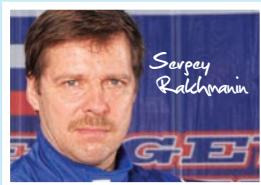


# **SPORT** **Aerobatics**

JANUARY 2012

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB



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about  
the team!**



# WAC 2011

- Spin Recovery

- Trial by Fire:  
A judge's perspective





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Vol. 41 No. 1 January 2012

A PUBLICATION OF THE INTERNATIONAL AEROBATIC CLUB

*Ask Mike Vaknin about flying over the Alps at night.*

—Mike Stevenson

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## **THE COVER**

Rob Holland taxiing at  
the WAC 2011 in Italy.

Photo by Denis Zorzi

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MAILING: Change of address, lost or damaged magazines, back issues.  
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The International Aerobic Club is a division of the EAA.



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

## Welcome to the New Year

**IT'S 2012, THE FATEFUL** last year of the Mayan calendar. But that doesn't mean you shouldn't keep at those aspirations to fly upside down! It's the new year, and a good time to begin thinking about how to include aerobatics in your life.

Imagine being able to learn the piano from Bach or buy a Stradivarius from the man himself. People in their

**Imagine being able  
 to learn the piano  
 from Bach or buy a  
 Stradivarius from the  
 man himself.**

day may have thought of them as geniuses, but they probably had no way of knowing what would be their significance so many years later. Such is true of the sport of aerobatics today.

The first loop was flown only 98 years ago. On September 9, 1913, Russian pilot Pyotr Nesterov flew what is believed to be the world's first loop in a Nieuport IV monoplane.

This single feat ushered in the world of aerobatics. The important thing to realize is that we live in an era with machines and techniques perfected over millions of man-hours of experimentation. Some of the greats of aerobatics, such as Curtis Pitts, have recently passed, but we still have numerous greats who both instruct in and design airplanes. And they're just a phone call away. Look through back issues of this magazine, or visit [www.IACUSN.org/schools](http://www.IACUSN.org/schools) to find them.

January has traditionally been the Hall of Fame issue, but we haven't covered the World Aerobatic Championships in detail yet, so the HOF will be the February issue. In the meantime, I hope you can see, as I can, we have an honest to goodness U.S. team that trains and works as a team. They've had a tectonic shift in thinking, and it's beginning to show up in the standings. With the Unlimited WAC coming to the United States in 2013, I shudder to think what they'll accomplish. Our Advanced team is looking to do the same this year in Nyiregyhaza, Hungary, July 26-August 5, 2012.

I hope you had a wonderful Christmas and an enjoyable New Year. May 2012 bring you great success and many wonderful inverted adventures. **IAC**

Please submit news, comments, articles, or suggestions to: [reggie.paulk@gmail.com](mailto:reggie.paulk@gmail.com)



**DOUG BARTLETT**  
COMMENTARY / PRESIDENT'S PAGE

## The WAC Is Coming to the USA!

**SNOW IS ALREADY FALLING up north, and the 2011 competition season is at an end. As we all are winding down for the year to enjoy the holiday season, there is much going on at IAC headquarters. A big piece of news is that the United States will host the 2013 World Aerobatic Championships (WAC) in Jean, Nevada. The best pilots in the world will gather in October of 2013 to compete for gold and the title of World Aerobic Champion. This is great news for aerobatic enthusiasts and competition pilots alike.**

For Unlimited competition pilots, 2012 is the team selection year. Because the WAC will be in the United States, there will be a large group of pilots competing to make the team. There is no doubt we will field a strong men's team due to the large number of pilots we have competing at this level. How about our women's team? There is also no doubt that we have many talented female aerobatic pilots in this country. Due to time and money constraints, many of our best female pilots have been on the sidelines in 2011. Well, ladies, your country is calling! It is time to pull out the airplanes, build up the g tolerance, and train, train, train. Wouldn't it be wonderful to field a strong women's team for the 2013 WAC?

The volunteer requirements to run a WAC are huge. This is a great opportunity for aerobatic enthusiasts from all over the United States to get involved in the world's biggest aerobatic event. From contest director to administrative assistants, there are scores of places to lend a hand. You will have plenty of time to watch the best aerobatic flying in the world and get to know

competitors and volunteers from other countries. For those interested in volunteering your time, please contact IAC headquarters. Hurry while the best volunteer positions are still available!

There is another place that the IAC will need volunteers. It is at EAA AirVenture Oshkosh 2012, July 23-29. I will be heading up to EAA headquarters soon to work with all of EAA's special-interest groups on planning for the 2012 event. With new leadership at EAA, it is no surprise that some changes for AirVenture are coming.

**This is great  
news for aerobatic  
enthusiasts and  
competition  
pilots alike.**

One of the changes underway is to pull all divisions closer together in working to support the visitors of AirVenture. Our IAC Pavilion is the best piece of real estate on the entire airport: show center. Each year we try to do more to integrate the IAC into the daily activities that are provided for our guests. This year we will work with EAA to bring pilots and aviation enthusiasts closer to the aerobatic aircraft and those who pilot them through their most strenuous maneuvers. One of the activities we are requesting

is to bring all show pilots to our pavilion for "meet and greet" sessions before or after they fly for the audience. We would like to make the pavilion "air show center."

Over the next several years the IAC will work with EAA to take an active part in the daily air show by providing a new and fresh look at aerobatics as a sport. We will take steps to show interested individuals, men and women and children alike, that aerobatics is just another step in the progression of a pilot. We want to encourage aerobatics in a safe and formal setting. And of course, we want this focus to take place at the IAC and at the IAC Pavilion, where we can guide the individuals on a safe and fun path to our kind of flying. Along with showing that these skills are reachable by all, the IAC would like to create a better experience for AirVenture visitors by giving them a daily opportunity to meet IAC members and to view the machines we command.

Enhancing IAC's AirVenture participation and having the 2013 World Aerobatic Championships in the United States will provide many opportunities for members at all levels to be involved with the sport over the next several years. For those interested in getting involved, there has never been a better time than now to throw your hat in the ring.

Next month I will bring the membership up to date on the opportunities the IAC has to support a reality TV show focused on aerobatics. Until then, take these winter months to get your sleigh in top condition for the coming aero year. Fly safely and keep your Mach up. **IAC**



# The 26th FAI World Aerobatic Championships

**The power behind the team**

The acronym TEAM (together everyone achieves more) was the motto for the 2011 U.S. Unlimited Aerobatic Team. This year more than ever, U.S. Unlimited Team pilots Jeff Boerboon, Rob Holland, Michael Racy, Goody Thomas, Tim Just, and Mike Vaknin worked very closely to achieve the same goal.

