



SPORT *Aerobatics*

MARCH 2010

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

The 2010 **Sportsman** Known Sequence

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Greg told me I was my own obstacle, . . . and at this point, I was even dangerous as a private pilot.

Andy Poe

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THE COVER

Photo by
DeKevin Thornton.



Publisher: Doug Bartlett
IAC Manager: Trish Deimer
Editor: Reggie Paultk
Senior Art Director: Phil Norton
Interim Dir. of Publications: Mary Jones
Copy Editor: Colleen Walsh

Contributing Authors:

Doug Bartlett	Greg Koontz
Stan Burks	Gordon Penner
Steve Johnson	Andy Poe

IAC Correspondence
 International Aerobatic Club, P.O. Box 3086
 Oshkosh, WI 54903-3086
 Tel: 920.426.6574 • Fax: 920.426.6579
 E-mail: reggie.paulk@gmail.com

Advertising Director
 Katrina Bradshaw Tel: 920.426.6836
 E-mail: kbradshaw@eaa.org

Representatives:
NORTHEAST: Ken Ross
 Tel: 609.822.3750 Fax: 609.957.5650
 E-mail: kr40@comcast.net
SOUTHEAST: Chester Baumgartner
 Tel: 727.532.4640 Fax: 727.532.4630
 E-mail: cbaum11@mindspring.com
CENTRAL: Gary Worden & Todd Reese
 Tel: 800.444.9932 Fax: 816.741.6458
 E-mail: gary.worden@spc-mag.com
todd@spc-mag.com
MOUNTAIN & PACIFIC: John Gibson
 Tel: 916.784.9593 Fax: 510.217.3796
 E-mail: john.gibson@spc-mag.com
EUROPE: Willi Tacke
 Tel: +49(0)716980871 Fax: +49(0)8841/496012
 E-mail: willi@flying-pages.com

Mailing: Change of address, lost or damaged magazines, back issues.
EAA-IAC Membership Services
 Tel: 800.843.3612 Fax: 920.426.6761
 E-mail: membership@eaa.org

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REGGIE PAULK
COMMENTARY / EDITORS LOG

Guest Editorial by Doug McConnell

"In the Loop"

The IAC'S new e-newsletter

THE IAC RECENTLY COMMISSIONED a Membership Development Committee to work on recruiting new members and seeing to the needs of current members. Of course, we are all interested in that, so the committee welcomes and invites any and all suggestions for improving how we find, attract, and (hopefully) retain aerobatics enthusiasts within the IAC.

The key to IAC's future lies in offering members real value and, as you know, we have a lot to offer. The IAC provides unique benefits to its members through a sharing of important information... e.g., technical guidance, safety tips, "how-to" instruction, recommendations on equipment and procedures, flight schools, special events, people you should know, and some pure entertainment. The goal is to maximize the benefits and fun that can be enjoyed through the IAC with a primary focus on *safety*.

The first Committee assignment from the Board is to create another important new benefit for members by bringing IAC into the age of modern electronic communications. We are creating an official e-newsletter. This is being given first priority since keeping our huge and active membership well informed and up-to-date is vitally important. This is especially true for us since the IAC is the most event-driven Division of all the EAA Divisions. There are always things happening all across the country and all throughout the year.

So, we are very happy to introduce IAC's new e-newsletter to be named *In The Loop*. The target date for activation is the end of March, so as you read this

we are putting the finishing touches on our first issue.

The new e-newsletter will be produced monthly and will be an important partner to our great magazine *Sport Aerobatics*. Its addition will give all members a chance to be updated more frequently and to enjoy the technical features that the internet can bring (like video).

Now, there is something that we need *you* to do...that is to make sure we have your current email address! We have looked at the current IAC membership roster and are pleased to see we have about 3500 email addresses, but (yikes!) hundreds are missing! Please go to the IAC website www.IAC.org and add your email address to our database so that you don't miss out on this important new member benefit.

Also, we are pleased to inform you that the Editor for *In The Loop* will be none other than Reggie Paultk...our distinguished Editor of *Sport Aerobatics* magazine! He will serve as the focal point for your offerings of the latest hot news and regional happenings. Reggie is eager to maximize flow of the very latest and time-sensitive information that will help members stay connected and up-to-date.

I wish to thank our committee members Bob Hart, Mike Heuer, Jim Klick, Doug Lovell, Lorrie Penner, Dr. Bill Perman, and Darren Pleasance. Also, "thanks" to the EAA staff for their wonderful technical assistance and support.

