

# **SPORT** **Aerobatics**

MARCH 2011

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB



How to Fly the  
**SPORTSMAN  
SEQUENCE**

- **First Japanese Contest**
- **Cheap Acro**



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Vol. 40 No.3 March 2011

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*"Somebody said, "Well, they met a black bear when they were making the corner markers. Maybe it's true. "*

Yuichi Tagaki

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

## Competition Season's Here

**IT'S MARCH, AND THAT** means competition season is back on the radar screens of most pilots who've daydreamed about tossing themselves about the sky over these cold winter months.

I live at nearly 9,000 feet in the Colorado Rocky Mountains, and this year has been a particularly good snow year. I think we're sitting at about 170 percent of normal snow pack, and that means the skiing has been wonderful. For those of you in other parts of the country, especially those parts that don't normally see snow, things have been quite a bit rougher. We've had a lot of Southerners riding the ski bus lament the lack of snow-removal equipment in their hometowns. Of course, this was the first year in a very long time where we've seen colder than

of chapters will be holding introductory and refresher judging schools, and now would be a good time to look them up to see when they're being held. Just visit this link to find one: (<http://www.usnationalaerobatics.org/iacdb/JudgesSchoolListing.asp>)

Last year, we featured the Sportsman Known sequence in two parts, because it eats up a lot of magazine real estate. There was some feedback from people who said they'd like to have it in one issue so they have all the information in one place. This month, that's just what we did.

I have the honor of welcoming back John Morrissey, who has played a major role in our sport from its early days. He was a regular contributor to *Sport Aerobatics* years ago, and I asked if he would be so kind as to give us his take on the 2011 Sportsman Known sequence you see in these pages. John, wife Linda and son Matt run Great Planes Aerobatics in Lee's Summit, Missouri, flying the Pitts S-2A. Make sure to read John's bio at the end of his piece to learn more about him. Welcome back, John!

I had a lot of fun reading Yuichi Takagi's piece on Japan's first aerobatic contest. The hurdles they jumped over to make it happen make our system seem downright simple by comparison.

Next month should be a special treat. I'm planning to reintroduce someone who used to be a big name at the IAC. I hope you like her story as much as I do. **IAC**

The hurdles they  
jumped over to make  
it happen make our  
system seem  
downright simple . . .

-40 Fahrenheit. I think most people are ready for the warm days of spring.

With spring approaching, and competition season warming up, it's time to talk about judging schools. A lot





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

*Bob Curran, a fellow IAC member, sent me an e-mail expressing some thoughts about opportunities for all aerobatic enthusiasts, not just those who choose to fly competition. I asked him to share his view with all of our members. Thanks, Bob! –Doug Bartlett*

## A Different View

**RECENTLY I WAS ASKED** to put together a presentation on the benefits of being a member of the International Aerobatic Club from a non-competitor viewpoint. The request came just as I was starting to question my renewal with my local IAC chapter because, as a non-competitor, I was feeling a little out of the loop. So I embarked on a mission to seek inspiration and decide if it was just a case of the winter aerobatics blues or if there was something truly missing. Thus began a journey to visit and compare as many IAC chapter websites as I could.

My primary goal was to see what other chapters offered to the beginner and the grassroots weekend aerobatics pilots, like me, who enjoy aerobatics but don't really have the time available to pursue it as a competitive sport.

The majority of the chapter websites I visited would seem only to exist for the sake of competitive aerobatics. Granted, a website doesn't give you true insight into the workings of a chapter, but a look at their calendars and newsletters does give some better insight. Many of the websites I visited didn't have a newsletter available to read, and if they did, I found little content of value to a newcomer or weekend enthusiast. Many of the calendars I looked over, if they were current, listed only upcoming contests.

Like all of you, beginner to hardcore competitor, I love aerobatics. I want to learn to do maneuvers safely and expertly. I recently flew in a critique session my

chapter offered, and I learned more in those 15 minutes of flight than in hours of cockpit time with an instructor doing loop after loop after loop. Yet very few chapters appear to be scheduling critique sessions that would entice me to come meet them. Or if they do, they sure don't advertise them on their website, calendar, or newsletter.

### ... I found little content of value to a newcomer or weekend enthusiast.

Several of the newsletters I read had photos and articles about the various members and how they did in this contest or that. While that was interesting reading, there was nothing of value to me that might help me learn to better spot my lines on the back side of a half-Cuban or judge the "float" time on the top of a loop. This is info that our newcomers would like to know to help them improve and maybe build enough confidence to join us at the next contest.

I've recently read about a serious lack of volunteers and judges at contests. While I'm not a competitor, I have volunteered at a few contests, either during the contest or a few days beforehand tramping across

fields, barbed wire fences, and poison ivy to lay out the boundary markers. There are lots of aerobatics enthusiasts who would love to spend a day working as part of the contest admin crew just to get to watch a particular category or particular type of airplane put through its paces. Practically no website I visited addressed the need for non-flying members and volunteers.

Alas, the chapter websites are not alone. I turned to the IAC website for inspiration and asked, what is there here that would make me, a non-competitive flier, want to join? Sadly I couldn't find anything. While I've actually reaped many rewards from that membership over the years, I can't help but reflect that if I were an upstart sport aerobatics enthusiast looking for an organization to join, there's nothing on the IAC website or most chapter websites to explain the benefits of membership to me.

It wasn't a totally bleak snapshot, though. There were a few exceptions that stood out and really pulled at the beginner and weekend enthusiast while safely maintaining a balance for the competitors. I think a lot of chapters probably do try to support the beginners and enthusiasts even though that might not be reflected in their websites, calendars, and newsletters. And if you think there isn't much value in the non-competitor membership, keep in mind that nearly 90 percent of the IAC membership is from the non-competition flier. Is your chapter missing out on that action? **IAC**



## 2011 SUN 'N FUN PRESENTATIONS

DAY	TIME	TITLE	SPEAKER
Tuesday March 29	11.a.m. 12.p.m.	Aerobatics in your homebuilt. Aerobatics isn't for everyone?	Steve Wolfe Jacquie Warda
Wednesday March 30	11.a.m. 12.p.m.	Spins and spin myths. IAC—What you get out of it!	Bill Finagin Bob Curran
Thursday March 31	11.a.m. 12.p.m.	Your first aerobatic contest. Judging aerobatics.	Giles Henderson Chris Rudd
Friday April 1	11.a.m. 12.p.m.	Emergency maneuvers. The Starjammer.	Jim Alsip Elgin Wells
Saturday April 2	11.a.m. 12.p.m.	Getting started in aerobatics. Emergency bailouts & equipment.	Johnny White Allen Silver
Sunday April 3	11.a.m.	The spin.	Johnny White



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Tuesday, July 26  
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Wednesday, July 27  
Navy Day


Thursday, July 28  
Tribute to Burt Rutan

Friday, July 29  
Salute to Veterans

Saturday, July 30  
Night Air Show Returns

Sunday, July 31  
Big Finale, the Military Scramble

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A		Contest		Date		Category		Programme	
				2011		Sportsman		Known	
								pilot's number	
1		1.2.1	7					Presentation	6
2		1.6.3 9.11.1.5	10 4					FIGURE TOTAL K =	127
3		5.1.1 9.1.5.1	17 2					INCLUDING PRESENTATION =	133
4		7.5.1	10					Aircraft Type:	
5		8.42.1 9.1.4.2	10 4					FREE PROGRAM CHECK	
6		8.1.1	13					Signature:	
7		8.32.1 9.1.2.2	10 6					Printed Name	
8		1.1.1 9.2.3.4	2 9					IAC No	
9		2.1.3	5					Judge	
10								Name	
								Number	



pilot



# Flying the SPORTSMAN SEQUENCE 2011

**MANY OF YOU READING** this article will be flying competition aerobatics for the first time this year. Others will be honing their aerobatic skills while aiming for the Sportsman National Champion's trophy. Regardless of your experience or aspirations, perhaps this short piece on the IAC's entry-level sequence will give you some insight into how to play the game of aerobatics. And make no mistake about it, winning is much more than just mastering the figures and staying in the box. This article is more about flying the sequence than the individual maneuvers, as it is assumed that your aerobatic instructor has already given you the instruction necessary to allow you to begin the competition phase of aerobatics. I will not attempt to repeat that training here; however, there are a few maneuvers that I will cover in this year's sequence that require some discussion either due to safety or nonintuitive techniques.