BY MIKE STEVESON, U.S. WAC TEAM MANAGER



[www.iac.org](http://www.iac.org) 5

# The 26th FAI World Aerobatic Championships



*Although they're all from different countries, these aircraft share one common element beside their aerobatic heritage; their paint schemes were each designed by Italian Mirco Pecorari of Aircraft Studio Design.*

**T**he teamwork began as soon as the selection process at the U.S. Nationals was completed. The newly constituted team unanimously agreed on a team manager and a new team coach. The big move was selecting Sergey Rakhmanin to be the coach. For those who do not know, Sergey Rakhmanin has reached the pinnacle of aerobatics. Sergey was the World Aerobatic Champion in 2003 and 2005. Since the suspension of the Red Bull Air Races, Sergey was looking for a new challenge and accepted the team's offer for him to act as coach and trainer in the months leading up to the contest and during the contest itself. He has also committed to working with future U.S. Unlimited Teams as well as the Advanced Team, if that is what the team desires.

The team started with three training camps. The first two would be held at two separate locations for each camp. The first half of each camp would be held in Marana, Arizona, and the second half would be held in North Carolina. This worked well, allowing the West

Coast members not to have to travel very far and the East Coast members not to have to travel very far. The third and last camp prior to departing for Italy was held at North Texas Regional Airport (GYI), home of the U.S. National Aerobatic Championships. This venue worked very well, and the camp was a huge success. All of the team members who would fly in Italy attended, and along with improvements in flying, they learned a great deal about each other's personalities. This would help when they finally all assembled in Italy. Mike Gallaway even came out for a couple of days to get tuned up, as he was selected as a judge by CIVA. He would be attending and judging with Luke Lambard as his assistant.

## RELOCATION

It takes a lot of logistical planning and up-front planning to prepare a team to participate in such a huge event in another country. The pilots took care of arranging for transportation and renting of local aircraft. Everyone helped each other

along with their plans. Jeff Boerboon and Goody Thomas would share an Extra 330SC owned by Klein Gilhousen. Rob Holland was anxiously awaiting the completion of his MXS-RH, which he would be sharing with the South African team members. Michael Racy would be flying the Russian team airplane, the Sukhoi Su-26M3. Tim Just shipped his airplane, an Extra 300S (S stands for stretch limo, not single place), and a lot of tools and other team necessities, such as chairs, tents, and coolers. Mike Vaknin rented an Italian-registered Extra 300, which would also be flown by the Australian and Italian team members. Other logistics like practice field, hotels, rental cars, etc., I, as team manager, arranged. The fund-raising and handling of entry forms and financial transactions were handled by Norm DeWitt as president of Unlimited Aerobatics USA.

It was decided based on prior years' experience to show up and be ready to fly at the practice site in Italy at least 10 days in advance. This would give everyone time to adjust to the local time and to take care of any airplane maintenance issues that always seem to show up when you least need them.

The practice site was located in the town of Terni. The airport manager, Alessio Lotitovattene, met us on the first day and had everything in place to be able to fly from early to late for the next 10 days. Aerobatics at this local airport in rural Italy's Umbria region was not an everyday occurrence. The team soon found the locals coming out to watch and see what all of the noise was about. This airport is located close to town and next to a motorway. One day several team members went into town to the local hardware store, and everyone was standing out front watching the flying. Not all of the local residents were pleased, and by about the third day, some came out to tell Alessio what they thought of the pilots practicing there. Alessio calmly



## Call for International Aerobatic Club Hall of Fame Nominations

Nominate your favorite aviator for the EAA International Aerobatic Club Hall of Fame. Formed in 1986, the International Aerobatic Club Hall of Fame recognizes those who have made significant contributions to the sport and art of aerobatic flight.

The person you nominate may have dedicated his or her life to aerobatics. Or maybe they're not a pilot, but have contributed to the aerobatic community through volunteerism, photography, design, writing, or the encouragement of others to pursue their passion. However they've made an impact, you know who they are!

If you have a candidate who you feel deserves to be enshrined among past inductees, please forward their nomination to the committee for consideration.

### To nominate someone is easy. All it takes is a little time and reminiscing on your part.

- > Nominations must be received prior to February 1st for consideration during that calendar year voting process.
- > Nominations must be submitted on the approved nominating petition.
- > Up to twelve single sides of 8.5 x 11-inch paper may accompany the petition to further document the aerobatic contributions of the nominee. It is strongly suggested that this option be fully utilized. The committee will evaluate the candidacy of the nominee, relative to other nominees, using the petition and accompanying documentation. The committee is not required to do independent research regarding any nominee. A well-documented petition is the most important thing you can do in support of your nominee.
- > Please do not send priceless or irreplaceable documentation (photos, etc). If these are necessary to support the petition, please make eight "first-level" copies of such documentation.
- > The committee does not return material used in the petitioning and balloting process. Once selected, materials used for the induction ceremonies will be returned as requested.
- > Please sign and date your petition.
- > It is recommended that original copies of the petition and accompanying support documentation be sent via US Mail.
- > Nominations remain open for selection for 10 consecutive years. Re-nominations reset the 10-year cycle.
- > Of the seven members of the selection committee, four must vote affirmatively for a nominee to be recommended to the IAC board of directors for induction into the Hall of Fame. This board retains overall control of the Hall of Fame.
- > Chapters are encouraged to support the nomination of a local candidate. Often, the accomplishments of an individual are best known regionally, and several chapter members pooling their resources together might develop additional supporting documentation on behalf of their candidate.

Mail nominating materials to:

David Martin  
IAC Hall of Fame Nomination  
3279 La Villa Rd.  
Graford, TX 76449-4559

Find the nomination form online at [IAC.org/programs/hof\\_history.html](http://IAC.org/programs/hof_history.html) or contact the IAC office by phone at 920-426-6574, by e-mail at [IAC@EAA.org](mailto:IAC@EAA.org) for a copy.

## The 26th FAI World Aerobatic Championships



Goody Thomas and Jeff Boerboon shared the 'Stars and Stripes' Extra 330 SC.

explained that the pilots would be there only for a limited time and reminded them of how much money the U.S. team and the Australian and South African teams were spending on hotels and food and fuel and, well, just about everything. The box location had to be moved around constantly, including keeping it away from the freeway. The local police showed up one day telling us to move the box due to several accidents caused by people slowing down and stopping to watch.