We certainly hope you will enjoy this valuable new IAC member benefit and we urge you to contribute news of all kinds that will be of interest to aerobatics enthusiasts. **IAC**

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



DOUG BARTLETT
COMMENTARY / PRESIDENT'S PAGE

Here Comes Spring

RECENTLY, CHAPTER 1 OF Chicago had its annual winter get-together, and what a fun time it was. Like many areas in the country, winter keeps all but the most robust aero pilot on the ground hoping for an unseasonably warm day to sneak up into the skies. It is always fun at these meetings to greet new members and listen to chapter plans for the coming year. Inevitably, somebody brings up friends in California, Florida, or Texas who are already in the training cycle for the new season, and we all get a bit envious. However, by the time of this publishing, most of us have our aircraft at the ready and waiting for that first beautiful day to jump in and begin to reacquaint ourselves with the love of flying aerobatics.

While we still have much cold weather around the country, one group that is already on the move is Team USA. Let me update you on our Advanced Aerobic Team, which has already begun training for the Advanced World Aerobatic Championships in Radom, Poland, in August.

Michael Steveson, team manager, has been hard at work organizing and administering the Advanced Aerobic Team. Most of you know Mike from his many years of aerobatic flying and his work in support of the IAC. Mike has already set up a great website to keep all of us informed on the happenings of the team. Please find the team's link on the IAC home page or go directly to www.AdvancedAerobaticTeam.com to stay up on the team's progress.

Team training started in mid January with a camp in Borrego Springs, California, and will continue with more training camps in April and June in Arizona and Texas, respectively. At these camps, the team members

work with coaches and support personnel to improve their flying capabilities of the Known sequence. In addition, they work together to modify each pilot's Free program to, as Mike Steveson says, "knock the judges' socks off at the world contest."

In an effort to raise funds and advance the art of aerobatics, Advanced Aerobic Team members have started to offer critique programs for their fellow IAC members. These critique programs have proven to be highly successful. Schedule your training times at www.AdvancedAerobaticTeam.com and move up the rankings as well as aid Team USA in its quest for gold.

I would like to tell you a few things about one of the current Advanced Aerobic Team members who became a friend of mine at the 2005 U.S. National Aerobatic Championships. That year Reinaldo Beyer was flying strong

and winning more than his fair share of contests out west, while I was doing well in the Midwest. Knowing that we would face off at Nationals, I was eager to see if this pilot had what it took to be a winner. The first day of Nationals, I began to see why he was such a good competitor. With a big smile on his face he walked over, stuck his hand out, and introduced himself. Throughout the week, we all watched him talking to and encouraging his competition and volunteering to help out anywhere he could. Of course, his flying was superb. It has been fun to keep an eye on Reinaldo's progress over the past few years. Anyone who knows him knows

he not only is an excellent stick, but also has all the right stuff to be a good teammate and a strong leader. It is no surprise to see Reinaldo Beyer as the captain of our Advanced Aerobic Team. He is an excellent choice.

With a combination of Mike's organizational efforts and Reinaldo's leadership, our team is off to an encouraging start. Please take the time to go the Advanced Aerobic Team's website and learn more about Reinaldo (Did you know he flew glider aerobatics in Chile?) and our other team members as they prepare to defend the gold medal.

Here's a quick note on the IAC building at EAA AirVenture Oshkosh. Last year the EAA moved our building

to a better location on AeroShell Square. This year an addition will be made; plans have been approved for a covered outdoor presentation area. Construction will begin as soon as the weather breaks, and will be completed in time for AirVenture 2010. This

is a wonderful addition for the IAC at AirVenture, and I look forward to telling you the story next month.

Sun 'n Fun is almost upon us again. This is a great event and signals the start of springtime aerobatic flying throughout much of the country. This year I will be in Lakeland, Florida, for the entire week and will be manning the IAC booth much of the time. It will be a great opportunity to meet many of the IAC members while sharing aerobatic and flying stories. Please stop by and say hello. The IAC staff would love to have a chance to chat and hear what you and your chapter have been planning over the winter months. See you there. **IAC**

**"Of course, his
flying was
superb . . ."**

USA Advanced Aerobatic Team Launches New Website



FOLLOW THE TEAM IN their "Quest for Gold" at the 9th FAI World Advanced Aerobatic Championships to be held in Radom, Poland, August 5 - 15th, 2010.

