobatic school out of the yellow pages. In either case, that first flight is a make-it-or-break-it event. Depending on how that flight is conducted, the newbie can easily be converted into a raving "acrophobic" who can't get enough or a green-around-the-gills, never-do-it-again individual who we've lost forever. When we strap them in, the spark of interest is very much alive, and it's up to us to fan it into a roaring flame. Unfortunately, it's on the first flight that we often fall down as salespeople for our sport.

Instructor and enthusiast alike should try hard to remember their own first aerobatic ride. The concept of "upside down" is so foreign and mind-boggling to the average pilot that nothing more than seeing the horizon rotate in the windshield is enough to sell someone on the concept of aerobatics. Unfortunately, we often go a number of notches past that. In our zeal to show how much we know and what great

pilots we are, we toss our empathy overboard and go for the gusto. We're having a terrific time as we pull and push. The newbie isn't. Even if you're an experienced aerobatic pilot, you know that riding through anything more than just the basic maneuvers with someone else at the controls can be painful. For a newbie it is both terrifying and nauseating. The real irony is that while we are showing off our incredible skill, the newbie can't tell whether we are good or bad because he or she has nothing to judge us by. They're newbies, remember? A painless and pretty aileron roll and a loop is all that's necessary to cinch the sale. Do anything more demanding than that and you're showing off, not selling.

We've been talking about getting people into the sport, but what about the gulf within the sport between competition pilots and fun pilots?

It's truly sad and frustrating to hear the grouching in both the competition and the fly-for-fun camps about how the other side is wrong. Or at least overbearing. Here we have two groups of people who are wildly in love with the concept of true three-dimensional flight. Even though both sides know the outside world is threatening their existence, they are fighting with other factions within the sport with the goal of attaining their own selfish interests rather than forming a unified front. This doesn't seem like a healthy thing to be doing, does it?

Very few pilots want to compete. Most want to enjoy the flying and improve their skills, while many just want to share the camaraderie of those with like interests. They have no interest in even attending contests and prefer to go out on a Sunday afternoon and enjoy their sport. This doesn't make them bad people, and conversely being a competition pilot doesn't make that individual a better person. There's even some question as to whether competing makes a person a "better" pilot because "better" is open to definition. Does knowing how to do a vertical roll make a person a better pilot than one who can fly an uncoupled approach to minimums with one engine burning? Pilots become good at what they practice, and that is hardly a God-given skill. Burn a lot of gasoline in an intelligent manner and you're going to get better, that's just a fact of life. Still, there's a gulf between those who compete and those who don't that really shouldn't exist.

This gulf is irritating to some pilots and highly controversial with others. Everyone who likes aerobatics should be kindred souls. Plus, this is a sport, not brain surgery. We're not going to rewrite the history of the world, and our population is small enough that we should be banding together rather than standing around in cliques talking about one another. Sometimes this is easier said than done.

Pilots, as a breed, are a little more confident and more willing to take a risk than their ground-bound brethren. Those who move into aerobatics, at any level, generally (not always) raise those traits to an even higher level. Then, those who decide to compete ratchet things up even higher, because they've decided to step out into the street and put their skills on the line in a mano-a-mano shootout.

So, what do we have here? Among other things, within the aerobatic community we have a group of strong personalities with varying skill levels, all of whom possess a higher than normal level of both self-confidence and testosterone (you ladies, too). A subsegment of that group occasionally lets their confidence get the better of them in the way they interface with newbies.

We can give a thousand rides and put smiles on a thousand faces, but all we have to do is be rude or condescending to one individual, and in a matter of minutes it has made its way through the Internet to become a cyber-legend.

We're obviously trying to tread lightly because no one likes to think we do anything other than reach out and put a warm, welcoming arm around newbies and invite them in for a cup of hot cocoa. The vast majority of the time, that's exactly the way it is. We enthusiastically offer rides and advice to any and all who ask. Then why do we keep hearing that aerobatic pilots are cliquish or arrogant and prone to look down on mere mortals, e.g., those who don't compete or, God forbid, actually don't do aerobatics? We keep hearing

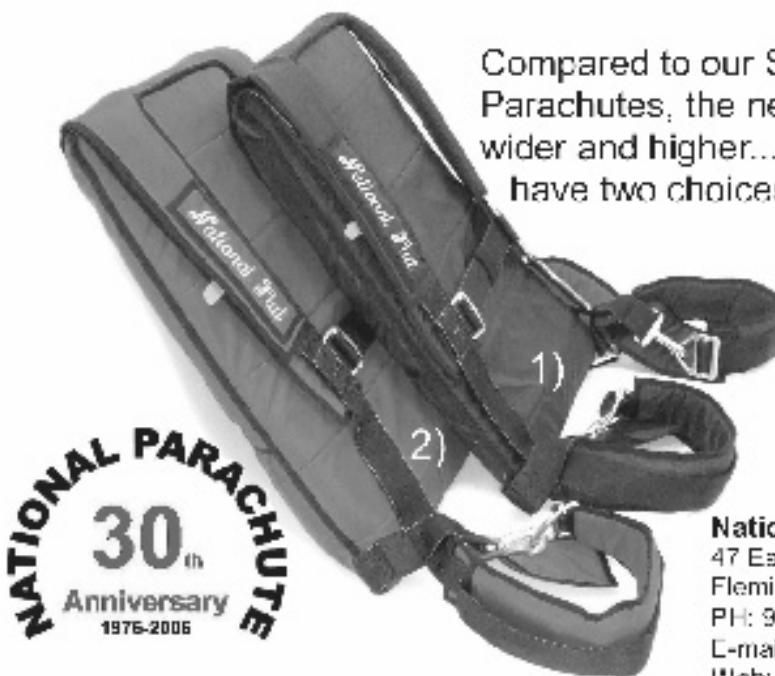
stories like that because it happens often enough that word of an incident spreads like a wind-borne wildfire, effectively coloring the public's image of aerobatics. We can give a thousand rides and put smiles on a thousand faces, but all we have to do is be rude or condescending to one individual, and in a matter of minutes it has made its way through the Internet to become a cyber-legend.