### DEBUGGING

Even with all the preparations that were made, airplane problems reared their ugly head. Tim found a leak in his tank and had to stand down for about five days to get it resolved. In the end he ended up with two usable tanks. One flown over by his buddy on a round-trip airline ticket and one repaired locally. They both became available within about three hours of each other, earning Tim a new call sign: Tank. Mike Vaknin also had some issues with a throttle cable in which he flew from Terni to a local airport in Germany and back in the same day. Part of which was navigating around weather at night through the Alps. Ask him about it. It is a story he will never forget.

Rob Holland had a few teething problems with the new MXS, it had less than 20 hours on it when it showed up in Italy. He and the South Africans made the necessary repairs and were flying again in no time.

The team got their first look at the contest site prior to official training slots on the Saturday before the contest. This worked out well and would not have been possible without Michael Racy's negotiations with the Russian team to let us use their practice times. After using all of the practice time the team headed back to Terni, which was less than a 10-minute flight away. Finally the time had come for the U.S. team to pack up and move to Foligno.

World contests are very different than contests in the United States. Even though the United States uses close to the same rules, the emphasis is different for different rules.

The first difference is that all communications to the pilots goes through the team manager. There is one big briefing at the beginning of the contest where all team members are present. After that briefings are attended by the team manager and the trainer/coach. This is due to the fact that depending on the pilot's rank, there can be a couple of days between his flights, and the U.S. team can have pilots flying every day or not. The pace of your individual flights is very slow compared to a U.S. contest. Managing this pace is critical to a pilot's success.

Drawing for order of flight and a pilot's performance in the "Q," or Known program as it is called in the U.S., is critical. The Q program scores are not utilized in the final overall scores and count only for placing pilots in an order for the Freestyle. The pilots are placed in order based on their scores in the Q; the overall order is then broken down into thirds. It is very difficult if not impossible to move up into the top third after the Q. The reality is, the judges reserve their best scores for the pilots who fly in that group. After all, they are here to select a world champion. Any place below third does not really matter to the judges.

There are also mandatory cuts in the field after the Free and the Unknowns. Not everyone gets to fly all flights. The cuts become bigger the closer to the end of the contest, especially if there is any chance the top one-third will not be able to fly.

## GO TIME

Time for flights was not an issue. The weather was absolutely beautiful during all but one afternoon of the contest when a thunderstorm blew through. The contest was managed masterfully. Communication was clear, and officials were available at all times. Decisions were made quickly and efficiently, and once a decision was made the officials stuck by their decisions. Even when some questioned the decision, like breaking for a full day so that the teams could take local tours and see some sights, they stuck with it so that there was never any ambiguity; this really helps reduce anxiety when you know exactly what is to happen when.

There are many breaks during the day, and the direction of flight and location of judges can change often based on position of the sun and the amount of wind. The contest officials are required to take wind measurements every hour and sooner if weather dictates. Each flight of the day

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My insurance company covered me, a low-time, low-tailwheel-time pilot in a single-hole Pitts largely because I went to Budd for my training. -Tom P

... the engine failed at low altitude and the accident investigators said that my fundamentals saved me. Thanks my friend. -Maynard H.

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## The 26th FAI World Aerobatic Championships



must start into the wind. The judges also require breaks every two hours and typically stand down for two to three hours in the afternoon for lunch. You do not want a cranky judge looking at your flight out on the line.

After the Q program both Goody Thomas and Rob Holland had secured a spot in the top one-third. The judges were not as kind to Jeff Boerboon, Michael Racy, and Mike Vaknin. They ended up in Group Two. They had their work cut out for them, as they needed to be able to move up into Group One after the Freestyles were flown. Tim Just had some PZs, or perception zeroes, that held him in Group Three. There are now three kinds of zeroes in CIVA competitions. Hard zeroes (HZ), which are similar to our hard zeroes; perception zeroes (PZ), which can be awarded to snaps and spins and are a matter of perception; and 0.0, which is treated the same as a score. Since most of the time the judges could not even agree on how these were to be awarded, it is impossible to explain all of the nuances in this article.

All of the team members worked very hard in the training camps, perfecting their Freestyles

with the advice and counseling of Sergey Rakhmanin. Figures and their position were very carefully chosen to match what the international judging line would best respond to. The Freestyles were very polished at the end of the training camp in Terni.

Rob and Goody continued to fly well and receive high marks from the judges. Jeff, Michael Racy, and Mike Vaknin flew well but were at a disadvantage due to being in Group Two, and their scores reflected this. Tim Just ended up with another PZ and seemed to be locked into the bottom group.

### THE GREAT UNKNOWN

The Unknown is an entirely different procedure at a CIVA sanctioned contest. All Unknowns are now what are referred to as Free Unknowns. The way that this procedure works is that the teams draw for numbers and then submit figures based on their draw. After 10 Unknown figures are drawn on the board and checked for legality, each team can combine those figures into a sequence and then submit that sequence. The sequences are checked for legality and then published. Each pilot

**"THANKFULLY SERGEY DREW THE SEQUENCES FOR SUBMISSION AND DID A MASTERFUL JOB IN THEIR CONSTRUCTION."**





then selects which Unknown sequence he wants to fly. The strategy involved in the drawing of sequences for submission and the selection of which sequence the pilot will fly is very complicated. Thankfully Sergey drew the sequences for submission and did a masterful job in their construction. This freed the pilots to concentrate on their job, which is to fly and fly well. All other distractions of the pilot were kept to a minimum by the other team members and me.

In the first Unknown the U.S. team elected to fly the sequence that they submitted. From a strategy standpoint this had positives and negatives. The positives were that it was constructed by a world-class trainer and pilot and was tailored to the U.S. pilots' strength. The negatives were, because no other team selected the sequence and the U.S. team did not have a warm-up pilot, the pilots who flew early did not have a chance to see it flown. Also, the judges did not have enough pilots flying the sequence to fully learn it before calling it. Every other team flew the Russian or French sequence, meaning that if you were flying the U.S. sequence you must be from the United States. On the second Unknown, all of the pilots flew the U.S. sequence except for Michael Racy. He felt it was better not to telegraph that it was him

to the judges by being the only Russian Sukhoi to fly the U.S. sequence.

Goody Thomas and Rob Holland continued to fly well and received good marks for their flights in the first Unknown. Jeff flew well and was starting to make his move to the first group. Michael Racy did not receive the scores that he would have liked and finished 14th in the first Unknown. Mike Vaknin flew the first Unknown well, but his scores were limited based on the group he was flying in. Tim Just zeroed a figure (PZ) and was just trying to hang on to be able to fly the second Unknown after the next mandatory cut.