You can also pledge your financial support through donations and the purchase of US Team Logo merchandise.

www.advancedaerobaticteam.com

IAC Officer/Director Nominations

Here is what is needed to run:

1. CANDIDATE PETITION FORM with 10 current IAC members signature - Petition located in Members Only under Leadership a. Each member can sign a petition form and email it. All names do not have to be placed on one form b. Written e-mails as endorsement will NOT be accepted, it MUST be on the petition form.

2. CURRENT PHOTO E-MAILED as a jpeg

3. RESUME/BIO THAT MUST be less than 1000 words. The Nominations Chair must receive the above before the MARCH 18, 2010 deadline. Send completed petitions to: Ann Salcedo – IAC Nominations Chair, 20117 SW 54th Place, Fort Lauderdale, FL 33332-1548. Fax 954-434-7498 Cell: 954-605-0170 or e-mail to AnnSalcedoRN@aol.com.

IAC AEROBATIC FORUMS.	DAY	TIME	SUBJECT	SPEAKER
If you're at Sun 'n Fun 2010, make sure to attend one or more of these informative presentations.	Tuesday April 13	11am Noon	Emergency Maneuvers Intro to Aerobatics	Jim Alsip Elgin Wells
We look forward to seeing you there!	Wednesday April 14	11am Noon	Spins and Upsets Acrobatics	Jim Alsip Elgin Wells
	Thursday April 15	11am Noon	Spins in Pitts Starting Aerobatics	Bill Finagin Johnny White
	Friday April 16	11am Noon	Legal and Insurance Equipment	R. Birr & M. Mattioli Allen Silver
	Saturday April 17	11am Noon	Starting Aerobatics Equipment	Johnny White Allen Silver