Regardless of where our head is at concerning competition versus non-competition and regardless of how god-like we may or may not regard ourselves, the simple fact is that for us to survive as a sport and as an organization, we need the newbies. We, the sport, need the Sunday afternoon, personal-amazement fliers. We need to spread the aerobatic gospel and convert as many people as possible into "acronauts," and we won't do that by exposing them to a caste system where some pilots are more exalted than others. We won't do that by convincing them that they aren't true pilots or worthy of our respect unless they push negative six on every flight. And we are definitely not going to instill warm fuzzy feelings toward the sport if we routinely send

them home after their first flight with their breakfast in a bag. The way we'll expand our sport is for us to be the "good guys," and the basic definition of "good guy" includes doing more than is necessary to reach out to the uninformed, the timid, and the curious. We'll expand our sport by opening our doors to the newbie.

Incidentally, to those few arrogant souls amongst us who think that being capable of doing more vertical rolls or tumbles than anyone else elevates them in the eyes of the world, think about this: In the big scheme of things, aerobatics serves no purpose. Not only are most of our airplanes so mission-specific that it's nearly impossible to consider them transportation, but also there is no way we can rationalize flopping around like sea otters as anything other than having a good time—basically, we're just showing off in a very high profile, vaguely artistic sort of way. So, next time one of us thinks about climbing up on a pedestal and talking down to someone, think again. We haven't done anything to deserve the shortest pedestal, and those we may be talking to are our future. ↗

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This is Why I Fly!

science

By Pete Muntean

Editor's Note: In the December 2006 issue of Sport Aerobatics, we offered an article about Nancy Lynn, a well-loved air show performer and instructor who died from injuries sustained when her plane crashed at an air show in Virginia on October 14, 2006. Before printing that article, I contacted her son, Peter. Peter was kind enough to share with our readers the following essay, which he originally wrote as a school assignment. When I read this piece I was touched by his ability to communicate the relationship with his mom and his respect for flight.

"Push the nose over to get some speed," says the voice in my headset. Her calm voice is almost completely silenced by the sound of the engine and the deafening whistle of wind noise. We're screaming at about 195 miles per hour now. "Okay, level off. Now tighten your stomach muscles, pull back on the stick, and add a little right rudder... GO." I'm flat on my back now, and the horizon runs perpendicular

to its normal position. I lean my head back, look at both wingtips to hold this line until airspeed comes to zero, stomp on the left rudder pedal, and hurl the stick to the right. The plane swings like a pendulum until my harnesses are pressing hard against my chest and farmland fills the windscreens. "Keep this heading, brace for the g's, and pull out parallel with the chicken coops."

It's the ultimate adrenaline rush. This is aerobatic flying, and what I do for fun. Welcome aboard.

"Okay, let's head back for home," says the voice from the back seat. She's Nancy Lynn, one of the world's best aerobatic flight instructors. She's also my mom. When she's not performing in air shows, or on the motivational speaking circuit, she is an aerobatic flight instructor who has flown with thousands of students from around the world.

"It's like a public service to the aviation community. I like to give back all the expertise I've gained over the years to the average pilot. It'll

make them safer," says Nancy. For a pilot who seems at the edge of her sanity when at the controls of one of these machines, it may be hard to justify what she does as "safety training," but she knows that any pilot who flies aerobatics with her will get the essential confidence he or she needs in order to trust his or her airplane.

And that's precisely why I'm here: to build confidence. I'm about halfway through the process of getting my private pilot certificate. After being her crew chief for her instruction flights on a Sunday afternoon, Nancy offers to take me up for a quick refresher.

I know the drill all too well. Empty your pockets (even the smallest coin could jam the control pushrods), swing the heavy parachute onto your back, open the canopy hatch on the plane, step onto the wing and down into the front seat, and strap into the spider-like harness system. The tighter they are, the better—you want to be part of the airplane. Some

and art, total control...

aerobatic pilots call it "strapping on the plane."

Today we'll fly two-point rolls, a maneuver where the plane pivots around its longitudinal axis 180 degrees, then pauses, then rolls around the next 180 degrees. It's a maneuver that builds discipline. Exacting points and precision recoveries are what judges look for in a competition sequence. "If I can't master these, I'll never be successful in aerobatic competition," I say to myself silently.

Nancy's voice snaps me out of my funk. "Do three of 'em, back to back," she says from the back seat. Left stick. Eyes outside the plane. STOP. Now we're upside down. Keep your eyes outside the cockpit. "Add in some forward stick to keep this altitude inverted; the wing doesn't like to fly as much upside down." I add in a little right rudder to fight the torque created by the propeller.

"GOOD!" Nancy says, realizing that I am finally correcting some of my rookie mistakes. "That's a bad

habit Cessna pilots get, *lazy rudder syndrome*. Keep it up." I keep going. Roll around the last half. I'm on my heading, but I drop the wing at the end. The next one is better. The third is right on, but they're never perfect. I'm my own toughest critic. My biggest rival. "It wouldn't be fun if they're always perfect, Pete."