The second Unknown was the teams' last chance to move up and to gain enough points on the French team to move into third. Jeff Boerboon let it all hang out and finished fifth in the flight. Goody Thomas and Rob Holland also had good flights, and they finished eighth and 11th in the flight. Michael Racy had some airplane problems during the sequence due to an engine fire on starting, which directly caused a chief hard zero for one of the figures, putting him in 23rd for the flight. Mike Vaknin placed 21st in the flight. Tim Just did not make the final round of mandatory cuts and was not given the chance to fly the second Unknown sequence.

The overall final placing of the U.S. team in the classical portion:

**6th** Goody Thomas

**7th** Rob Holland

**12th** Jeff Boerboon

**16th** Michael Racy

**22nd** Mike Vaknin

**34th** Tim Just

# The 26th FAI World Aerobatic Championships



## FOUR MINUTES

The last event that the team would fly in was the Four Minute Freestyle. The format of this event has changed over the years and can now be entered by pilots other than those who have flown in the classical portion of the contest. The field is limited by rule to 20 pilots, and the four-minute specialists take precedence. Knowing this in advance, the U.S. team made the decision early on that only those pilots who declared they were going to fly the event and practiced and dedicated time toward winning would be nominated to fly. Rob Holland and Jeff Boerboon presented their Four-Minute Frees to the other team pilots and trainer at the last

training camp, and it was decided that they would fly the event. Both Rob Holland and Jeff Boerboon were accepted to fly and flew the event. Rob Holland's flight was truly spectacular, and most people who saw it believed he was the clear winner. Jeff Boerboon also had some interesting figures and a well-choreographed sequence. Somehow his positioning ended up a little to one side of the judges, and his positioning score suffered. Many believe his flight still should have been considered higher than he ultimately placed.

## THE COUNT

Ultimately, the U.S. team was awarded a bronze medal for overall team placement of third, and Rob Holland was awarded the Manfred Strössenreuther Trophy for his masterful execution in the Four-Minute Freestyle. Goody Thomas was the overall highest-placing U.S. pilot in sixth place, earning him the IAC Charlie Hillard Trophy awarded at the U.S. National Aerobatic Championships in September.

Although the French were competitive and did take some medals, the event was absolutely dominated by the Russian Federation. They took home the Aresti Cup, Eric Müller Trophy, and Nesterov Trophy, and Mikael Mamistov took home a gold FAI medal in all but one flight program, in which he placed third. The United States should borrow some of the most successful practices the Russians used to create a new dynasty in the 21st century. The most obvious of which is a long-term

perspective for winning. It is said that in any sport it takes 10 years of focused practice to be in a position to win. Some of the U.S. team members are in about year eight of this plan that started at the 2004 Advanced World Aerobatic Championships in Ljungbyhed, Sweden, for Rob Holland and Jeff Boerboon. Michael Racy and Goody Thomas first competed in an international competition in 2003. These individuals also understand the need to fly in front of judges at the world level and routinely compete at the European and other championship events. Both for name recognition and to understand the strategies involved to win at a world-level contest.

There are so many people to thank. The U.S. team wants to especially thank all of the sponsors: KPC Winners Pride, VedaloHD, Para-Phernalia, Concorde Battery, N-Flight Cam, and Silver Parachute. A special thanks to Patrick Carter (N-Flight Cam), who not only was a sponsor of the U.S. team by providing thousands of dollars in camera hardware for in-cockpit footage, but who also came to the training camps and provided his expertise in recording flights at the Terni camp and during the contest. This video helped immensely. Ellyn Robison helped the team by taking care of things both large and small during the contest and by acting as correspondent to get the news and photos out during the contest.

There are many other stories that should be told directly by those involved. They will tell it best, so be sure to ask them when you see them. Ask Jeff Boerboon about shipping your clothes and luggage to a foreign country. Ask Goody about the "Thomas Woody" misspelling of his name. Ask Tim Just about proper fueling procedures from a jerrycan. Ask Rob Holland about his "bad guy" movie and his lifelong dream of driving through a cornfield. Ask Michael Racy about his engine fire during starting. Ask Mike Vaknin about flying over the Alps at night and how many times you need to strap in prior to your flight. Ask me about flying formation lead in the rental van and whether I paid the tickets. And, finally, ask Sergey Rakhmanin why they call him the "General." **IAC**

*Special thanks to Mirco Pecorari of Aircraft Studio Design for providing photos and artwork.*

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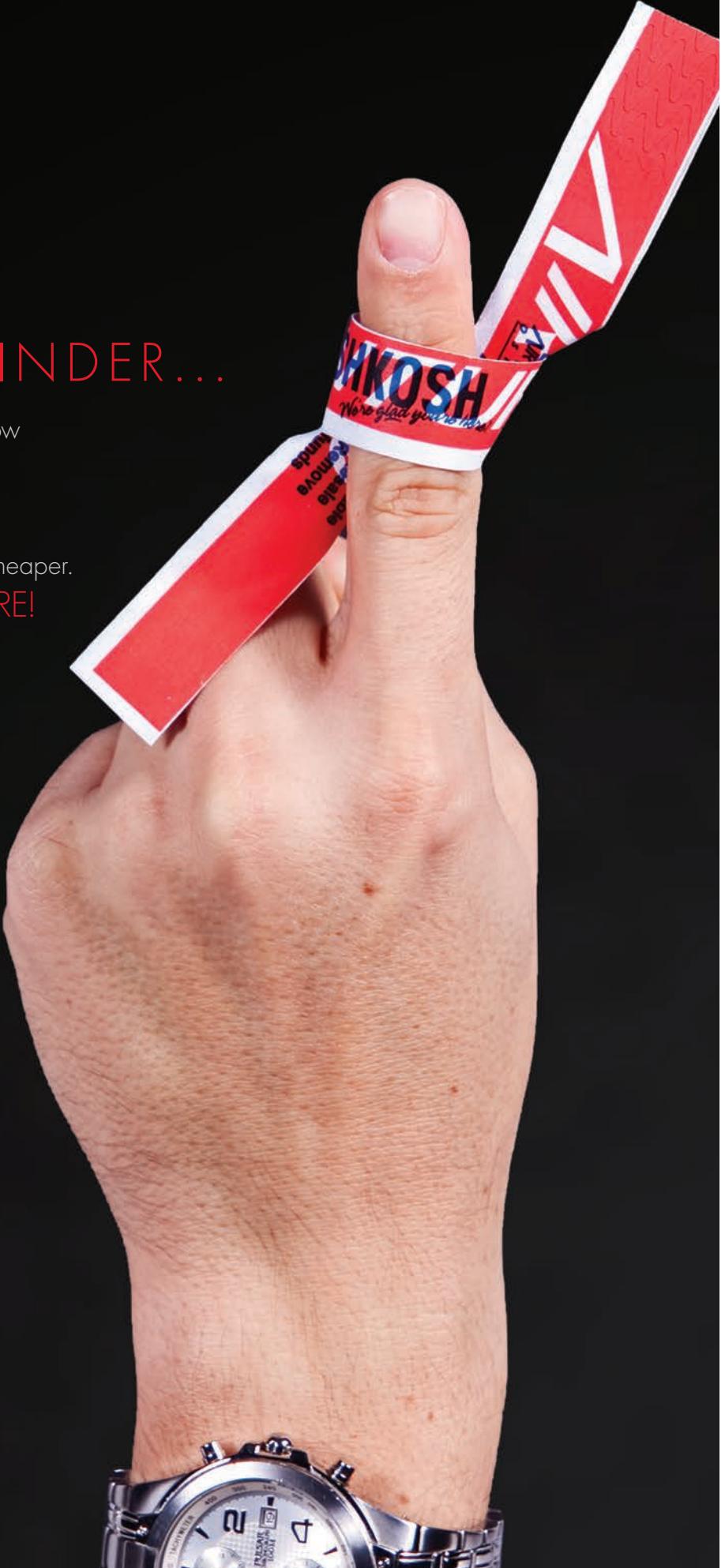
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# trial by FIRE