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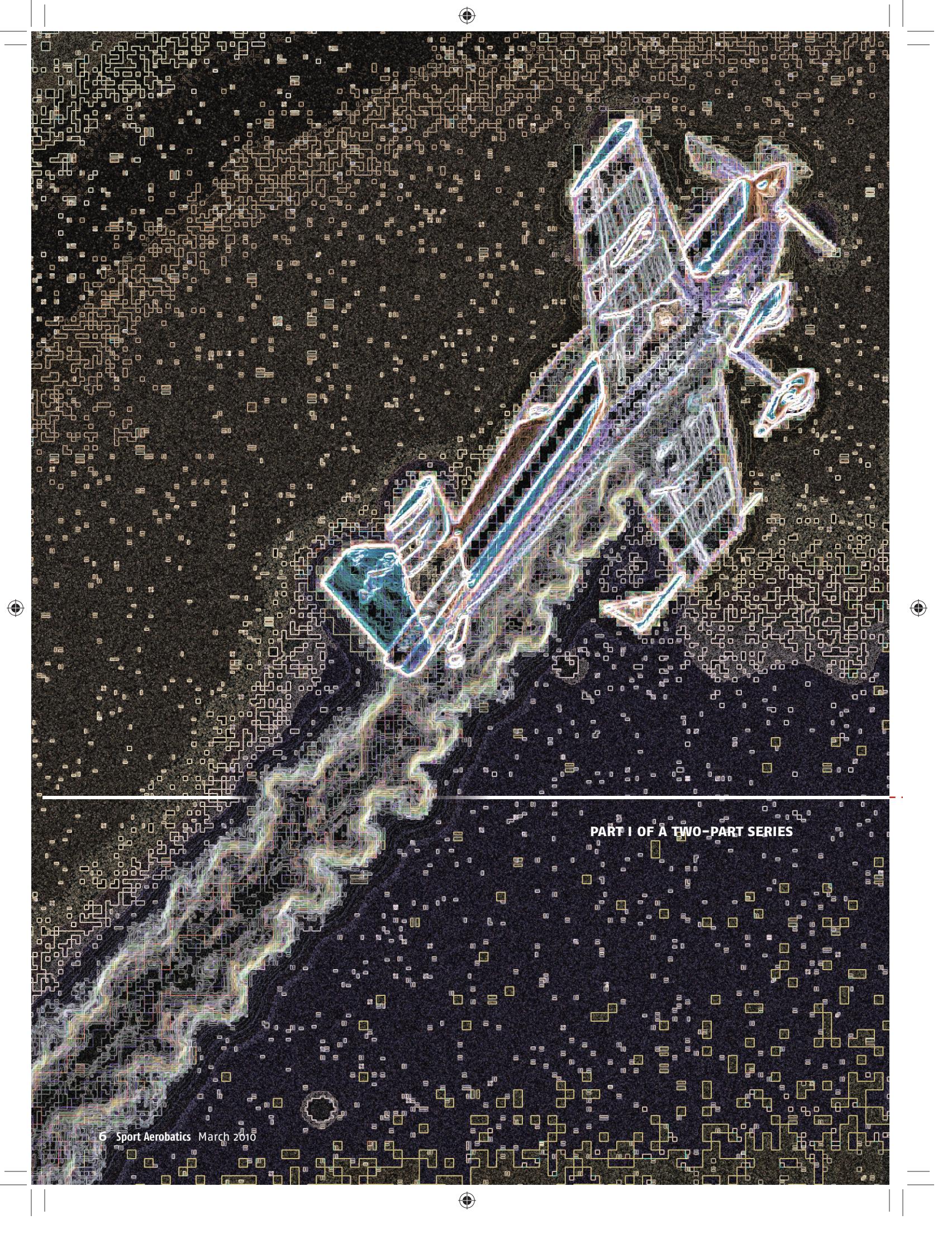
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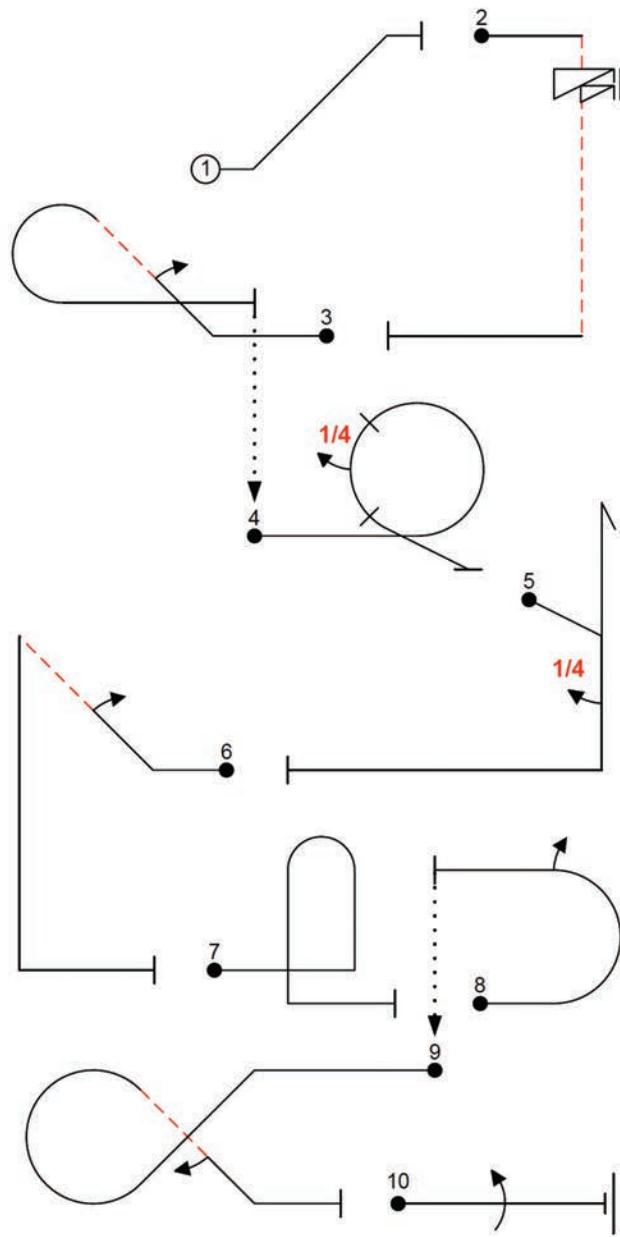