We're low on fuel now, and it's time to head home.

It's sunset on the eastern shore. The sky is that beautiful orangish-pink that's native to the Chesapeake. I slice the stick left again and roll out crisply on my final approach. I key the mic. "Bay Bridge Traffic, Extra eight-echo-x-ray, shot final, runway two-niner." I ease back on the stick, pull back on the throttle with my left hand, and bleed off some speed. I can see the shadow of our plane on the ground rushing by. The wind noise dies down, and I nurse the plane onto the ground. We taxi up to the hangar and cut the engine. Nancy and I both sit on our seats, harnesses on. Sweaty and

tired. "Great flying, kid," she says as she unlatches the canopy.

A flight of geese is overhead in formation. Just then it dawns on me that this is as close as you can come to being a bird. Science and art. Total control. I am so lucky. This is why I fly. 

Following Nancy's accident, a fund was established to assist Peter with college expenses. Donations can be mailed to The Pete Muntean Education Fund, c/o Bank Annapolis, 1000 Bestgate Road, Suite 400, Annapolis, MD 21401.

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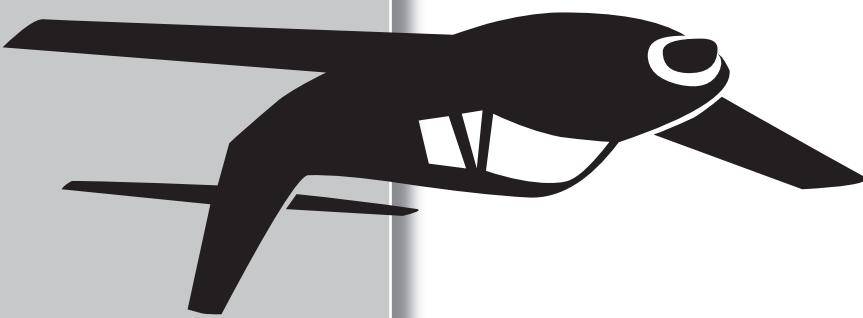
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By Evan Suits, IAC 432789

My first contest was Green Mountain, held the weekend of August 25-27, 2006, in Springfield, Vermont. Lindbergh stopped here on his way back from Paris. I'm honored to have shared a runway with him, although he may have had a couple more people there to greet him than I did.

*It was a different
airplane than
I had expected
to fly, but it was
at the same
airport I was,
and that was a
considerable
step in the
right direction.*

I'm affiliated with IAC (International Aerobatic Club) Chapter 35, which was hosting the event, and I offered to drive up early Thursday to help chapter President Steve Till with the setup. I met him midday at the airport terminal building, and we proceeded to unload the chairs, tables, computers, printers, radios, chargers, coolers, scoreboards, and boxes and boxes and boxes of forms and T-shirts.

After all the stuff ("stuff" is a highly technical aerobatic competition term) was unloaded, we moved out to survey and place the box markers alongside runway 5-23. The corners and side midpoints of the box are marked by "L" and "T" shapes, respectively, created by arranging 3-foot by 50-foot strips of white nylon cloth to the ground and staking them in place. On the ground, these marks are absurdly large and coarse. From the air they appear delicate and, as I would soon discover, may even be hard to spot.

Friday began the actual contest, with registration in the morning and practice in the afternoon. I registered early, but couldn't complete the forms because I didn't know for certain which airplane I would fly. I was planning to use 8AC, the Super Decathlon managed by Aerial Advantage, in which I had been training. The original plan was for it to be ferried over from Nashua "early Friday morning," which I hoped would give me a chance to at least see the box from the air during the practice session that afternoon. As every pilot knows, aviation events take on a life of their own, and this was to be no exception. Problems began to develop.

For one thing, the weather did not cooperate. The Springfield airport was open, but ceilings were low and a strong easterly flow left the areas south of us completely socked in. Airplanes began trickling in with obviously relieved pilots swapping stories about weaving through the southern Vermont hills beneath the clouds and mist. The weather remained bad throughout the day, and I was further dismayed when one of the 8AC ferry pilots showed up in his car. He explained that the airplane had been grounded because of a problem with the control cables. Better safe than sorry, of course, but it began to look as though I might not fly at all. A

Decathlon from Executive Flyers, another area flight school, was still expected at the contest, but the six or so pilots originally signed up for 8AC, when added to those from Executive Flyers, might be more than could be scheduled to share a single ship.

The pilots' briefing was scheduled for "7:00 a.m. sharp!" Saturday morning. I arrived 15 minutes early still thinking about finding some wings. I found the parking lot mostly empty and, on the terminal building door, a sign announcing a postponement until 8:00 a.m. In the parking lot, I met Paul Rice, manager of 5B3, Danielson, Connecticut. During the self-introductions, I mentioned the 8AC grounding. Paul said he had a Super Decathlon on the way, and his insurance allowed rentals. I asked for a slot. Things were looking up.

Shortly before 8:00 a.m., the briefing was postponed to 9:00, and by 9:00 it had been put off until 10:00 with hopes that the sun would show up eventually. Meanwhile, pilots and airplanes were sneaking in. Registration continued and inspections began.