## There's a first time for everything

BY PEGGY WILLIAMS

Volunteering at regional aerobatic contests can be quite exciting; if you don't believe it, let me tell you about the first time I was a chief judge>>>



Chapter 77's Pendleton, Oregon, Judging Line: Noel Jones, Robert Toppel, and Robbie Sturm.

I'VE BEEN VOLUNTEERING AT regional contests for about five years, since my Extra driver, Jerry Riedinger, started flying aerobatics. I went to a contest with him and was hooked. Aerobatic pilots are incredibly entertaining both in the air and on the ground.

After attending a few contests and seeing the volunteer coordinators struggle with having to schedule the judging lines around who was flying in which category, I decided to become a judge. I recommend judges' school to all spouses and significant others of aerobatic pilots—it's great to be able to share the excitement of their hobby, and they get the benefit of having their own personal critiques. After judging for almost three years, I was encouraged by several other judges and local contest directors to become a national judge, so I fulfilled all the requirements and was working toward getting as much experience as possible assisting chief judges in our area before actually becoming a national judge.

#### STEPPING UP

My first experience as a chief judge happened just before I became a national judge. We arrived at the contest, and I volunteered to do whatever

job they needed, hoping to get some grading time in since I hadn't been a grading judge in more than a year. Instead, I was pressed into service as chief judge at the request of one of the contest directors, who was also the other chief judge. Happy to help in whatever position they needed me, I agreed. I was thrilled to see that the first pilot I would act as chief judge for was the same person who, three years earlier, had made sure I took my oral exam to become a regional judge. My categories would be Unlimited, with three pilots, and Sportsman, with nine pilots. "No problem," I thought, "I can do this. I've assisted some great chief judges and have seen several different styles, so I can make this happen. We're at a towered airport. How bad can it be?" I reviewed the rule book and reminded myself what things I needed to watch for. The other chief judge told me there wouldn't be boundary judges due to lack of volunteers, and gave me an experienced assistant so he was confident that there wouldn't be any trouble.

Day one of the contest: I head out to the judging line with the other chief judge first thing in the morning, just to make sure I know how things are working before it's my turn. We now have enough volunteers to have boundary judges, so I know there will be a little more for me to manage. No problem, I can do this. The first round of flying is finished, and the judging line changes; now I'm the chief. One of my boundary judges has never been to a contest before, and he calls us on the radio every time the contestant flies in and out of the box...even when the pilot is flying low lines, climbing in the box, or taking a break. Happy to have a conscientious volunteer, we explain that we will try to let him know when the contestants are flying their sequence and we need to have the outs called.

We make it through the Unlimited flights, and now it's time for the Sportsman group to fly. One of the Sportsman pilots makes a quarter

turn the wrong way and ends up flying the next figure behind the judging line. As the chief judge, I must zero this figure. Not the way I want to make my debut, but I have to follow the rules. No problem, I can do this.

### *The southeast boundary judge is anxious to be rescued.*

Later on in the Sportsman lineup, I get a call from the starter—there is a commercial flight heading our way. The tower, which is well aware that we are having a contest, as it has been clearing aerobatic planes to take off and land all day, has cleared a commercial flight to take off through the hot box. I quickly assess the situation and am thankful to see that the pilot who is climbing in the box is well above the intruder. I calmly contact the pilot in the box and let him know that there is a plane flying through the box, but that he is in no danger, as the other plane is much lower. The pilot responds that he didn't

even see the other plane. All is well. No problem, I can do this.

That's enough excitement for one round. I'm happy to take a break back at the hangar while the Primary, Intermediate, and Advanced pilots have their second flights of the day. Now it's time to head back out to the judging line. This time, the radio between the chief judge's table and the starter isn't working well, so we are relaying messages through a boundary judge. It's good to have volunteers who are flexible. The Unlimited pilots are launched directly into the box for the Free flights. Unfortunately, they are launched a little too quickly for the judges to get to review the sequences as well as they would like to before grading...lesson learned, space out the Unlimited Free flights a little more. I can do this, and I will do it better next time.

#### **SMOKED OUT**

The Sportsman pilots, as you would expect, aren't quite as quick, and the judges are getting restless. Not a good thing when the temperature is in the 90s. Messages are relayed to try to speed up a little. We're getting to the end of the lineup now, only two more pilots and the day will be finished.

*The brush fire started out as a tiny puff of smoke, barely visible in the distance...*



## TRIAL by FIRE



Beaver State co-contest director, Robert Toppel.

I get a radio call from the southeast boundary judge saying that there is a small fire in the far corner of the box. We see black smoke rolling up from the wheat field. A few minutes later, we get another call from the boundary judge. There are two fires, and we can see the flames from the judging line. The smoke is now so thick that there is no way we will be able to see the pilot clearly in the box, and the southeast boundary judge is anxious to be rescued. No problem, we can do this. "Pilot in the hold, this is the chief judge. Please land. There is a fire in the box, and we won't be able to see you." Cellphone calls to folks back at the terminal: "We need someone to pick up the boundary judges as soon as possible. Judges, we're done for today. Load up, we're heading back to the terminal." About that time, we are assaulted by thousands of grasshoppers leaving their wheat field home because of the fire. We quickly load up all the paperwork and finish up the first day a little sooner than we expected. The next day we see the effect of the fire. Nearly a quarter of the box is black. I was really happy to have cooperative, quick-acting volunteers so no one was hurt.