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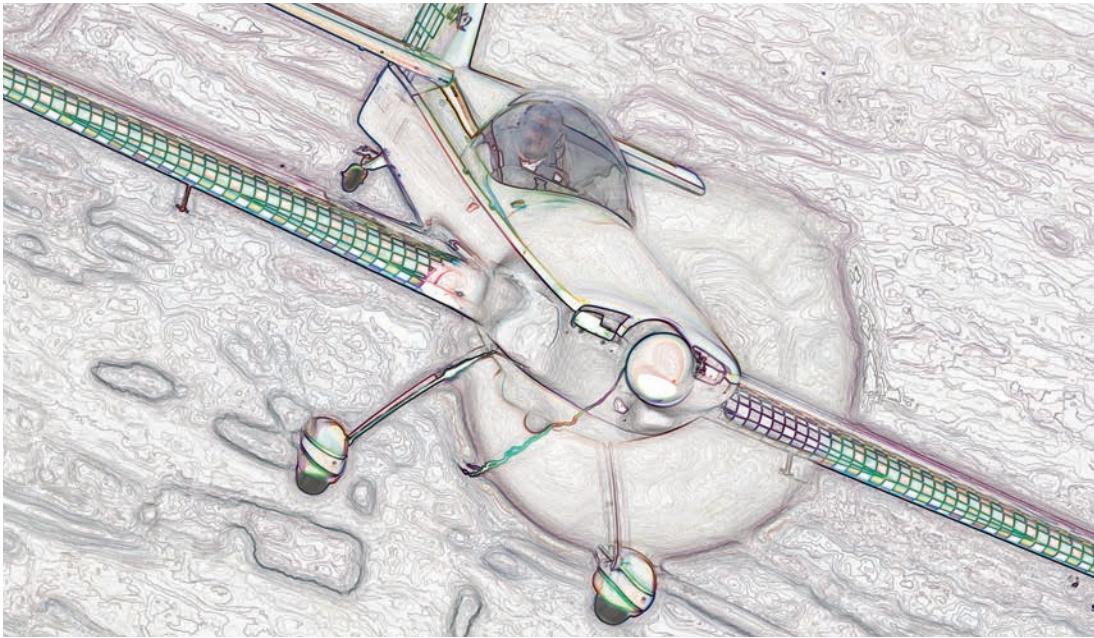


PART I OF A TWO-PART SERIES



The 2010
**Sportsman
Known**
Sequence

BY
STEVE JOHNSON



THE 2010 IAC SPORTSMAN sequence is a good sequence for new and returning Sportsman pilots. The first figure allows an aggressive initial box entry, which is good for a couple of reasons. First, it allows the pilot to better see the box, and to target the proper position and altitude for the first figure. Second, a high-power entry allows the judges to more easily locate the aircraft inbound to the box. To better describe this entry, we need to start our box entry with Figure 1A, the entry into the box. This entry method works for all high-energy first figures. While this maneuver is not part of the scored sequence, it sets the tone for the flight, and when performed well, it makes a favorable impression on the judges.

Practice your box entry as Figure 1A, every time, as though it was a figure on your sequence card. The better you start your box entry, the better the first few figures will be. The high-energy box entry starts on a base leg about 1,500 feet above the pull height for the first figure. (All altitudes discussed in this article are above ground level.) To start a center box figure, start the base leg just outside the box, slow to about 70-80 mph (knots works, too). Then, when even with the center, or X-axis, of the box, roll about 135 degrees and pull the nose around and point the airplane at the center of the box. Make your wing-wag to signal the start

of your sequence while in this dive. Use the throttle to dive to your never exceed speed, and level off at your starting altitude. If the altitude loss was 1,500 feet, you should have crossed about 1,500 feet of the box, putting you right in the middle. Use a quick 1-2-3 count to establish a straight and level line, and then pull for Figure 1. The initial roll and pull from the base leg should be moved as needed to correct for crosswinds and for starting earlier or later in the box.

In the 2010 Sportsman Known, Figure 1 must be started about one-fourth to one-third of the way into the box from the downwind side so that the first figure,

the 45-degree line, is bisected by the center of the box. The base leg should be flown about one-fourth to one-third of a box away from the downwind edge. The end of Figure 1 should be the highest point of the sequence, and we want that altitude to be at least 3,000-3,500 feet. Using 3,500 feet in this example as the high point where Figure 1 will end, it is then necessary to determine how much altitude can be gained in Figure 1, still leaving enough airspeed to fly off in level flight at an airspeed just above the stall, about 60-70 mph in an example Pitts S-2B. This is a trial-and-error method and can be determined more quickly with a coach on the ground. The Pitts S-2B could gain 1,000 feet in such a 45-degree line, starting the push to level flight at about 80 mph. If your aircraft gains more or less altitude, set your Figure 1 starting altitude accordingly. If we use a 1,000-foot gain in Figure 1, then the pull for Figure 1 needs to be at 2,500 feet. Backing this into the box entry height, the dive into the box starts at 4,000 feet on the base leg. This slightly high starting position for Figure 1 allows enough extra altitude for Sportsman pilots to avoid low calls from the judges. The starting altitude can be brought lower later in the season as desired to maintain a floor of at least 1,500 feet.