There was activity everywhere. Occasionally someone would start an engine for a warm-up, or to just get up and fly around the airport once or twice. I was struck by the exhaust note of Dennis Thompson's Edge 540, which released a heavy bass rumble reminiscent of a large cabin cruiser motoring slowly through a marina. Dennis admitted that he had "made a few modifications" in a quest for more power.

Eventually Paul's Decathlon arrived and I went over to

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take a look. N31X was older than 878AC, but meticulously maintained. The seat cushion was several inches thicker than what I'm used to, which would give me a slightly different view over the nose; the instrument panel layout was different; and it lacked a sighting grid under the left wing. It was a different airplane than I had expected to fly, but it was at the same airport I was, and that was a considerable step in the right direction. The sun was still hidden above the murk, but my personal outlook brightened considerably.

I introduced myself to Doug Durand, one of Paul's instructors, and asked him to be my safety pilot. I did not lack confidence in my ability to fly the sequence, but doing so in an unfamiliar airplane at a lower altitude than I'd ever attempted was a bit much. Doug could not provide any instruction or coaching, but it would be a comfort to have him along. If the first flight went well, I'd do the second one solo.

The clouds lifted slightly by 1:00 and Chief Judge Greg Dungan called the briefing. With all the pilots and

volunteers gathered around, he went over the rules and standard procedures. Assigned to each class was a starter, who would check each pilot and airplane in turn, tell them when to start their engines, and explain any last-minute traffic pattern changes. Greg also covered what to do in case of radio or mechanical failure, how to take a "break" during a sequence, and so on. Following the pilot briefing, Greg summoned the volunteers, particularly those with little or no experience (like me). I was assigned as a boundary judge, and Greg went



Evan Suits



Above: Paul Rice's Super Decathlon, N31X, saved the day.

Left: Evan had expected to fly his first competition in the familiar 878AC.

Evan Suits

over the rules and radio procedures. A call was to be made if a pilot and airplane got completely outside the boundary, and another call when the pilot re-entered. No points could be earned unless some part of the airplane was inside the box.

At last the engines began to rumble. The flights were choreographed to keep the box as busy as possible. At any given time there would be five airplanes in the pipeline. The active contestant would be in the box, performing. The prior contestant would be re-entering the traffic pattern to land. The next contestant would be in the air, climbing for altitude and holding in an area near, but safely apart from, the box. The next contestant would be positioning on the taxiway for a run-up. And the next contestant after that would be receiving final instruction from the starter prior to starting the engine. Given the late start, it was essential to make the operation as efficient as possible.

My class, Primary, flew last in the day. I had plenty of time to get ready. Since I'd never flown the airplane before, I boarded early to make sure I had everything adjusted as well as possible. As it happened, I wound up spending about 20 minutes in the airplane before the starter arrived. I felt slightly foolish, but I don't like to be rushed, and sitting there gave me a chance to rehearse the control movements for my sequence.

Pilots prepare themselves for their flight in many ways. Looking around the ramp you would see some of them, arms outstretched, swooping and turning as they visualized their movements. Others would sit in their cockpits. One lay flat on his back on the tarmac, hands behind his head, his eyes closed. Everyone had plenty to think about.

Eventually, Doug climbed in behind me and the starter approached. The starter does a final inspection—parachute, safety harness, radio frequencies, altimeter setting—and then passes along any additional instructions. We closed the door and Doug strapped himself in while I ran through the pre-start checklist. With the engine running and intercom adjusted, we moved to the run-up area. Doug answered my occasional questions about the airplane. Otherwise, the routine was

familiar and comfortable.

We taxied to the active runway and waited while the landing aircraft cleared. After clearing the area and turning crosswind, we switched to the box frequency and continued to climb. The Primary sequence begins with a spin, so the plan was to enter the box at maximum allowable altitude with minimum airspeed. While climbing, Doug pointed out various landmarks and cautioned me against getting too far away from the box area. "Once they call you, you want to get there quickly," he said. "They don't like to wait."

Due to the number of shared airplanes, identification was by contestant name instead of tail number. Greg's voice came through the headphones, "Evan Suits, how do you read chief judge?" We answered and were cleared to enter the box. Midway along the "base leg," I rolled us inverted for a final safety check. Everything was ready.

My biggest worry was getting the spin right. The stall has to be readily apparent, the rotation crisp, the finish on heading, and then remember to fly straight down until you have sufficient airspeed to get you through the rest of the sequence. I'd been having trouble with spins earlier in the year. Instead of stalling cleanly, the airplane would enter a steep, uncomfortable spiral.

Eventually I asked Mike Ganor, one of the instructors at Aerial Advantage, for help. "You're waiting too long to initiate," he said. "Start the spin at 60 mph. Press the rudder hard, pull the stick back into your lap, and hang on." Thereafter the airplane would nose up briefly, then drop like a rock.

*I tried to explain
about the crosswind
and the break and
the zero, but he cut
me off with a wave.*

*"Never mind all
that," he insisted, his
grin getting broader.
"Did you
have fun?"*

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The weather station at the main desk was a popular hangout throughout the weekend.

I was still only batting about .500 in terms of heading, but this time I got lucky and stopped the rotation more or less square to the box. My mind was racing. *Nose down to vertical and push the throttle open. Hold the vertical down line until 120 mph indicated, then pull.* I leveled off at 160 mph, about what I needed for the rest of the sequence. The loop and half-Cuban went reasonably well. The slow roll was mediocre; the competition turn about right. Less than two minutes after entering the box, we were done with the sequence and descending into the traffic pattern for landing. As I turned downwind, I heard Doug remark, "Nice spin!" I felt 10 feet tall.