BY JOHN MORRISSEY

**B**efore commenting on those techniques that may prove helpful in mastering the individual figures involved, let's step back for a moment and consider some of the basic training realities that will optimize your practice sessions, save time, and help eliminate some frustration. For those of you who have read my how-to articles before, this may be a bit repetitious; however, a brief review of productive practice procedures may be in order. First, the obvious—the individual maneuvers must be mastered before they can be linked. Each aerobatic maneuver has both a procedure and a technique. The procedures must be learned prior to developing the techniques needed to accommodate your skill level, your aircraft's capability, the available energy for the maneuver, the density altitude, and the wind. It makes little sense to practice sequences, or segments of sequences, until each maneuver within the sequence can be flown consistently at the 7.5 level. Finally, all the operational IAC rules that pertain to your sequence and category must be clearly understood and committed to memory. It makes no sense to spend thousands of dollars for aircraft ownership, maintenance, training, and practice while ignoring the rules of the game that can be downloaded for free.

Next, let's take a look at the dominant portions of the sequence. And by dominant I mean those portions of maneuvers that affect the majority of the sequence K, and thus your score. The reality is that in almost every sequence, regardless of category, the partial looping segments of complex maneuvers dominate the sequence. This may not be readily apparent, but consider the 45- and 90-degree looping segments present in the 2011 Sportsman sequence. Of the 10 maneuvers, seven have at least one of those partial looping segments, and four of those seven maneuvers have multiple segments. The point is that if one cannot transition from either a plane to plane or plane to radius segment of a maneuver without changing bank, radius, or heading, the entire sequence will be seriously compromised. In this Sportsman sequence those segments will have a direct effect on 78 percent of the total K. The obvious but often overlooked message is that one needs to perfect the transition pieces required to change flight path from the plane to radius or the plane to plane portions of complex maneuvers. It is while learning this seldom taught or

discussed fundamental part of aerobatics that the proper use of rudder and aileron functions will become obvious. For instance, when we pull an American aerobatic aircraft from a level plane to a 45-degree plane, it will always yaw to the right due to gyroscopic effect. I have noticed over the years that most entry-level pilots, having little or no instruction in proper rudder usage, will apply the right (but wrong) rudder during the pull because they have always held right rudder when their nose is above the horizon in a climb. They do so because that is their muscle memory—use right rudder when climbing. When this improper right rudder exacerbates the existing yaw, they resort to the only other control available to try to hold heading, left aileron. This is just one of the many situations I continually observe where aileron is mistakenly used when rudder is required. The safety implications of these errors are obvious when one realizes that yaw will be the byproduct of this fundamental error, and when that yaw occurs during a hard pull where the wing is very close to its maximum coefficient of lift, the white elephant in the room is an unplanned departure (autorotation) from controlled flight—not good!

The next most dominant portions of any sequence are the Family 9 rotational elements. Of the 10 maneuvers in this Sportsman sequence, six (60 percent) have rotational elements—five from Families 9.1 through 9.2 and one, the spin, from Family 9.11. The K values of these rotational elements make up 24 percent of the sequence K, but a further look at their effect on your score shows that they directly influence 72 percent (92 K) of the sequence. The message here is obvious—one needs to master the aileron roll and positive spin variants in Sportsman to have any hope of being successful not only in the Sportsman sequence but also when moving up the categories in aerobatic competition. There is another teaching point here—the Sportsman category was never intended to be an off-Broadway play where one gets a little experience with acting prior to becoming a lead actor on the main stage. Rather it is here where we begin to master the required rotational maneuvers for our category before advancing to higher levels of aerobatic difficulty. In his seminal book *Aerobatics* Neil Williams has some advice we should all remember: “The slow roll (now the aileron roll) is really the key to advanced aerobatics.” To this I might add—so we had better get it right *from the beginning*.

Before we cover the “how to play the game of aerobatics” portion of this article, let's discuss the individual maneuvers in the sequence to help you get to that 7.5 minimum proficiency level by taking a run through the 2011 Sportsman sequence from the beginning.

**“Each aerobatic maneuver has both a procedure and a technique.”**





● **MANEUVER 1** The 45-degree upline. First, what is the purpose of this maneuver? It is to set up the spin! This requires a transition from level flight to a 45-degree upline and back to level flight. To set up the spin while enhancing the presentation of your sequence let me offer two suggestions: Since this is the only maneuver where you can absolutely determine your entry speed, altitude, and position, get a high, predetermined airspeed during your box entry. If there was ever a good place to use redline airspeed, this is it. The reason you want maximum energy is to start at the lowest possible altitude to be more visible to the judges while getting their attention. Next, you want to exit the 45 upline at a speed that will place you in level flight at 3 to 5 mph above the 1g power-off stall speed at the deck angle and power setting required to hold that speed in level flight. Why is this important? So that when you are ready to spin, all you need to do is close the throttle and initiate the spin when and where you want. Later on when we discuss positioning you will realize that there is a desired balance of time and distance between each maneuver. If you exit that 45 line at 90 mph, the time and length of the line prior to the spin will be excessive, you will lose the rhythm of your flight, and the judges will begin to lose their interest. Regarding the 45 line—get several judges to look at your estimate of 45 degrees. Pick the sight picture that seems to please most of them. Forty-five-degree lines are the most subjective of the basic aerobatic lines. And now is as good a time as any to

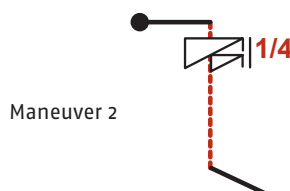
mention the use of sighting devices. If you feel you must use them, be certain to train yourself to look through the devices to maintain a clear and continuous focus on the horizon. If the horizon is obscured by cloud or haze, then one must estimate the position of the horizon by using the best available ground reference. A bit of trivia here—if someday you find yourself in a CIVA competition, the minimum visibility for the sequence is only 2.6 statute miles! And of course in restricted visibility sighting devices are worthless. If you fail to master the deep-focus procedure and focus instead on the sighting device, all attitude situational awareness will be lost. The reality is that the airplane itself is the sighting device, and using it instead of an artificial attitude device will greatly enhance your situational awareness.