Second day of the contest: We have only one flight—well, except those two pilots who were smoked out of the box at the end of the first day. One of the Unlimited pilots comes to me after the morning pilot's briefing and tells me that he has modified his Unknown program so there aren't so many pushes. I wait until he's finished with his flight to tell the four perplexed judges out on the line that I knew he was planning to modify the sequence. They were all relieved, and I was happy to see that the judges zeroed all the figures that were modified. We have the delayed flights from the first day, and then begin the third flight for the Sportsman group. Our conscientious boundary judge will confirm that one of the pilots flew the first two "tricks" of his sequence completely out of the box, and I have to zero two well-flown figures. This is definitely not my favorite part of being a chief judge.

Thankfully, the rest of the contest goes well, and with only 21 pilots, flying is finished by 1:00. After lunch, I take my oral exam and become a national judge. It's a relatively short exam—the national judges doing it have seen that I have the qualities they are looking for in a national judge. Safety is the highest priority. Stay calm in frightening situations. Be patient with new volunteers. Know where to find the answers in the rule book. Don't be afraid to overrule the grading judges with a zero if the rules call for it. Don't tell the grading judges how to do their jobs.

No problem. *I can do this!* **IAC**



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# Greatness



... IS A TEAM EFFORT

(Left to right) Goody Thomas, Jeff Boerboon,  
Rob Holland, Tim Just, Mike Vaknin

BY GOODY THOMAS, U.S. UNLIMITED AEROBATIC TEAM MEMBER

**WHAT DOES IT TAKE** when greatness is your goal?

Sacrifice, discipline, passion, persistence, and determination are all integral factors in achieving this goal. However, there is one factor often forgotten. To be great also requires you to surround yourself with great people; people who share your drive and devotion; people who possess knowledge, experience, and expertise in many different situations. Sometimes these people are more talented than ourselves and have learned more through their experiences. All of these factors can work together to elevate a team to its highest level of potential. These people can often look at all of the details involved and use the resources necessary to accomplish this huge task.



Goody straps into the Stars and Stripes Extra 330 SC he and Jeff Boerboon shared at the Worlds.

**T**he next question might be, what makes a great team? The short answer is individuals who share the desire to be great as a team. Greatness was born for the 2011 U.S. Unlimited Aerobatic Team through a group of individuals who all shared the same common desire and passion to be *great* as one cohesive unit.

Mike Racy, Jeff Boerboon, Mike Vaknin, Rob Holland, Tim Just, Mike Steveson, Sergey Rakhmanin, and I all went to Foligno, Italy, to form one of the best examples of greatness and team cohesiveness ever exemplified by the United States on the world level. Each person brought with him the idea that for the United States to win gold, we would need to help each other with our own individual talents and abilities, and as a result we would have the possibility to bring home the team gold

medal. One example of this selflessness was when I was about to fly my Freestyle. Rob Holland had just landed and flown his Free. He realized the start altitude and density altitude had not worked as planned. The first thing he did after taxiing in and shutting down was ask Mike Steveson, "Where is Goody? Tell him to start 500 feet higher due to the conditions." Everyone shared the same thought process so as to give our other teammates the best possible chance to get the job done.

We all leaned on one another for help and guidance from the beginning of our journey after making the U.S. Unlimited Aerobatic Team in 2010 to the last day of the World Aerobatic Championships (WAC). Whether we were at a training camp or walking the hot dusty, ramp in Italy, every team member was available to help the others. From fueling, laughing, pushing airplanes to motivation, it was always there from each person on this team no matter what the situation was; even if you were in the middle of something that should have been about you, you stepped aside to help with the issue at hand. What a *great* group of people. Helping to lead this team of pilots was Mike Steveson, our manager, and Sergey Rakhmanin, our coach. Without their dedication and effort, our journey would not have been the same. These two men took control of our team and helped lead the way to our team medal.

As a kid, I was brought up to always address elders with "Yes, sir," or "Yes, madam." Mike Steveson made me remember what this was all about. I had to look at Mike a few times because even though I have more gray hair than he does (he is older), shouldn't I be addressing him as "sir" or "Yes, sir?" Well, imagine that anytime you asked a question or needed help with anything—it was done. This was Mike Steveson. He alone enabled us to just fly the airplanes, nothing



else, just fly. Mike took care of any and every possible problem there was, and if he did not have the answer immediately, he got it as soon as he could. All you heard was, "Yes, sir, I will take care of it." The work Mike put in was like no other. We could not have done this job without his dedication and hard work.

My other favorite saying is from Sergey Rakhmanin: "It is possible." No matter what we needed to do to improve our training, flying abilities, or ideas, Sergey always made us feel that it was possible to overcome or work through the situation. The countless hours of work that Sergey put in were indeed impressive. There were some nights in Italy that Sergey would be up until the early hours of the morning preparing our Free or Unknown flights. His work, too, went above and

beyond what we ever could have expected. His expert training and methodical thought processes gave us the right tools to reach deep inside and put up our most impressive flying.

As for the pilots, these are some of the most intense and obsessive people I have ever had the pleasure to work with, especially when it comes to winning and helping others. Yes, we each had to go up and fly our own flights one at a time, but each flight we brought with us the knowledge, coaching, and camaraderie we collectively gained from every trip we took to the sky. They were by your side when you strapped in and by your side when you landed. You could feel the emotion each flight. You wanted to do well for your teammates. They help build you up and give the motivational desire to go fly your

heart out. These men did everything in their power to make the other guy feel relaxed and ready when it came time to fly.

Each person was always there to support, lend encouragement, or offer a hand no matter what. I can't give you all the examples of what these men did throughout the year leading up to the WAC or what they did while we were there. All I can say is Team USA made a presence in the world of aerobatics. The team concepts implemented into our program were the building blocks behind our success. I sincerely hope that teams of the present and future can use this same philosophy to help them get to the top. There is no way one person could have accomplished this without the help of the group. It made it fun to go strap in when you knew who was down there pulling for you. Thank you, sir. **IAC**