We landed in time to watch some of the other Primary competitors. Carlos, also flying 31X, had trouble getting his sequence started. "I just couldn't make it spin," he reflected afterward. I passed along Mike's advice.

Sunday morning began with sufficient ceiling, but rain was moving in from the northwest and there was a rush to get things started. Greg repeated the pilots' briefing and explained that, in an attempt to save a few minutes, the Primary, Advanced, and Unlimited classes would be merged. I was next to last.

I was prepared for a certain spirit of cooperation among competitors, but I was still surprised when I saw it actually happening. As soon as an earlier competitor opened the door after his flight, he was telling others about a nasty crosswind at 3,000 feet.

"Start at the far side of the box, as far upwind of the judges as you can," he said, "Over the river if you have to." I reminded Carlos to start his spin earlier. He helped me with the shoulder straps.

My second flight was without a safety pilot. It began with another good spin, but then went rapidly downhill. I was too impatient to fly as far upwind as had been suggested, and was already close to the runway and the judges when I exited the loop. As I pulled out of the half-Cuban and started the roll, I heard the chief judge's voice in my ear, commanding, "Break...Break...Break." I leveled the wings and exited the box.

Greg then called, "Reposition yourself in the box and resume the routine." I climbed for altitude, reversed course, and re-entered the box. I repeated the half-Cuban, as much to save time on the course reversal as anything, and slogged through another mediocre slow roll and about two-thirds of a competition turn. I still don't know for sure what went wrong.

Either the wind drifted me over the runway or I veered off heading at the top of the Cuban. Perhaps both. In addition, the accumulated fatigue prevented me from recognizing the error and adjusting my heading or, better still, wagging my wings and taking a break. The break costs only five points and, like a go-around on short final, should be one's first alternative when something seems wrong. As it was, I got a zero for the figure, which cost two places in the overall

standings. Given the success I'd had with the first flight, the forced break on the second one was humiliating. Of course, there's no question which flight was the most educational. As I was climbing out of the parked airplane, the rain swept across the field and the contest was over.

Trudging glumly toward the terminal building, I ran across Rob Holland, who had stopped in on his way back from an air show. He had a huge grin on his face. "Hey," he yelled. "Did you have fun?" I tried to explain about the crosswind and the break and the zero, but he cut me off with a wave. "Never mind all that," he insisted, his grin getting broader. "DID YOU HAVE FUN?"

I guess I must have. I'm sure going to do it again.

After the contest, I reflected on the experience. It occurs to me that flying in aerobatic contests is a rather specialized pastime. In the United States, there are fewer than 1,000 pilots who compete. However, the skills required to be a competitor are within reach for most aerobatic pilots. The maneuvers and sequences themselves are no more demanding than recreational figures and involve the usual combinations of rolls, loops, and spins. The real difference is the box. In a contest, you have to fly all maneuvers inside an invisible box that measures 3,300 feet square and 2,000 feet high. As a beginner, the floor of the box is 1,500 above ground level. The lateral dimensions of the box are the biggest problem. It takes about 15 seconds to fly completely through it, so remaining within its bounds is a challenge, particularly if there's a crosswind.

The other big difference between competition and recreation is that, at a contest, you are performing before a panel of judges, although this is less intimidating than it may seem. Competition is generally friendly. During practice periods it's commonplace to hear one pilot on the ground coaching another in the air, offering feedback and suggestions. But it's competition nonetheless, and everyone wants to do as well as possible. A disappointing score, or critical comments by a judge, can rankle and humble a pilot.

There is also the time commitment. A contest typically takes place over a long weekend. Things get

started on Thursday with setup. Friday welcomes registration and practice, and Saturday and Sunday are for the competition flying. There's usually a banquet Saturday night and an awards ceremony Sunday. And you still have to get home.

So, why bother? Well, it's a chance to spend a couple of days immersed in the world of aerobatic flying. From morning to night you'll be surrounded by airplanes and pilots of all types and descriptions. You'll smell the exhaust as engines cough themselves to life. You'll learn quite a bit just from watching the other pilots perform their routines. There's the camaraderie, including mixing with and talking to pilots you've been reading about. Plus, it's a mini air show at which you get a front-row seat *and* a bird's-eye view.

Most of all, it's a challenge. Whether you return home with an armload of trophies or just the memories, you'll have joined a very select company. It's an experience you might not be able to explain to anyone else, and it's one you won't soon forget.

There are only so many places suitable for hosting an event, and you may have to travel some distance to get to one. The airport has to be big enough to support the 15 to 20 airplanes and 40 to 50 people who show up, yet small enough so that it can be effectively shut down while the competition is taking place. The box is usually located along one of the runways, which disrupts the airport traffic pattern—a formal, temporary change to the pattern is requested in advance from the FAA and there are volunteers, vehicles, and airplanes moving all over the surface.

Contestants decide for themselves which class they'll enter—there are five classes ranging from Primary to Unlimited—and men and women compete on a level playing field. Primary is the entry level and is structured to encourage pilots to explore competition and acclimate to the contest environment. The Primary sequence offers less-demanding figures, and there is seldom a penalty for being slightly "out of bounds." Pilots are allowed and encouraged to take an instructor along as a safety pilot.

The number of people required to run one of these contests is impres-

sive. There are five judges, plus a chief judge, each requiring an assistant, who reads the sequence sheets and tells the judge which figure is coming next, and a recorder, who notes the scores and any comments the judge might make. In addition, there are boundary judges, usually one at each corner of the box; runners to carry score sheets back and forth; scorers to enter the raw numbers into a computer; a starter to ensure a steady stream of contestants; and a registrar, who manages all the paperwork and decides the flight order.