Maneuver 1

● **MANEUVER 2** The one and one-quarter upright spin. The spin entry is straightforward. I prefer using idle power, neutral aileron, full rudder, and full back-stick deflection at the instant of stall with a very slight lead with rudder. Additionally, I suggest a very slight yaw, perhaps 1 to 2 degrees maximum, in the direction of spin prior to the actual break. I do not suggest partial rudder, partial back-stick, throttle, or aileron use to fly through the spin to simulate autorotation. While I realize that this is a popular technique, especially in the higher categories with aircraft that have unique spinning modes, it means that no two spins will behave in the same manner during autorotation. This can lead to confusion and uncertainty during the recovery process and is not appropriate for the Sportsman category. The recovery portions from one-quarter turn spin variants (i.e., a one and a quarter or a one and three-quarter turn spin) deserve some discussion as they differ from the one-half turn spin variants (i.e., a one, one and a half, or two turn spin). With the one-half turn variants, the traditional full opposite rudder followed by forward stick until the spin stops will result in the lateral axis square with the earth; in other words the aircraft is not off heading when autorotation ends. This is not the case with the quarter turn variants. In those spins the aircraft will be yawed/off heading in the direction of the recovery rudder (opposite spin rotation) with a positive pitch attitude when the spin stops. These two discrepancies must then be rapidly corrected to the vertical axis. Although the rules allow a pitch attitude adjustment to vertical after recovery, the addition of a yaw adjustment makes these two-step recoveries difficult to reward gradewise. The trick is to make the adjustment in pitch and heading/yaw during the last few degrees of recovery to allow the spin to stop in the perfect downline in both pitch and heading. This is done by using a small amount of rudder in the direction of rotation and appropriate forward stick immediately *after the autorotation* portion of the spin has been stopped, but not before the rolling portion stops. The danger here is

that a pilot can mistakenly apply too much trim rudder in the direction of the spin *prior* to autorotation stoppage. When this happens the spin continues, disorientation follows, and recovery becomes compromised in the safety sense. I have seen this many times during training flights, and this is why I have been trying (unsuccessfully) for years to remove the quarter turn variant spin rotations from Sportsman and Intermediate Known and Unknown compulsory sequences. *So be careful with this one.* If recovery is in doubt, even for an instant, immediately go to plan B—reconfirm throttle idle, release all controls (stick and rudder), and normal flight will usually result immediately. If that fails, use full and aggressive rudder opposite the direction of yaw/spin. However, if the spin has been flattened by improper use of out-spin aileron or power application in left spins, you will be in dire straits and can easily get behind the plane and lose situational awareness. That is one of the reasons I suggest idle power during spins and ailerons neutral or slightly in-spin. After recovery from autorotation and as the vertical downline is achieved, reapply full power gently while setting the downline. Begin your pull to level flight with enough speed to ensure adequate energy for Maneuver 3, the hammerhead. And since that maneuver does not have a roll on its upline, excessive speed will not be required. For all spins, always plan on allowing 1,500 feet of altitude loss for spin recovery.



● **MANEUVER 3** The hammerhead. This maneuver is straight-forward and will not require any special techniques. Make certain the aircraft is perfectly vertical in pitch and heading prior to the pivot that should occur with enough forward speed to prevent descending during the pivot. To accomplish this vertical perfection some right aileron will be needed on the way up as well as right rudder *after* the vertical is achieved. Make all pivots to the left in American aircraft, and do so with vigorous and full left rudder. As the pivot begins, a slight forward pressure will be needed on the stick to prevent the aircraft from pitching toward the pilot (gyroscopic effect). Full right aileron will usually be needed *after* the pivot has progressed about 20 degrees. Do not perform the quarter roll down immediately after the pivot, as the aircraft is going very slowly. Center the roll in the line by using a two to three count before the roll and one to two afterward. During downward quarter rolls to the left, use rapid, full, and aggressive left aileron. Use no left rudder, as angle of attack is zero on vertical lines. For right rolls a slight right rudder pressure may be necessary to overcome the prop swirl effect on the empennage. During the first 90 degrees of pivot, continue to focus on the left

horizon (do *not* look straight ahead over the nose). Bring your longitudinal axis through the point on the left horizon vacated by your lateral axis. When the nose passes through the horizon, turn your head to the left and change your focal point to straight down and bring your longitudinal sight picture to that point on the ground. Continue to maintain that deep focus on your ground reference point before, during, and after the quarter roll. The direction of the roll will be obvious, as you will be looking at the box. If confused regarding the direction of roll, always roll toward the deep/downwind end of the box, but do not spend time on any downline trying to remember what to do next. Cardinal rule here: No "what do I do now" thinking on vertical downlines. If you forget what to do on a vertical downline, reduce power and perform a wings-level pull to level flight, rock your wings, and take your interruption.



Maneuver 3

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*...I had to dead stick my Pitts in and an old timer said "Nice save. Someone taught you well." Yes they did! Thanks, Budd.* -Craig H.

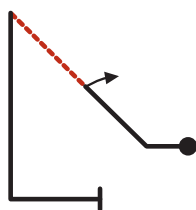
*My insurance company covered me, a low-time, low-tailwheel-time pilot in a single-hole Pitts largely because I went to Budd for my training.* -Tom P

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

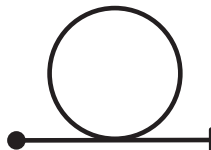
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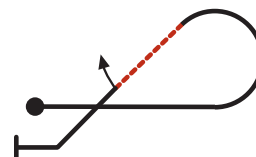
● **MANEUVER 4** The reverse shark. This maneuver requires no special techniques. Because it is going downwind following two fully drifting cross-box maneuvers, you will be close to or just past the Y-axis (mid-box) heading downwind, so you do not want or need excessive speed—145 mph will do nicely for a Pitts or Decathlon. In heavy down-box winds, take no more than one second (~300 feet) after the hammerhead and pull briskly to the 45 line for the shark. Shorten the lines somewhat before and after the half-rolls when heading downwind on 45 lines. Make the radius to the vertical downline as tight as you can, and do not be afraid to do so in buffet—this is not a half-reverse-Cuban, so bring the nose smartly around to the vertical down sight picture. Prevent any yaw in the pull down during heavy buffet with timely rudder use, and make the downline long enough to give good speed. When playing the game of aerobatics, you will need to learn to plan for maneuvers that occur later in the sequence as well as planning for the next one. In this case you will need good exit speed from the shark to not only provide the energy for the next maneuver, the loop, but also to carry through to number 7, the hump, that will be the most energy-intensive maneuver in the sequence. And I suppose this is as good a time as any to mention the use of sighting devices to set vertical or 45-degree downlines—*don't*. Learn the sight pictures for 45- and 90-degree downlines by focusing on the ground in front of you. Not too critical in Sportsman with a 1,500-foot floor, but if someday you find yourself flying Unlimited with a 328-foot floor or in the air show business with no artificial lower limit, you do not want the habit pattern developed in Sportsman of looking to the side on the way down to be your (pun intended) downfall.