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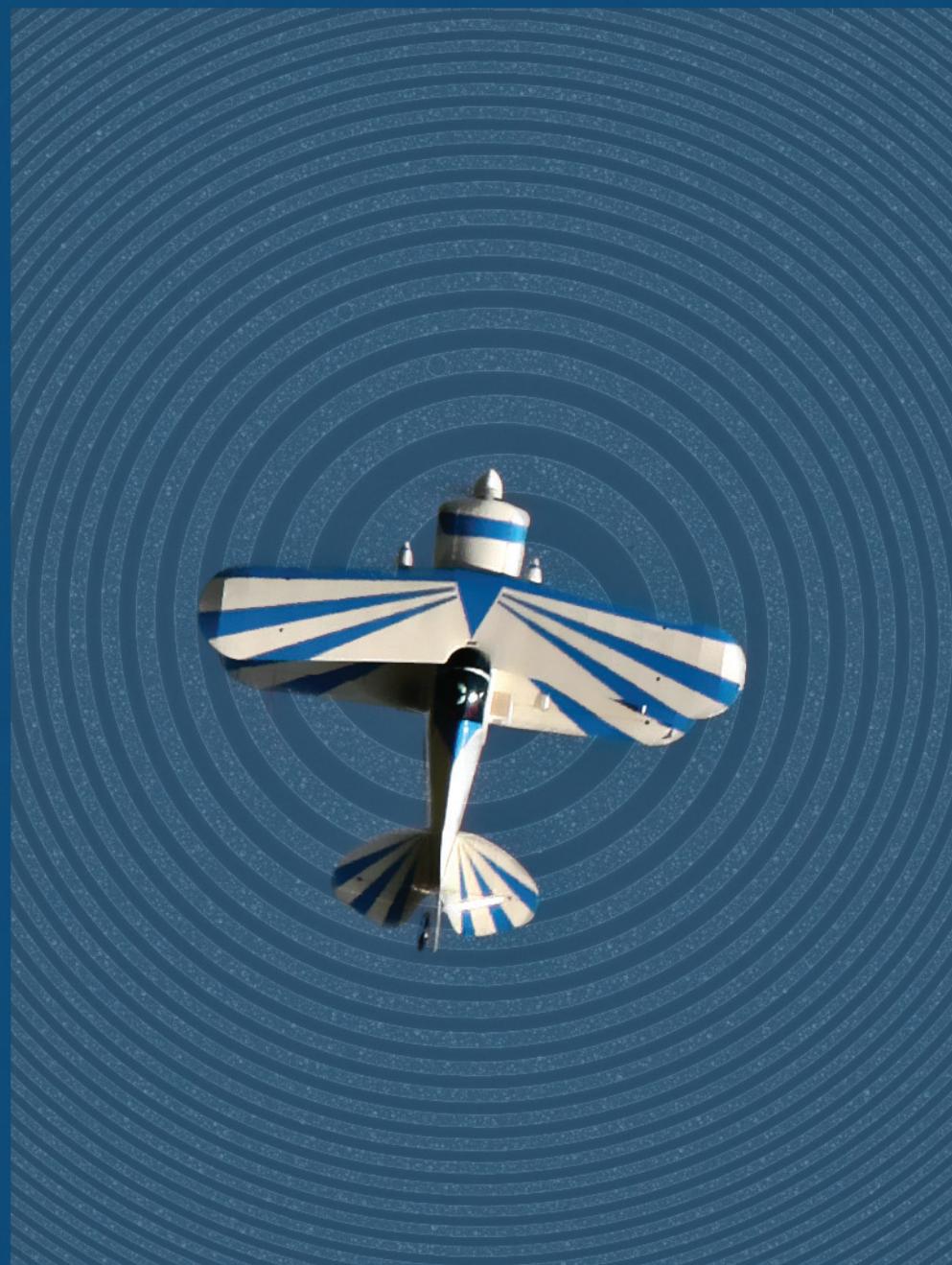
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## SPIN RECOVERY METHODS

BY GORDON PENNER, FAA GOLD SEAL CFI, MASTER CFI-AEROBATIC

**T**hroughout our tenure as pilots we have heard all kinds of things about spins. Some have been correct, but a lot have been old wives' tales and inaccurate legends. Over the years some of the bad legends, like the one that says the ball (instead of the turn needle) shows the direction of spinning, seem to have a life of their own. Like cockroaches, they refuse to die. Buried in all of the cross talk between fact and legend are the different ways to recover from a spin. In the landmark NASA stall/spin study, they tested them all. The study also confirmed what was learned about spins by National Aeronautical Charting Office (NACA) way back in 1936.

**RICH STOWELL'S BOOK** *The Light Airplane Pilot's Guide to Stall/Spin Awareness* (2007) is what I call "the kitchen sink" book. It has everything about spins in it, from NTSB data to spin history, aircraft case studies, safety surveys, test pilot interviews, and the FAA Stall/Spin Advisory Circular (61-67C). Every CFI and examiner should have it. It also contains a lot of the data from the NASA stall/spin study. The data, definitions, and quotes presented here are from this book.

Stowell's book and *Anatomy of a Spin* (1998) by John Lowery are some of the best presentations of the NASA study I have seen in the popular media. As an aerobatic, spin, and upset training instructor I highly recommend them both.

The NASA stall/spin study, led by test pilot Jim Patton, covered 10 years, from the '70s into the '80s. Jim Patton actually wrote one of the chapters in Rich Stowell's book, detailing his personal experiences before, during, and after the stall/spin study.

During the study, NASA test pilots performed more than 2,500 spins totaling more than 8,000 rotations. These spins performed were in addition

to all of the vertical wind tunnel and model studies. Here are the definitions of all of the different recovery methods tested.

**Normal Recovery Controls:** In this procedure, with the power at idle and the ailerons neutral, the pilot applies full anti-spin rudder followed by full trailing edge down elevator/stabilizer. Normal Recovery Controls is basically the 1936 NACA spin recovery procedure, which I will talk about a little later.

**Simultaneous Recovery Controls:** This procedure is simultaneous application of full anti-spin rudder and full trailing edge down elevator/stabilizer with the ailerons neutralized.

**Rudder Only:** Application of full anti-spin rudder only, with all other control positions held constant.

**Neutral Recovery Controls:** This procedure is the positioning of the rudder, elevator/stabilizer, and aileron controls to their neutral positions.

# different

**Elevator Only:** This procedure is the application of full trailing edge down elevator/stabilizer while maintaining pro-spin rudder and aileron deflections.

**Controls Released:** Not the Beggs/Mueller Emergency Recovery. This procedure is defined as the free release of rudder, elevator/stabilizer, and aileron controls, with hands and feet removed from the controls. Since we have said that the Controls Released procedure is not the Beggs/Mueller Emergency Recovery procedure, we should give you the definition of what that procedure actually is.

**Beggs/Mueller Emergency Recovery:** This procedure is incorrectly called the hands-off recovery by some. This procedure is power to idle, hands off the stick or yoke, then full anti-spin rudder. This procedure works in Pitts Specials and Eagles.

of Stowell's book covers stall and spin history, which illuminates that McAvoy "...estimates that he had spun the equivalent of over 300 miles vertically in just one year of intensive testing...." The NACA procedure requires that, *assuming the power is at idle and the ailerons are neutral*, the pilot must first apply full anti-spin rudder, then apply forward elevator one-quarter turn later.