With the exception of the scorer,

many of these jobs are performed by the competitors themselves. There are plenty of veterans available to show new volunteers and competitors the ropes. My instructor, Rob, had warned me, "If you only fly your 20 or 30 minutes, you'll have entirely missed the point of it all. Get involved, meet people, and have fun." He was right. Thinking back on the entire experience, I would recommend flying in a local contest to anyone who is looking for a personal challenge, new friendships, and an intense learning experience that will make you a better pilot. 



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Technical Advisor

By Vicki Cruse

Pitts S-2S Cabane Squeak

From a Pitts S-2S owner: As I was preflighting my Pitts S-2S, I would grab the forward cabanes and attempt to move them. On doing this, I heard a squeak which got progressively worse over time. I took off the covers on numerous occasions and noticed nothing unusual. One day I took the covers off, determined to find the problem. I found plates bolted to the front spar at the intersection between the cabanes and the top wing. The bolts holding these plates on had worked loose and were the cause of the squeak. I

tightened them and the squeak went away.

Hartzell Propellers and Airworthiness Directive

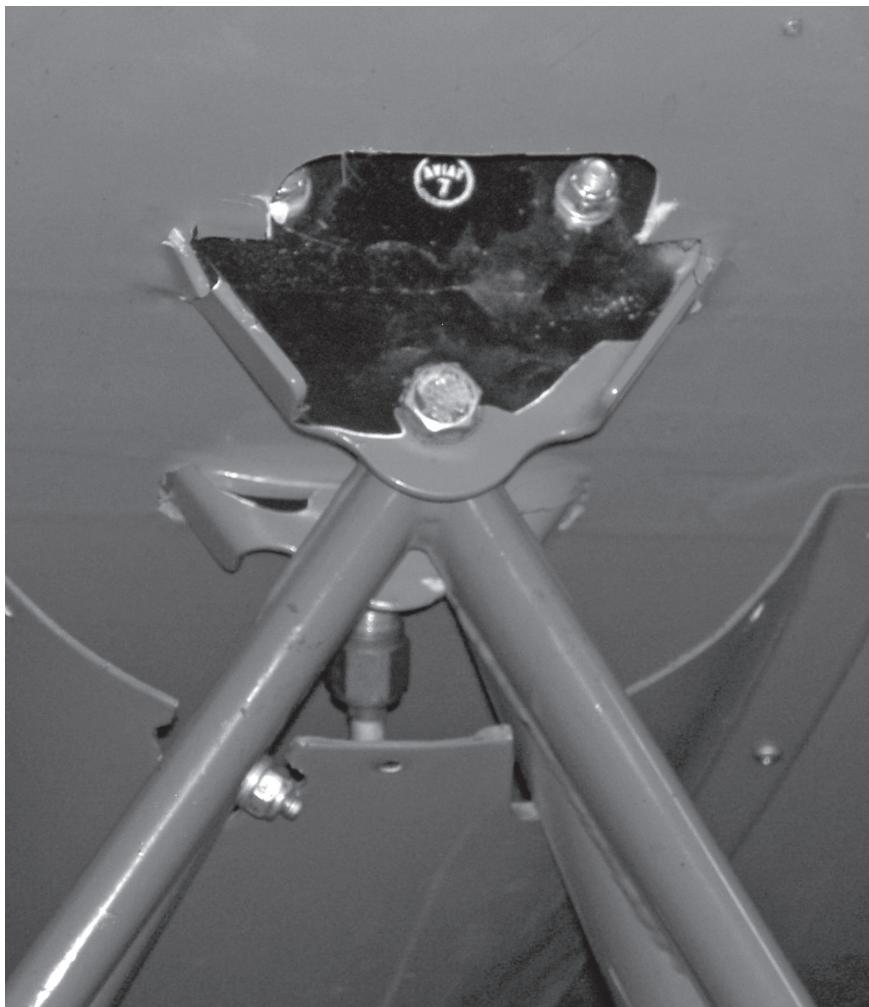
Effective September 25, 2006, the FAA adopted airworthiness directive (AD) 2006-18-15. This AD affects Hartzell propellers installed on Lycoming O-, IO-, LO-, and AEIO-360 series reciprocating engines. This AD requires initial and repetitive eddy current inspections (ECI) of the front cylinder half of the propeller hub for cracks and removing cracked hubs

from service before further flight. This AD permits the installation of an improved-design propeller hub (suffix SN "A" or "B") as a terminating action to the ECI. This AD results from a report of a propeller blade separating from a propeller hub.

This AD requires, within 50 operating hours' time-in-service (TIS), an initial ECI of the front cylinder half of non-suffix SN propeller hubs for cracks. This AD also requires, within every 100 operating hours' TIS or annual inspection, whichever occurs first, repetitive ECIs of the front cylinder half of non-suffix SN propeller hubs for cracks and removing cracked hubs from service before further flight. Possible aerobatic aircraft affected by this AD include Great Lakes, Mudry CAP 10, Pitts S-1S, and the Super Decathlon; however, with the experimental nature of many aerobatic airplanes, checking the serial number of the propeller on a 360-powered aircraft would be a good idea. Information on this AD may be found through the International Aerobatic Club (IAC) website (www.IAC.org) under the News heading to Safety Alerts. Here you may access the FAA database and search by the AD number above. Additional information may be found at www.Hartzell-Prop.com or through the link on the Safety Alerts page of the IAC website.