Okay, sequence figures!

FIGURE 1 is a straight 45-degree upline. In higher-performing aircraft—Pitts, monoplanes, etc.—this is not difficult, though sighting devices need to be adjusted properly. In lower-performing aircraft—Decathlons, Cubs, Stearmans, etc.—as the aircraft slows in the line, the judges tend to see a shallowing of the line, so the nose needs to be pulled slowly, slightly steeper in the second half of the line.

As the aircraft slows to around 80 mph, push to level flight—not level attitude. At a slow speed, the aircraft must still be 10–15 degrees nose-up, so only push to this level flight attitude—don't let the aircraft settle. Once in level flight, throttle back to maintain slow flight at just above the stall. The airplane should be nearly three-fourths across the box unless there is a strong head wind. At about three-fourths of the way across the box, close the throttle and start the spin.

FIGURE 2 is a 1-1/2 turn spin. This is probably the easiest of all spins because there are no funny angles as in the 1-1/4 turn spins, and there is time to see the box and then mentally time the spin ahead of the stop point. This spin turns back into the box, so there will be plenty of visual cues to line up the stop on the X-axis again.

All the different airframes we have flying in competition each have their own spin characteristics, so I cannot describe any one set of control inputs that will make a good spin. Get good spin training and practice spins in your airplane at altitude before you come down to contest altitudes. Whatever airframe you are flying, during the deceleration into the spin, do not let the plane settle. The altimeter is too slow to rely on, so use your experience and ground coach to prevent a settle. Most judges can see a settle and will downgrade it accordingly. The judges do not seem to notice a slight climb, even 50–100 feet. Settling makes for a poor stall break and a slow start for autorotation. A slight climb into the stall makes a cleaner stall break, with better autorotation at the start. Don't zoom; the judges are looking for straight and level flight into a clean stall break and autorotation.

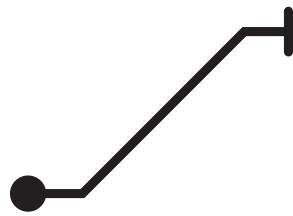


Figure 1

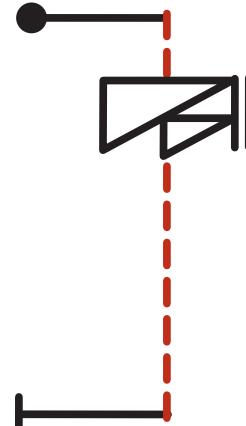


Figure 2

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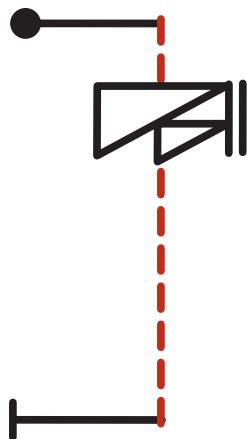