Maneuver 4



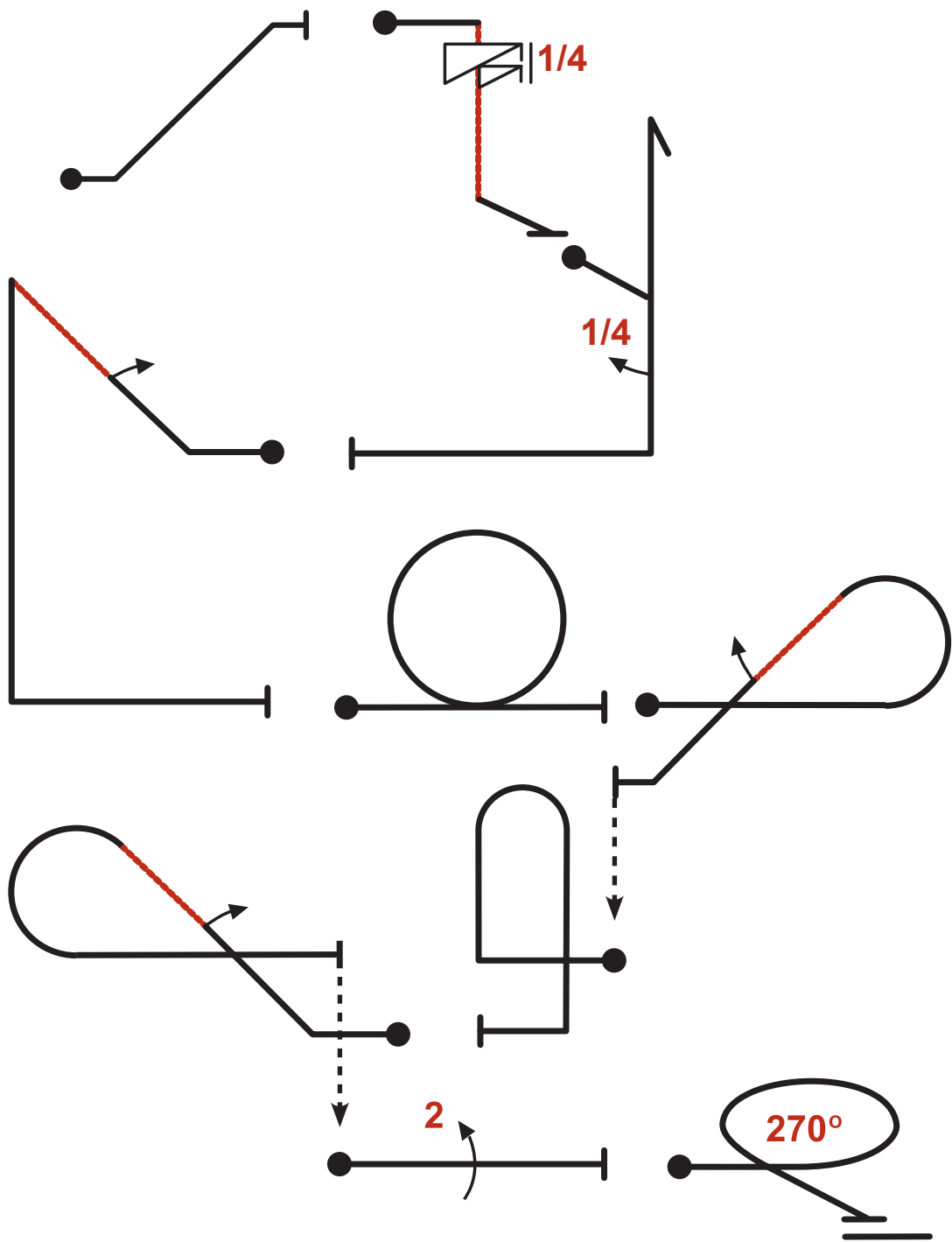
Maneuver 5



Maneuver 6

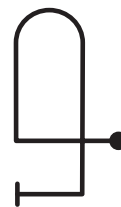
● **MANEUVER 5** The loop. This is a standard into-the-wind vanilla loop that requires no special techniques. Remember, the loop does not start at 4g's, it starts at 1g; therefore, it should not end at 4g's. It takes about 15 to 20 degrees of pitch to properly transition from a plane (level flight) to the radius of a 4g loop. To make the loop round and prevent a hook at the end, begin your transition from the 4g's to 1g in the fourth quarter of your loop with about 15 to 20 degrees of pitch remaining prior to level flight. The more the head wind, the longer you should take to get to your 4g's at the beginning of the loop and the sooner you should begin your transition from 4g's to 1g at the finish of the loop.

● **MANEUVER 6** The half-Cuban. This is just another variant of an into-the-wind loop. Perform the first five-eighths of this maneuver exactly the same as the loop you just completed. When you are inverted at the half-loop position, pick a reference point on the ground for your 45 downline, and focus on that point while continuing to fly the loop until that point is directly ahead of your eyes in the windscreen. Stop the looping portion with firm forward pressure on the stick, and freeze that ground reference point in the same spot on the windscreen and never lose focus on that point. After a two count, roll to upright with that point exactly in the same point on the windscreen, add a good solid one count after you are upright on the 45 downline, and then briskly transition from the 45 down plane to the level plane. Here is where your speed needs to be at its highest point in the sequence, as you will need it for the hump. Adjust the length of your downlines before and after the half-roll to obtain your desired speed that will vary for each aircraft type, but for an S-2A I would use at least 170 mph. For a Decathlon, try for 160. For our grassroots competitors, my only suggestion is to get as close to your redline speed as your aircraft limits and comfort level allows.



● **MANEUVER 7** The hump. The major mistake that pilots have been making with the hump for the last 36 years that I know of is their failure to close the radius on top properly. By that I mean that the small half-loop on top is not round, as it tends to have a decreasing radius from the time it leaves the vertical upline until the inverted position and then an increasing radius as the last quarter of the half-loop progresses to the vertical downline. In competition parlance, the half-loop finishes low. The primary method to solve this problem is to carry good energy/speed into the maneuver, hence the admonition in the previous paragraph to leave the half-Cuban with good speed. Once that speed has been obtained, do not waste it with an overly aggressive pull from the level plane to the vertical up plane. If you get too aggressive (high *g*) with the pull, you will be “flat plating” air that will quickly remove the speed you worked so hard to save for the hump. The trick on this plane-to-plane pull is to get to your target *g* (no more than 4) as quickly as possible while maintaining a rapid, no buffet pitch rate. Stop the pull abruptly as the vertical line is reached. This technique limits your time in the pull and avoids serious airspeed loss due to high angle of attack and its associated induced drag. Once you are on the upline with good speed, leave the line early enough (and probably much earlier than you might think) with the energy required to sustain a constant radius in the half-loop. Remember, pitch rate is least when velocity is least, so

you must leave the upline and gradually decrease pitch rate/*g* until just prior to the inverted position on top and then, as speed increases, rapidly increase your pitch rate, even in buffet, until the vertical downline is reached. This will not feel normal. You will need a critiquer to tell you when the radius is closing just opposite the point/elevation where it began. Failure to master the top radius in the hump is the primary reason that this maneuver loses altitude. In this particular sequence, you will not need, nor should you have, excessive speed exiting the hump because you are headed downwind to Maneuver 8 that is not speed critical, especially as you will be past the Y-axis heading downwind in strong X-axis winds. Because of this, you should shorten your downline on the hump to conserve altitude without worrying about lower exit airspeed. Use no more than one solid second delay between the half-Cuban and the hump and no more than one second between the hump and the half-reverse Cuban. Remember, a one-second fast line downwind will use ~300 feet, almost a football field.

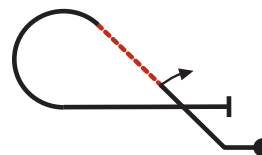


Maneuver 7





● **MANEUVER 8** The reverse-half-Cuban is a very straightforward maneuver with no special technique required. This is a plane-to-plane pull and should be brisk, as you have to sustain the radius for 45 degrees. For a Pitts, 145 mph is plenty of speed. Make the line after the half-roll about two seconds, twice as long as the one-second line before; use full aileron in the roll and drift into the five-eighths loop rather than pulling it in with a definite break in the line. From that point on in the looping portion, it is just another into-the-wind loop. An exit speed of 140 to 145 is ideal for the two-point roll.