Final Ruling on Lycoming Crankshaft AD

Effective November 3, 2006, the FAA is adopting a new airworthiness directive (AD 2006-20-09) for certain Lycoming (L)O-360, (L)IO-360, AEIO-360, O-540, IO-540, AEIO-540, (L)TIO-540, IO-580, and IO-720 series reciprocating engines. This AD requires replacing certain crankshafts. This AD results from reports of 23 confirmed failures of similar crankshafts in Lycoming engines 360 and 540 series reciprocating engines. Compliance information may be



The three bolts found loose on the front plates on the forward face of the upper spar.

found in the actual AD and is a bit complicated to list here.

This is the final ruling on the AD proposed back in May. Some engine models have been removed from the initial list, and the FAA provides responses to the comments it received in the initial proposed AD in May, some of which provide interesting reading. The FAA estimates that this AD will affect 3,774 engines installed on airplanes listed in the U.S. registry. Information on this AD may be found through the IAC website

(www.IAC.org) under the News heading to Safety Alerts. Here you may access the FAA database and search by the AD number above. Additional information may be found at www.Lycoming.Textron.com or by using the link on the Safety Alerts page on the IAC website.

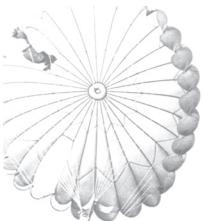
CAP 10B Additional Information

After publication of the latest information on the CAP 10B wing spar, Adam and Marianne Shaw from

France began an informational campaign to let people know more about service bulletin number 060307, dated October 6, 2006, titled *CAP 10C- Wing - Main Spar - Central Spar Cap*. While there are only about 10 CAP 10Bs registered in the United States, this is important information for those owners. The Shaws' letter with reference to the service bulletin may be found on the IAC website (www.IAC.org), under the News heading to Safety Alerts and as a subhead under APEX Aircraft (CAP) News. 

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Mishaps Data

Compiled by Bruce Johnson

YEAR	JAN	FEB	MAR	APR	MISHAPS BY MONTH											
	2005	0/0	1/2	2/2	1/1	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC			
2006	0/0	1/2	1/1	1/0	1/2 1/1	2/2 1/0	3/4 0/0	1/1 1/0	1/1 0/0	0/0 1/1						
YEAR	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005					
MISHAPS	20	26	21	24	20	18	12	9	15	9	10					

Numbers depict accidents/fatalities of total accidents in the U.S. by aerobatic aircraft. Accidents included are only those which occurred during aerobatic maneuvering (including air shows) or during an IAC-sanctioned competition.

This month we have two mishaps to present. The first is very curious in that there may have been an attempted bailout. In the second report it appears that the mishap pilot relied on the digital fuel analyzer to determine the amount of fuel remaining in his Pitts S-2B. The report of his accident serves as a reminder that such instruments should be just one of the methods used to determine our length of flight. It also makes the same point that our primary instructors espoused: Remember the requirement for the 30-minute visual flight rules (VFR) reserve.

Preliminary

Accident occurred Saturday, November 25, 2006, in San Pedro, California.

Aircraft: Interavia E-3, Registration: N4426X

Injuries: 1 Fatal

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected when the final report has been completed.

On November 25, 2006, at 1315 Pacific Standard Time, an experimental Interavia E-3 airplane, N4426X, impacted the ocean off the coast of San Pedro, California. The airplane sank and is presumed destroyed. The private pilot, who was the sole occupant, sustained fatal injuries and was found near the point of impact. The pilot was a co-owner of the airplane and operated it under the provisions of 14 CFR Part 91 as a personal flight. Visual meteorological conditions prevailed, and a flight plan was not filed for the local flight, which departed Long Beach, California, about 1250.

According to another co-owner of the airplane, the pilot departed Long Beach with the intent of practicing aerobatic maneuvers in the aerobatic box located off the coast of San Pedro. Witnesses reported observing the airplane conduct aerobatic maneuvers around 1,000 feet above the ocean. The airplane was seen at various times in rolls, loops, and stalls. One witness observed the airplane flying toward the east in a wings-level attitude before it entered a nose-down pitch attitude. The airplane was described by many witnesses to be between 50 and 70 degrees nose-down when it impacted the water. All of the witnesses reported that the engine was running "hard" and "loud" throughout the final descent. In addition, all of the witnesses reported that the airplane sank immediately after impacting the water. Only one witness reported observing something separate from the airframe during the descent make a secondary impact splash in the water following the airplane. This witness did not know what it was, and at first thought it was the pilot bailing out of the airplane. However, he did not observe a parachute during the descent.

The pilot was located in the water with his parachute still attached and stowed. The U.S. Coast Guard reported the accident site location at 33 degrees 42 minutes north latitude and 118 degrees 19 minutes west longitude, and the Los Angeles County Sheriff's Department dive team put the depth of the water at the accident site at 60 feet. There are plans to recover the wreckage on November 30, 2006, and transport it to a secure location for further examination.

Editor's Note: The Daily Breeze (www.DailyBreeze.com) reports that the wreckage of the plane was found Sunday morning, about a quarter mile offshore and in 70 feet of water. On November 30, divers recovered the fuselage of the aircraft, which was hoisted from the water and onto a commercial barge. Next, the dive crew hopes to recover the wings, which had separated from the fuselage.