Figure 2

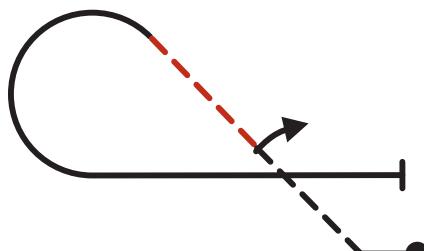


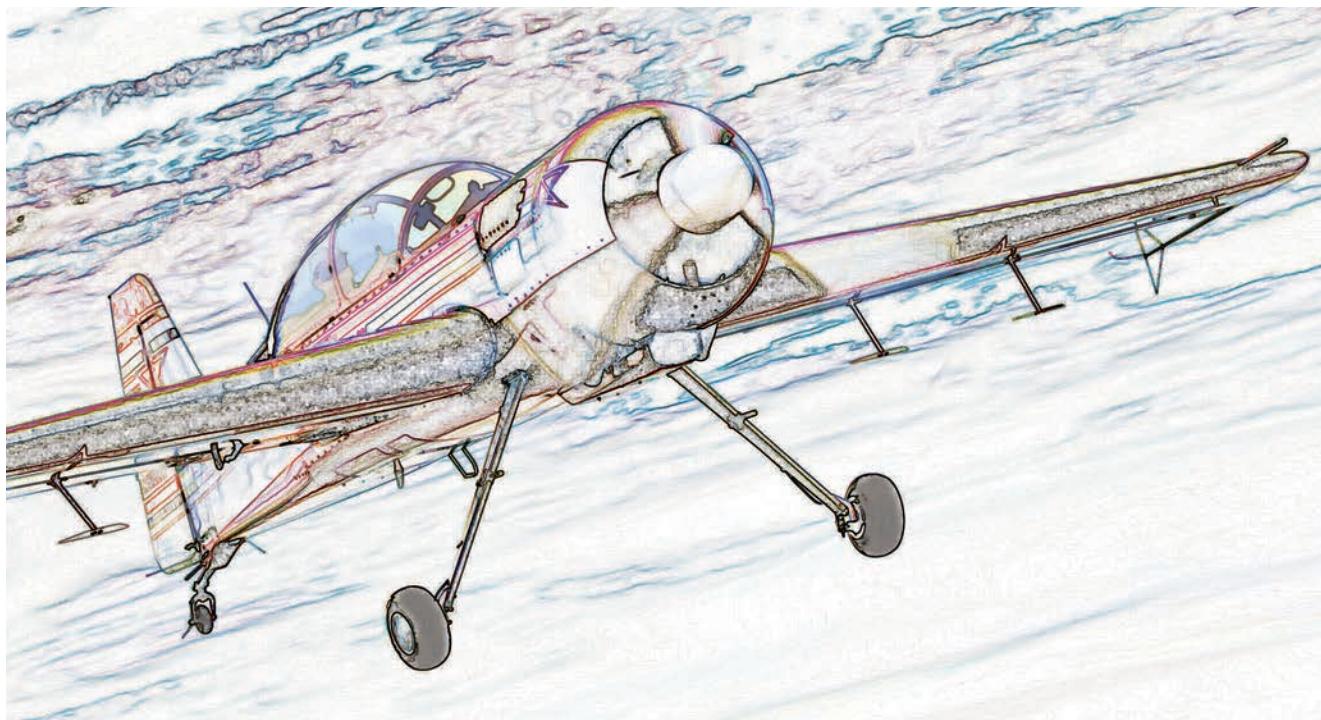
Figure 3

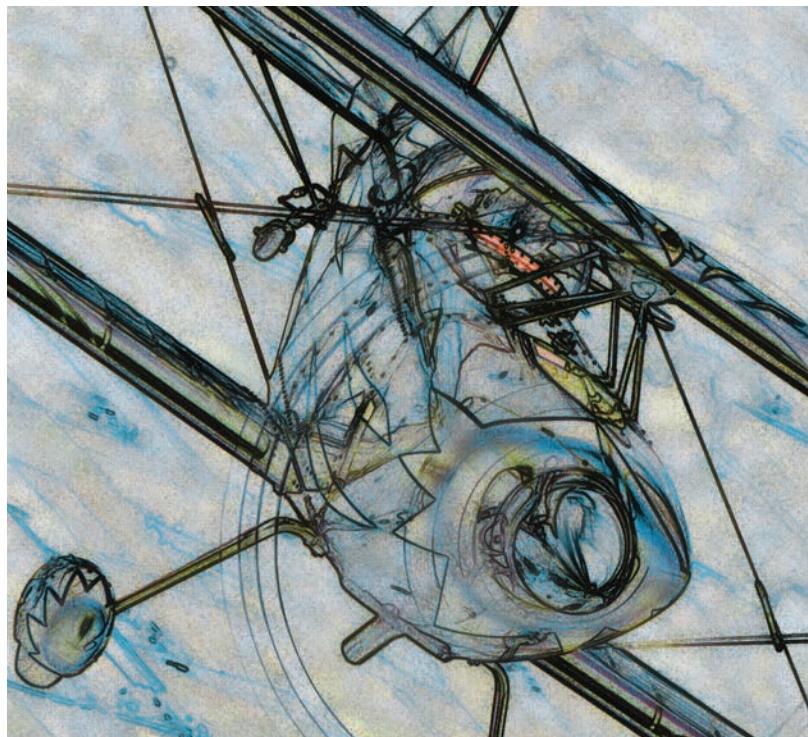
At the stall the nose should drop, and then yaw and roll into the spin should start simultaneously. Some aircraft like some in-spin aileron, while others don't. Good coaching and contest experience will tell you what is needed. The spin should use about 1,200–1,500 feet of altitude to stop the spin, establish a good vertical downline, and accelerate for Figure 3. A speed of 160 mph or better is needed in the Pitts S-2B for Figure 3.