Rich Stowell's PARE procedure (Power idle, Ailerons neutral, Rudder full opposite, Elevator sharply through neutral) is set up to help pilots correctly apply the 1936 NACA procedure.

At this point I have to bring up an airplane's mass distribution. How the mass is distributed in an aircraft affects spinning characteristics. There are fuselage-heavy airplanes, like military fighters. There are wing-heavy airplanes, like multiengine airplanes and gliders. Then there is what we fly, which are single-engine airplanes

The NASA team tested the different recovery methods on all the different models of airplanes they had. On each of the different models of airplanes they also tried different tails and other aerodynamic modifications and tested them again. The aircraft were all close to gross weight and the aft center of gravity (CG) limit. They were also tested in a three-turn spin and a one-turn spin. Here are the results.

"...Overall, Simultaneous Recovery Controls were observed to be 'nearly' as effective as Normal Recovery Controls for spin recovery. However, more incidences of prolonged recoveries (more than two turns) occurred with simultaneous rudder and elevator inputs versus separate inputs. And the effectiveness of Simultaneous Recovery Controls was more sensitive to mass distribution than Normal Recovery Controls. The remaining recovery methods tested proved to be much less reliable than either Normal Recovery Controls or Simultaneous Recovery Controls. And as the spins developed, the other methods became increasingly inconsistent.

"...Overall, full opposite rudder followed by forward elevator with ailerons neutralized provided the quickest and most consistent spin recoveries." "...All of the other one-turn spins, even those that eventually would have developed into unrecoverable flat spins if allowed to continue beyond the first turn, recovered within the one-additional-turn requirement using Normal Recovery Controls."

Through the years we have slowly lost what was hard-won knowledge in 1936. As Stowell states later, "The NASA tests, therefore, verified the relative superiority of these 'tried and true' spin recovery actions (for the mass distributions/IYMPs of typical, light, single-engine airplanes)—the same actions published decades earlier by NACA. The results suggest, in fact, that lengthening the time delay between the application of opposite rudder and forward elevator might improve recovery characteristics in some cases."

Recovery from an unintended spin is like winning a knife fight in an alley. The



Gordon Penner after a competition flight in his Pitts.

In 1936 a NACA test pilot named W.H. McAvoy published the technical paper at Langley that established the NACA spin recovery procedure. Chapter 2

with roughly equal mass distribution between the fuselage and the wings. This data brought out here applies to those with equal distribution.

PHOTOGRAPH BY CHARLES JOHNSON

best way to always win that fight is to never go in the alley! But you have to have training to learn to recognize the alley. "The most significant observation (from the NASA study) was the affirmation that *none of the recovery control sequences employed would always stop every spin.*"

There are a few channels to go down with this knowledge. First, we must be *very* careful about CG loading. Spins are very CG sensitive. Second, if you're on base-to-final and the airplane begins to yaw and roll toward the low wing, pick up that low wing with opposite rudder, *not* opposite aileron. Better yet, go around. Yaw/roll coupling from a skidded turn, occurring because the pilot was "rudering the nose around," is why we spin, not because of a stall. Ailerons are usually spin aggravators, and opposite aileron at this point just makes the spin worse, not better.

Third, we all have a responsibility to keep this knowledge alive. We at the International Aerobatic Club and the EAA are the database for this kind of knowledge, but we want everyone to know this stuff. The CFI's know this stuff, right?

Wrong. Sadly, in all the CFI surveys done on this subject since the '80s (and they are all in Rich Stowell's book), most CFI's and examiners do not possess anywhere close to *an instructional*

*level of knowledge* (the FAA's term from AC 61-67C) on this subject.

Spin training requirements were removed from all pilot ratings except the CFI in 1949. CFI spin training should at least be done according to AC 61-67C, but it usually isn't. The surveys and the base-to-final-turn accident rate prove that. Most CFI's get only two turns each way in a Cessna 172 and no ground training. There has to be someone who can tell new and not-so-new pilots what is in the depths of that "bad alley" we spoke about earlier, so they can recognize it without going into it. We must relay to them how to recognize the bad alley early so they either don't go down in it at all or so they don't get in too far before they start working their way back out.

We in the competition and recreational aerobatic world do only one, one and one-quarter, and one and a half turns in a spin, and we are in aerobatically certified (six-turn certified) aircraft. Most pilots are in normal category airplanes. They are certified for only one turn. As people cycle in and out of flying, this knowledge can get lost. We had spin knowledge in 1936, and then we lost it. We have to keep this knowledge alive. And then you will tell your friends, who will tell their friends, who will tell their friends....

Fly safely! **IAC**

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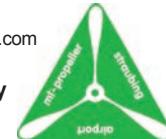


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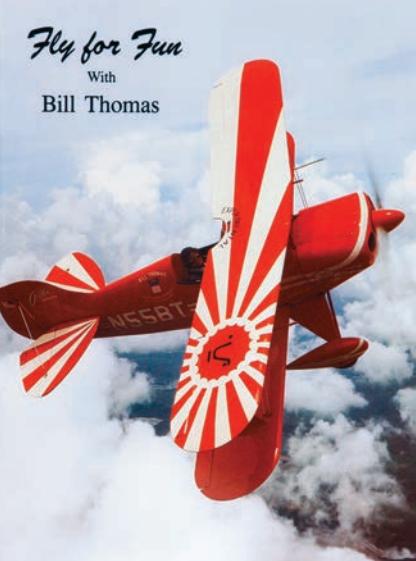
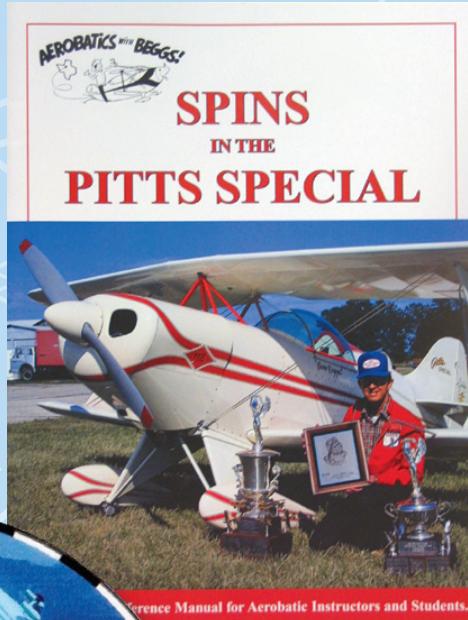
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