Final

Accident occurred Sunday, March 5, 2006, in Severance, Colorado.

Probable Cause Approval Date: August 29, 2006

Aircraft: Aviat Pitts S-2B; Registration: N221RS

Injuries: 2 Uninjured

The airplane's main 23-gallon fuel tank was serviced to capacity. The pilot flew one passenger for about 30 minutes, returned to the airport, dropped off the passenger, boarded a second passenger, and took off again. They had been flying for about the same period of time when the engine suddenly began to run rough, then lost power. He made a forced landing in an open field. During the landing roll, the airplane nosed over, crushing the vertical stabilizer and breaking a rib in the upper left wing. The digital fuel flow gauge indicated 15.5 gallons of fuel had been consumed, and 7.5 gallons remained. Some fuel was leaking from the tank. The pilot said it looked and smelled like kerosene. The fixed base operator (FBO) was notified, and fuel that had been sumped that day from the fuel trucks and fuel farm were quarantined. The salvage crew that recovered the airplane said it appeared the fuel may have mixed with smoke oil, giving the appearance and smell of kerosene. The airplane was equipped with a smoke-generating system. Neither the fuel nor smoke oil tanks had been compromised. All supply lines were intact and securely fastened. Less than a quart of fuel was recovered from the fuel tank. Thirteen jars of fuel that had been sumped from the FBO's fuel trucks and from the fuel farm was retrieved and examined. They were all clear, blue (similar to 100LL), and appeared to be free of contaminants. According to the manufacturer, the engine will burn 17.4 gallons per hour (gph) at 75 percent power, which is 195 hp or 2450 revolutions per minute (rpm), when leaned for best power. At full (100 percent) power, or 260 hp and 2700 rpm, the engine will burn 21.5 gph. The pilot subsequently submitted a statement, indicating he had "run out of gas."

The National Transportation Safety Board determines the probable cause(s) of this accident as follows: fuel exhaustion and the pilot's failure to refuel the airplane. Contributing factors were the inaccurate fuel flow reading and the pilot's incorrect fuel consumption calculations.

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Meet a Member

Kate DeBauw



By Judy Whitmer

Tell me about your involvement with radio-controlled scale-model airplanes.

I've always liked to carve. I started carving midget race cars as a kid but later moved on to airplanes. Eventually, I started to build radio-controlled scale models of planes such as the Cessna 182 Skylane and began to participate in contests, including the U.S. Scale Master Championships. In the contests, the models are scored both in static display and in flight. The flight sequence consists of a series of aerobatic maneuvers, so I became very familiar with figures such as Immelmans and Cuban-eights. I started judging at RC contests in 1984, when I was "drafted" to help out at a Reno contest where they were short on judges. I was paired up with an experienced judge, Darlene Frederick, who taught me the basics of evaluating and scoring the flights. We became friends, and I worked with Darlene on judging lines at many contests after that over the next 16 years.

What experience drew you to start attending "full-scale" aerobatics competitions?

Darlene and her husband were not only involved with RC contests, they were also certified as IAC judges. One year, we were driving back together across the country after judging an RC contest, and I decided to stop with them in Joplin, Missouri, where they were scheduled to judge an IAC contest. I guess I just got hooked. I was particularly intrigued by some of the intricate paint schemes on the planes, and I thought it would be an interesting challenge to see if I could reproduce them.

What was the first pair of airplane earrings you made? What was the first pair representing an aerobatic aircraft?

I had started to make the 1-inch scale models as pins to put in my hat. I adapted the process to create earrings

Name: Vernon Altamirano

City, State: Santa Rosa, California

Occupation: Construction (retired)

One of the people adding fun and color (along with a bit of fashion) to the California regional contests is IAC member/volunteer/spectator/radio-controlled model-builder Vernon Altamirano. When Vernon sees an airplane at a contest that strikes his fancy, he photographs it from multiple angles. He then heads home to make 1-inch scale models of the plane, complete with a very exact reproduction of the paint scheme. The models are made into earrings, which he sends as a gift to the plane's owners. If you have a chance to attend a contest on the West Coast, look around—many of Vernon's earrings are always in attendance.

because I wanted to make a gift for Darlene. The first pair I made for her represented scale models of a Corsair F4U1. The first aerobatic airplane model I made into earrings was a Pitts.

How do you make the scale-model aircraft that become the earrings and hatpins?

I start with a 1-inch-square block of balsa or birch wood. From that, I carve out the model. The wood model is pressed into clay to form a two- or three-piece mold. The planes are made by injecting Bondo into the mold. I use Bondo because it's durable but very light—people have told me they can't even tell they have the earrings on. Then comes the real challenge: hand-painting each plane. Finally, I add earring loops to the tails.

What was the most memorable pair you made?

The neatest to paint were models of Julie Pfile-Smith's Pitts. Her paint scheme represented a Navajo blanket, with chevrons along the wings. That was quite an airplane.

Tell me a person or persons in the sport you admire.

I really like Allyson Parker-Lauck; I think she's a very good pilot. I also admire Todd Whitmer. When you watch him prepare for a flight, you can tell he's putting 110 percent of his thoughts on nothing but the flying ahead. I wish I could have that kind of focus.

What is your favorite part of a contest?

Watching the flying. I also enjoy just looking at the airplanes, and thinking about whether or not I could reproduce the paint schemes in a scale model. And, of course, I get a kick out of how much people seem to enjoy wearing my earrings, and seeing them pointing out to other attendees the fact that there's an airplane on the tarmac that matches the pair in their ears.

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