Maneuver 8

● **MANEUVER 9** The two-point roll. Some suggestions: Center this maneuver right in front of the judges about halfway between the X-axis and the judges' boundary. Make the pause between the points a little dramatic by hesitating as least as long as it took you to complete the first half of the roll. In aircraft with very high roll rates, back off a bit and avoid the primary mistake in any hesitation roll—using rudder to initiate the roll from inverted to upright. When you begin the roll to upright, *do not lead with left rudder!* I do not know why this happens, but I can tell you this error is very prevalent. The first control movement for any roll or portion thereof that begins from

inverted flight is forward pressure on the stick and then left aileron. Left rudder is not needed until you approach knife edge, and only then to block the nose from dropping. And while we are at it, that left rudder should be gradually removed during the last 90 degrees of roll and be neutral by the time your aircraft is upright. If you find yourself needing hard left rudder at the end of a level roll, you can be certain you did not have enough forward stick in while transiting the bottom portion of the roll.

Maneuver 9



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● **MANEUVER 10** The 270 level upright turn. Begin this maneuver so you will be pointed directly at the judges at the end. Wait three seconds and then rock your wings as you pass overhead the judges, who still have two grades to give at this point, one for 5K for the turn and another worth 6K for positioning—11K! Rapid entry and exit banks are a big help with this maneuver. Do not let the airplane turn while banking—it's too easy to see. Memorize the level flight sight picture for a 60-degree bank turn and hold it. Do not place the aircraft in heavy buffet during the turn. Know what 60 degrees of bank looks like and then add a bit more. In a Pitts, if a cabane is parallel to the horizon, your bank is 60 degrees.



Maneuver 10

Now that we have talked about the individual maneuvers, a word about presentation is in order. While the subject is too lengthy to address in its entirety here, it should be pointed out that presentation is really the key to performing a great sequence. Without presentation, excellent maneuvers joined awkwardly in difficult box positions will result in an average score. In international competition, I have seen flight programs

flown with just average maneuver quality and outstanding presentation place near the top. Likewise, I have seen flight performances with incredibly well-executed complex maneuvers and poor presentations go unrewarded. I am not saying this is how it should be, but the reality is that this happens and you should be aware of the effect presentation has on your final score. Keep in mind that you are being evaluated by humans with all their normal appreciation of precision, symmetry, and timing tempered with the avoidance of pain. So, a few hints—try to make the time and space relationships between maneuvers the same, just as you would expect in good type set. How? Take more time when you are going slowly and less when going fast between maneuvers. Be certain to consider the ergonomics of the judges' necks, and do not fly in a box position that requires them to raise and tilt their necks at the same time to keep you in sight. This causes their necks to hurt, and it removes the horizon from the judges' view. Perform your high maneuvers at the beginning of your sequence about 500 feet on the far side of the X-axis. As you get lower, move your flight program to its final performance line about halfway between the X-axis and the judges' boundary.

Wind: The wind is the final arbiter in competition aerobatics. In the old Dick Tracy comic strip one of his favorite truisms was "He who controls gravity controls the world." In competition aerobatics we can substitute the word *wind* for *gravity*. You cannot consistently produce well-presented flights unless you can control Y-axis drift in side winds and X-axis



placement in strong head/tail winds. It can be done, and you must find *the* way to do it. And this brief article on a Sportsman sequence is not the time or place to handle that issue.

And lastly, remember that you are being evaluated as soon as you come into view. The scoring begins with the first maneuver, but the mindset you are creating for the judges

## "You are performing for people, not machines."

begins as soon as you are seen. This means that you must develop a consistent box entry technique that will keep you in view close enough to the judges to be easily seen while following an intuitive and predictable flight path that leads to the energy, altitude, and placement of your first maneuver.

You must make your box entry timely, exciting, professional, and distinctly your own. Although you have to tell the same story that the other competitors have told before and will tell again after your performance, you must tell your story

better. Begin creating your own one-act play with passion and purpose announced by your box entry, and then build on that initial high level of anticipation with a great presentation. You are performing for *people*, not machines. They want to hear a great story. They want the actor to be convincing. They want to watch someone who is confident. If you tell your story with confidence and élan, they will want you to succeed and not notice a minor technical flaw or two.

When you rock your wings on exit, you want them to wish your performance had not ended. **IAC**

**John Morrissey** has been teaching competition aerobatics since 1978 and operates Great Planes Aerobatics along with his wife, Linda Meyers Morrissey, and his son, Matt. Linda was a Fond du Lac Unlimited Champion and gold medal recipient on several U.S. teams. John was a member of the 1997 Gold Medal U.S. Team at the 1997 AWAC along with Gerry Molitor and Matt. John and Linda have conducted aerobatic training camps at Ashland, Kansas, since 1993.

<sup>1</sup> *Aerobatics* by Neil Williams; pg. 47; Airline Publications – 1976



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# Full Circle

BY DAVE WATSON, IAC 26557



As pilots, we are often placed in the role of ambassadors to flying when interacting with others. In my 10 years of competitive aerobatics, I have had the great joy of taking numerous people up for introduction to aerobatics rides, and I have been allowing several friends to use my beloved Super D for aerobatic practice and competition. But recently I had an experience that eclipsed all others on my share the joy of flying scale.

I was at the gala dinner of a conference I was attending with more than a hundred interventional neuroradiologists in Val d'Isere, France, in January 2010. I was sitting with a physician whom I'd been to visit a few times, so she knew me fairly well. During dinner, Iris

asked me if I had been flying much lately, and that led the whole table we were sitting with into taking an interest in our sport. I think when I told the group of my first flight, the same hook that hooked me was set with Iris.

I recalled for the table that my flying experience started only about 15 years ago when I pulled from a Fort Lauderdale hotel lobby display case an advertisement card that read, “Turn your world upside down, Fly with Dagmar!” I was a radio-control pilot, having flown in a small plane once as child. I thought this sounded like fun, so I called Dagmar and flew with her the next day. Her enthusiasm and joy of flying was contagious, and that ride in her S-2B truly turned my world upside down, as anybody who knows me can testify.

As I was asked to tell more stories and answer more questions about flying, Iris became very interested. She shared with us her past experiences as a glider pilot in Germany before she got too busy with becoming a physician. As we talked about our experiences, I could see and hear the passion growing in her. By the time the evening was over, she was committed to getting her ticket and doing aerobatics! I suggested she take one of those nice long European vacations and come to the United States for her training, as this would probably be much cheaper than doing her flight training in Europe. I really didn’t expect much to come out of the conversation—I am sure you all have had similar experiences—where soon after such a commitment the excitement wears off and nothing happens. Well, I truly underestimated the drive of my colleague. Just a few weeks later, I was asking her to consult to my company at an

upcoming study here in the States, and she took that opportunity to extend her stay to three weeks to try to get her private pilot certificate. Her plan was to grind it out in two weeks and then compete at the Apple Valley Contest the following week. Can you say driven?

#### STATESIDE

I set her up with the local flight school at my airport, and we helped her through the Immigration and Naturalization Service’s foreign flight student hassles. Her arrival date came, and immediately after her trans-Atlantic flight, I took her for a ride in my Super Decathlon as a primer for lessons that would start the next morning.

After takeoff, I gave her the controls and she flew us out to the practice area. I then demonstrated turns and a few rolls and loops, and then I let her give it a try. Immediately, I knew we had a new winner in our sport. It had been 16 years since she

By the  
time the  
evening was over,  
she was committed  
to getting her  
ticket and doing  
aerobatics!

piloted a glider, yet her skills were still there and her enthusiasm grew as she rolled and looped us on her first flight. Her prior competition trampoline experience had honed a kinesthetic awareness that I have never seen. After 1.25 hours on the Hobbs, she had done most of the Sportsman maneuvers without any disorientation or nausea, and *I* was getting tired. We were getting low on fuel, so unfortunately we had to head back. I sensed a future champion was in the making. Weeks later, when I was bringing my pilot logbook up to date, I found out that this first flight with Iris in my Decathlon just happened to coincide with my 1,000th hour of total time as a pilot; a coincidence that still brings goose bumps to me.

The four-day-long business part of her trip (which was the real reason she was here after all) and a day of bad weather cut a bit too deeply into her two weeks of flight training, and she was not able to get her ticket in time for the AV contest. Additionally, since aerobatics was her goal, she decided to do all her flight training in the Citabria, rather than take the easy route with those silly nose-gear aircraft. She did go to the contest and experienced it with many of us from Chapter 38 as we welcomed her into our clan. She logged the flight down there as dual cross-country with a certificated flight instructor in my Super D. On the way home, she flew my Pitts S-2B from the front seat with me while she maintained perfect heading and altitude within 100 feet the whole way under moderate chop and 20- to 30-mile-per-hour head and crosswinds. I wasn't doing that well with a GPS and compass right in my face.

The following weekend (after another five days off of flight training because of the contest and two other days of business meetings) she was ready to solo in the Citabria. It was 7:30 a.m. on a spectacular California morning, and it was unfortunately the day of her scheduled flight back home to Europe. I watched on as she and her flight instructor rounded the controlled pattern three times, and then he jumped out of the rear seat and let her go to spread her wings. As I watched her five perfect 10 solo landings, tears of joy ran down my cheeks as I vicariously

experienced the joy of her solo with her. Afterward, we went for another Super D joy ride together. This time she did the takeoff herself, and all her aerobatic figures were much more smooth and natural. She's well on her way.

I have been so lucky to be involved with so many great pilots have mentored me into flying and through my aerobatic training. Thank you, Dagmar, Hans, and so many others! But never have I so inspired anyone to take flying up from scratch just to be involved in our sport. By the chance of a lobby ad card, Dagmar gave me the flying bug and later my start in the sport with spin training in her S-2B and Super Decathlon. Some 15 years later, I have now come full circle and have passed that on to my friend Iris in my Super D and S-2B. I hope you, too, can pass your enthusiasm on to others, and I hope it can happen more often than once every 1,000 hours!

Life is good; spread the word! **IAC**







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Will Tyron with Vic Brit (left), who also rents a front seat to compete in Sportsman.

# Competing from the Front Seat

**FLYING AEROBATIC COMPETITION ECONOMICALLY**

BY WILL TYRON, IAC 18341

## GETTING INVOLVED WITH AEROBATIC

competition is clearly one of the most fun, challenging, satisfying, and rewarding things a pilot can ever do. It is the ultimate in flying and the best adrenaline rush on the planet. From the first loop and roll the likelihood of being hooked on this sport is considerable; although, in the new world of expensive airplanes, how does a pilot on a budget get involved?

In this short article I will explain how I got into the sport; how I saved a pile of money; and how, after 20 years of playing in aerobatics, I'm saving even more now. Can you get into this sport on a shoestring budget? Absolutely! Should you? If you want to be the best you can be, and have the attractive benefit of hanging out with some of the world's best pilots and airplanes, the answer is a resounding yes.

Let me tell you a little about my background. Forty years ago, in Ontario, Canada, I received my private pilot certificate, single-engine land and sea. The float endorsement was as close to aerobatics as I experienced in my early days of flying. Getting into and out of the thousands of tiny lakes in that part of the world was a challenge, to say the least. It required split-second timing and total control of the aircraft. Otherwise, you could have a really bad day in a hurry. Bush flying was an absolute blast and a great adrenaline rush. It appears I had the aerobatic bug from the very beginning.

Twenty years ago, after immigrating to America to the beautiful state of Florida, I had the



opportunity to take a flight with Jack Kehoe in his AT-6. Jack was based in Kissimmee, just outside of Orlando. My wife, Donna, had previously purchased a one-hour ride with Jack as a surprise birthday present. We strapped into Jack's AT-6 military trainer with a big old roaring radial on the front, and off we went into the wild blue! It was a magnificent flight; we shot up bad guys on strafing runs, which was very similar to floatplane approaches through the trees, and for the full hour we looped and rolled the wings off that AT-6 with me hooting and hollering in the front seat. Jack let me do a good bit of flying, and when we landed he asked where I got my aerobatic training. I said, "Jack, it started 60 minutes ago." He told me to go to PAC (Pompano Air Center) and rent some time in a Pitts S-2B. He said, "I think you'll enjoy flying aerobatics." I followed his advice, purchased 10 hours of dual in an S-2B, flew the time over the next two weeks, and from that point on was completely hooked. I was then encouraged by my instructor to compete in the Sportsman category at the upcoming Sebring contest where I rented the front seat in another PAC S-2B and had the time of my life. This was the beginning of a 20-year romance with aerobatics that continues today.

To address the economics of aerobatic competition, renting a seat is by far the most economical way to go. But let's take a look at the three ways to play in this arena: owning, shared ownership, and renting.

Owning your own aircraft requires a substantial investment; an inexpensive used airplane by today's standards is still in the \$100,000 range. Then there are the carrying costs of monthly payments, insurance, hangar, fuel, maintenance, hotels, meals, and all the

## **". . . and for the full hour we looped and rolled the wings off that AT-6 with me hooting and hollering . . ."**

little things that add up quickly. To go this route you need a great job with lots of disposable income.

But, let's assume we're the average guy with a slightly above-average job, so let's look at shared ownership. This is the route I initially took. I put the word out into the aerobatic community and came up with two guys who wanted to get into aerobatics, but who, like me, thought the cost was too excessive for sole ownership. We met and put together a very workable co-ownership contract and bought a new 1991 Pitts S-2B. This was a great choice

for me at the time, splitting the costs three ways; however, this is still not a cheap date.

Now,

\$200,000-\$300,000 aircraft. Such a deal! I can't believe I'm having this much fun and spending such a small amount of money. There is always a plane to rent (arrange this in advance), and truthfully, I don't care what kind of aircraft it is. Providing Mike Mays gives the aircraft a thumbs-up after pre-contest inspection, let's rock and roll, baby! I also find having the pilot in command on board, as a safety pilot, is reassuring. I get chauffeured to the box, do my safety roll, fly the sequence, and then get chauffeured back to the runway. Maybe I'm getting old, fat, and lazy, but this is just too cool with no stress of landing a hot-rod aircraft. There are places where you can rent and fly solo, but for the most part the insurance premiums are too high for the average aircraft owner to purchase to rent only on the odd occasion. And of course, most

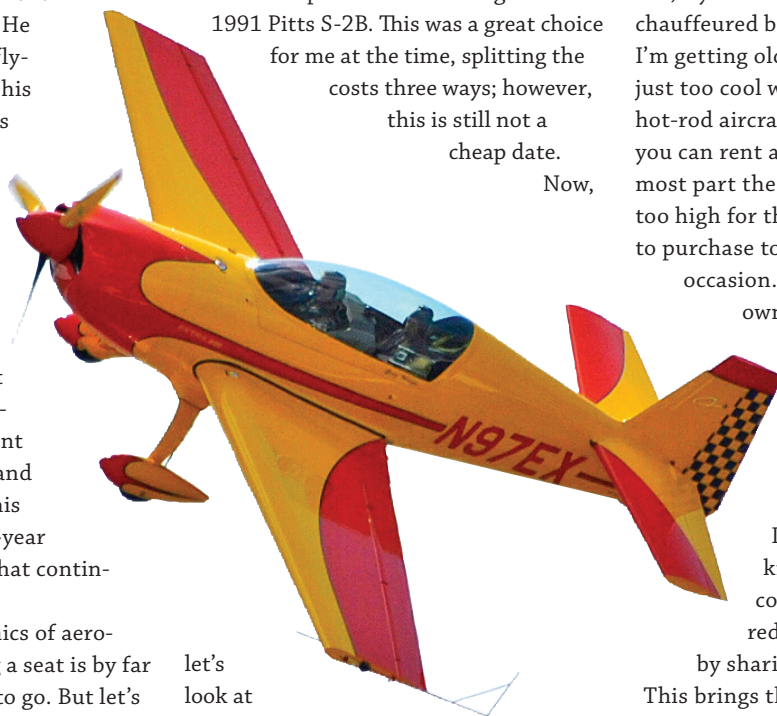
owners don't want just anybody bouncing their one-third million dollar toy down the runway.

Therefore, the final conclusion for a solid working model is to rent. In addition, once you get to know some of the local contestants, you can further reduce your cost per contest by sharing a vehicle and a room.

This brings the financial picture, in a rather expensive sport, into the reach of the average pilot.

So there I am, every spring and fall, at an awesome contest, with a bunch of great people, flying very cool airplanes, enjoying ramp parties, drinking beer, and eating way too much. Life is good!

Yes, you, too, can have as much fun as me. Aerobatics on a budget is a reality! Rent an aerobatic aircraft; it works! **IAC**



let's look at renting a seat in an aerobatic aircraft. Fourteen years ago I moved from Florida to Nevada, sold my share in the Pitts, and have been planeless since. I occasionally rent a local GA aircraft, but my businesses in Las Vegas allows only so much time to play, so I decided to go back to Sebring every spring and fall to compete and rent a front seat in one of these fabulous





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	RANK	PILOT	PP%
Primary	1	Takaki Hamasaki	81.39
	2	Francis Powers	79.03
	3	Jerb Johnson	78.82
Sportsman	1	Kathleen Howell	85.98
	2	Fernando Scalini	85.56
	3	Cyrus Sigari	84.76
Intermediate	1	Margo Chase	83.93
	2	John Howell	83.76
	3	James Ward	82.37
Advanced	1	Malcolm Pond	83.51
	2	Reinaldo Beyer	81.98
	3	Thomas Franscioni	81.67
Unlimited	1	Jeffrey Boerboon	81.78
	2	Norman DeWitt	79.30
	3	Tim Just	78.39

### SOUTHCENTRAL

	RANK	PILOT	PP%
Primary	1	Mark Killian	84.25%
	2		
	3		
Sportsman	1	Paul Thomson	85.59%
	2	Ross Schoneboom	82.87%
	3	J Humphreys	82.18%
Intermediate	1	William Denton	84.62%
	2	Aaron McCartan	83.11%
	3	Matthew Tanner	83.09%
Advanced	1	Michael Forney	81.18%
	2	Bruce Ballew	80.10%
	3	Richard Bevington	76.51%

### SOUTHEAST

	RANK	PILOT	PP%
Primary	1	Travis Gier	85.17
	2	Lynne Reinhardt	63.01%
	3		
Sportsman	1	John Wacker	84.28
	2	Ryan Waller	82.91
	3	Andrea Luethi	82.33
Intermediate	1	Mikhael Ponso	84.39
	2	Charlie Wilkinson	82.35
	3	Tyler Shoemaker	81.10
Advanced	1	Steven Johnson	82.38
	2	Mark Nowosielski	80.64
	3	Martin Flournoy	80.19
Unlimited	1	Hector Ramirez	80.67
	2	Pete Eslick	75.05
	3	Brett Hunter	71.67

### NORTHWEST

	RANK	PILOT	PP%
Primary	1	Steven Litsky	71.75
	2		
	3		
Sportsman	1	Kathleen Howell	83.29
	2	Neil Shepherd	81.81
	3	Dave Huntley	79.99
Intermediate	1	William Denton	82.10
	2	William Allen	80.45
	3	John Howell	79.80
Advanced	1	Douglas Sowder	77.09
	2	Dave Barbet	73.81
	3	Michael Forney	72.68
Unlimited	1	Norman DeWitt	77.15
	2	Lewis Shattuck	56.49
	3		





## NORTHEAST

	RANK	PILOT	PP%
Primary	1	Francesco Pallozzi	72.41
	2		
	3		
Sportsman	1	Aaron Ham	81.72
	2	Greg Stringer	81.21
	3	Brady Lesko	78.92
Intermediate	1	Hella Comat	85.50
	2	Jason Flood	84.73
	3	Jim Wells	81.45
Advanced	1	Kirill Barsukov	75.73
	2	Mark Stewart	65.69
	3	Robert Marsicano	57.74
Unlimited	1	Michael Ciliberti	75.54
	2	Steven Grohsmeyer	72.96
	3	Dennis Thompson	70.90

## MIDAMERICA

	RANK	PILOT	PP%
Primary			
Sportsman	1	Klaus Mueller	88.09
	2	Joseph Overman	77.46
Intermediate	1	Wayne Roberts	82.88
	2	Donald Weaver	79.36
	3	Tom Adams	76.33
Advanced	1	Steve Johnson	82.69
	2	Bruce Ballew	81.31
	3	Craig Gifford	77.92
Unlimited	1	Brett Hunter	78.59
	2	Douglas Bartlett	77.20
	3	Michael Vaknin	77.08



# The First National Aerobatic Championship in JAPAN

BY YUICHI TAKAGI, IAC 431712

**AFTER 30 MINUTES DRIVING** from Fukushima town, we were in the mountains. We were heading to Fukushima Sky Park, Fukushima prefecture, Japan. This was my first time to the airport, so I was questioning myself, "Are we sure to see the airport ahead? We just see mountains...." As we climbed, our view widened, and we saw a small, but well-maintained, airport. There were hangars and some airplanes with JA numbers (Japanese registration). It was gorgeous.

Fukushima prefecture lies about 180 miles north-east of Tokyo and is surrounded by forests and mountains. The airport was built in 1998 to ship local agricultural products by air to other cities. Later, it became a popular place for air shows, many sky sport activities, and demonstrations of high-performance race cars. The First Japan National Aerobatic Championship would be held at the airport for three days. It would be a great contest for sure.

Holding an aerobatic contest in Japan is not easy. There is a limited number of aerobatic aircraft, competition-qualified pilots, and open practice airspace. Most importantly, there is no official aerobatic association like the International Aerobatic Club to support the sport. We thought, if we hold a contest and are successful, aerobatics will become popular like other motorsports. Let's do it.

Mr. Hiroshi Okunuki is a test pilot for Fuji Heavy Industries and a longtime air show pilot in his Aero Subaru. Ms. Miyako Kanao is an alternate delegate to the FAI and was a competitor of the World Glider Aerobatic Championships in 1995. Mr. Yoshihide Muroya is a Red Bull Air Race pilot and the most active air show pilot in Japan. They were main leaders of the contest. Their dream came true with sponsorships of many organizations in Fukushima town, many volunteers, local airport supporters, and FAI or IAC aerobatic competitors. It was no longer a dream. It was here.

The contest would have two aerobatic categories: Primary and Sportsman. A landing competition was open to non-aerobatic pilots. Even with cloudy, foggy, and partially rainy conditions, all of the contest airplanes and competitors had already arrived. What we needed was...good weather.

On the first day, the weather improved slightly, but it was not good enough to start the flights. Then, rain began as the weather forecast predicted. All flight schedules were canceled for the day, and we moved the judges school to an earlier slot. It was actually basic introduction of aerobatic competition and criteria of figures. Some people showed interest in becoming judges. I hope we have some non-pilot judges in the contest next year.





The second day was cloudy and rainy, but it quickly turned flyable. We selected judges with previous contest flying experience, selected some assistants, then deployed to the judges' line.

We drove four-wheel-drive light utility vehicles that were a perfect fit in mountainous terrain. After about 10 minutes on tight and steep mountain roads (it is not official road, actually), we arrived at the judges' line in the jungle. It was in the middle of nowhere, a front line in truly wilderness area. Somebody said, "Well, they met a black bear when they were making the corner markers. Maybe it's true." Oh, stop it!

Once contest flights started, it went amazingly smoothly. Although most competitors had no contest-flying experience, they flew their sequences very well. Actually, none of us knew the contest because this was the first run. The updated flight schedule told us that every competitor would make up two flights by 3 p.m. tomorrow, if the weather held.

## It was no longer a dream. It was here.

Day three was partially cloudy in the morning, and scattered clouds crossed the box all day. In the middle of the contest, Mr. Muroya flew in his Extra 300S



*What's an aerobatics event without a cub? This black bear was trapped in the area cleared for use as a judges' line.*

and Sukhoi 26, performing his air show routine. The flights were sweet eye candy for all of us on the mountain. We managed the start sequence well, and all flights finished successfully at 3:15 p.m.

The contest was not only successful; it was remarkable. There was a marked aerobatic box, official contest rules, and multiple judges for all flights. Needless to say, this contest could not have been held without the understanding and support of people in Fukushima. We thank you all and are already moving toward the next contest. **IAC**

**Yuichi Takagi** is a West Air Inc., FedEx feeder cargo pilot. He flies with Attitude Aviation in Livermore, California, and is an airframe and powerplant mechanic/aerobatic certificated flight instructor. He's been competing at IAC contests since 2004 and holds a regional judge license.



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## CONTEST CALENDAR



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for these upcoming events.  
Updates at [www.IAC.org](http://www.IAC.org).

And if you're hosting  
a contest, post it there!

### Entrenamientos Club Acrobatico Andaluz (International)

Saturday, March 12 – Sunday, March 13, 2011  
Location: La Axarquía (LEAX): Velez Malaga España  
Tel: +34652916000  
E-Mail: [acrobacia@clubacrobaticoandaluz.org](mailto:acrobacia@clubacrobaticoandaluz.org)  
Website: [www.clubacrobaticoandaluz.org](http://www.clubacrobaticoandaluz.org)

### Inland Empire Strikes Back Mini (Southwest)

Saturday, March 19 – Saturday, March 19, 2011  
Location: Redlands Municipal (REI): Redlands, CA  
Tel: 909-389-9020  
E-Mail: [Casey@allwaysair.com](mailto:Casey@allwaysair.com)  
Website: [www.iac36.org](http://www.iac36.org) & [www.iac49.org](http://www.iac49.org)

### Phil Schacht Aerobatic Kickoff 2011 (Southeast)

Friday, March 25 – Saturday, March 26, 2011  
Location: Keystone Heights Airpark (421):  
Keystone Heights, FL  
Tel: 718-666-2648 • E-Mail: [cd@iac288.org](mailto:cd@iac288.org)  
Website: [www.iac288.org](http://www.iac288.org)

### Entrenamientos Club Acrobatico Andaluz (International)

Saturday, March 26 – Sunday, March 27, 2011  
Location: La Axarquía (LEAX): Velez Malaga España  
Tel: +34652916000  
E-Mail: [acrobacia@clubacrobaticoandaluz.org](mailto:acrobacia@clubacrobaticoandaluz.org)  
Website: [www.clubacrobaticoandaluz.org](http://www.clubacrobaticoandaluz.org)

### VII Campeonato Andaluz de Vuelo Acrobatico (International)

Friday, April 8 – Sunday, April 10, 2011  
Location: Armilla (LEGA): Armilla Granada España  
Tel: +34666393812  
E-Mail: [acrobacia@clubacrobaticoandaluz.org](mailto:acrobacia@clubacrobaticoandaluz.org)  
Website: [www.clubacrobaticoandaluz.org](http://www.clubacrobaticoandaluz.org)

### Sebring Aerobatic Contest (Southeast)

Thursday, May 5 – Saturday, May 7, 2011  
Location: Sebring Regional Airport (KSEF): Sebring, FL  
Tel: 561-313-8503 • E-Mail: [soaerobatics@aol.com](mailto:soaerobatics@aol.com)  
Website: [www.iac23.com](http://www.iac23.com)

### Armed Forces Memorial (Southeast)

Friday, May 20 – Saturday, May 21, 2011  
Location: Granada Municipal Airport (KGNF):  
Granada, MS  
E-Mail: [wroberts@waco-eng.com](mailto:wroberts@waco-eng.com)  
Website: [www.IAC27.org](http://www.IAC27.org)

### Robert L. Heuer Classic (Mid-America)

Saturday, June 4 – Sunday, June 5, 2011  
Location: DeKalb (DKB): DeKalb, IL U.S.A.  
Tel: 815-258-0047 • E-Mail: [jimklick@sbcglobal.net](mailto:jimklick@sbcglobal.net)  
Website: [www.IACChapter1.org](http://www.IACChapter1.org)

### Wildwoods AcroBlast (Northeast)

Friday, June 10 – Sunday, June 12, 2011  
Location: Cape May County (WWD): Cape May, NJ  
Tel: 717-756-6781  
E-Mail: [cwisman@comcast.net](mailto:cwisman@comcast.net)

### Ohio Aerobatic Open (Mid-America)

Friday, June 17 – Saturday, June 18, 2011  
Location: Union County Airport (MRT): Marysville, OH  
Tel: 574-721-4340  
E-Mail: [jgranger@columbus.rr.com](mailto:jgranger@columbus.rr.com)  
Website: [www.IAC34.com](http://www.IAC34.com)

### Illinois Aerobatic Open (Mid-America)

Saturday, September 3 –  
Sunday, September 4, 2011  
Location: Kankakee (IKK): Kankakee, IL  
Tel: 815-258-0047  
E-Mail: [jimklick@sbcglobal.net](mailto:jimklick@sbcglobal.net)  
Website: [www.IACChapter1.org](http://www.IACChapter1.org)

### Ohio Fall Frolic (Mid-America)

Saturday, October 1 – Sunday, October 2, 2011  
Location: Bellefontaine Regional Airport (EDJ):  
Bellefontaine, OH  
Tel: 513-284-5076  
E-Mail: [penn.lorr@yahoo.com](mailto:penn.lorr@yahoo.com)  
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