FIGURE 3 is a reverse half-Cuban-eight. The 45 line comes first, so don't fly this figure backward. This is a downwind figure, and the 45 line will use at least half of the box, so as soon as you pull out of the spin, check your position to the center of the box. If there is no wind, and you placed the spin near the upwind edge, you may have a second or two to relax. If not, count 1-2 to draw a straight and level line, then pull for the 45 line for the reverse half-Cuban.

Timing the roll is important in this figure, as the roll must be in the center of the line. A good rule of thumb is to count 1-2-3, roll, then count 1-2-3-4, and then start the pull. The longer second count is because of the decaying airspeed at the top. We need a longer time to draw a line of the same length at a slower airspeed. Try different counts that might better fit your body rhythms: 123, roll, 123456, or 1-2, roll, 1-2-3; whatever works best for you and gives equal-looking line lengths. During the 45-degree line, the same angle should be held. Be sure you don't push steeper or shallow out after the roll. If there are some clouds, you may find one to point at during the roll. After the line is completed, the looping portion is next.

As with any loop, the top of the loop needs to be floated. So gently tug on the elevator and then release the back-pressure. All we want to do is break the line to show the judges where the line stopped and the loop started. Then float the top of the loop. At about 30 degrees nose-down inverted, start pulling just like the back side of a normal loop. Just before the aircraft reaches level flight, maybe 20–30 degrees below the horizon,





ease off just a little on the elevator, so the loop is not pinched to the line. This is more important in full looping figures, but it works well here, too. *Check your altitude here.* This figure can lose some altitude, so don't go low. Adjust your starting height if necessary.

FIGURE 4 is a quarter-clover-down. The down means the 1/4 quarter-roll is on the downward side of the loop, while an up-clover would have the roll on the upward side of the loop. The first half of this figure is flown just like a normal loop, and we would typically put a full loop in the center of the box so it looks best to the judges. But if you look at Figures 5 and 6, the quarter-clover needs to be near the upwind edge of the box so that the following hammer and wedge are in the right places. Placing the quarter-clover in the right place in the box (right up against the upwind edge) will be critical to prevent an "out" in Figure 6 when the wind is blowing. Fly the airplane as close to the upwind edge of the box as you can without going out. This will take some practice and ground coaching.

Fly the first half of the loop as normal. In the second half of the loop, a quarter-roll must be integrated into the loop to make a 90-degree heading change so the airplane pulls out level on the Y-axis. Even though the hash marks on the loop show the roll as flown only in the middle 90 degrees of the half-loop, the rules state: "The quarter-clover is a loop with a quarter roll evenly integrated either within the first half loop up (Family 0.1) or within the second half loop down (Family 0.2)." Additionally, the rules go on to state: "Immediately upon completing the first half loop, the aircraft must begin a constant rate quarter roll such as to reach upright, wings level horizontal flight at the bottom of the second half loop." All this means that the roll must start at the very top of the loop, and must continue until the aircraft reaches straight and level flight in a new heading 90 degrees off the original heading. These are not difficult to fly, but they are difficult to score well, because the judges don't see them often, and they are difficult to judge well. This quarter-clover is started just like any loop with a good brisk pull, holding the g's on past the vertical. At a point before the top of the loop,

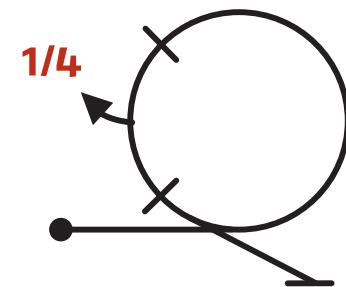


Figure 4

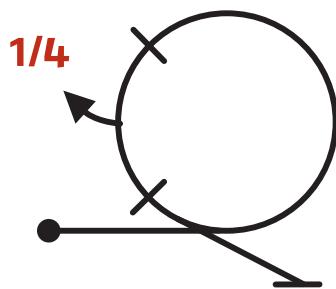
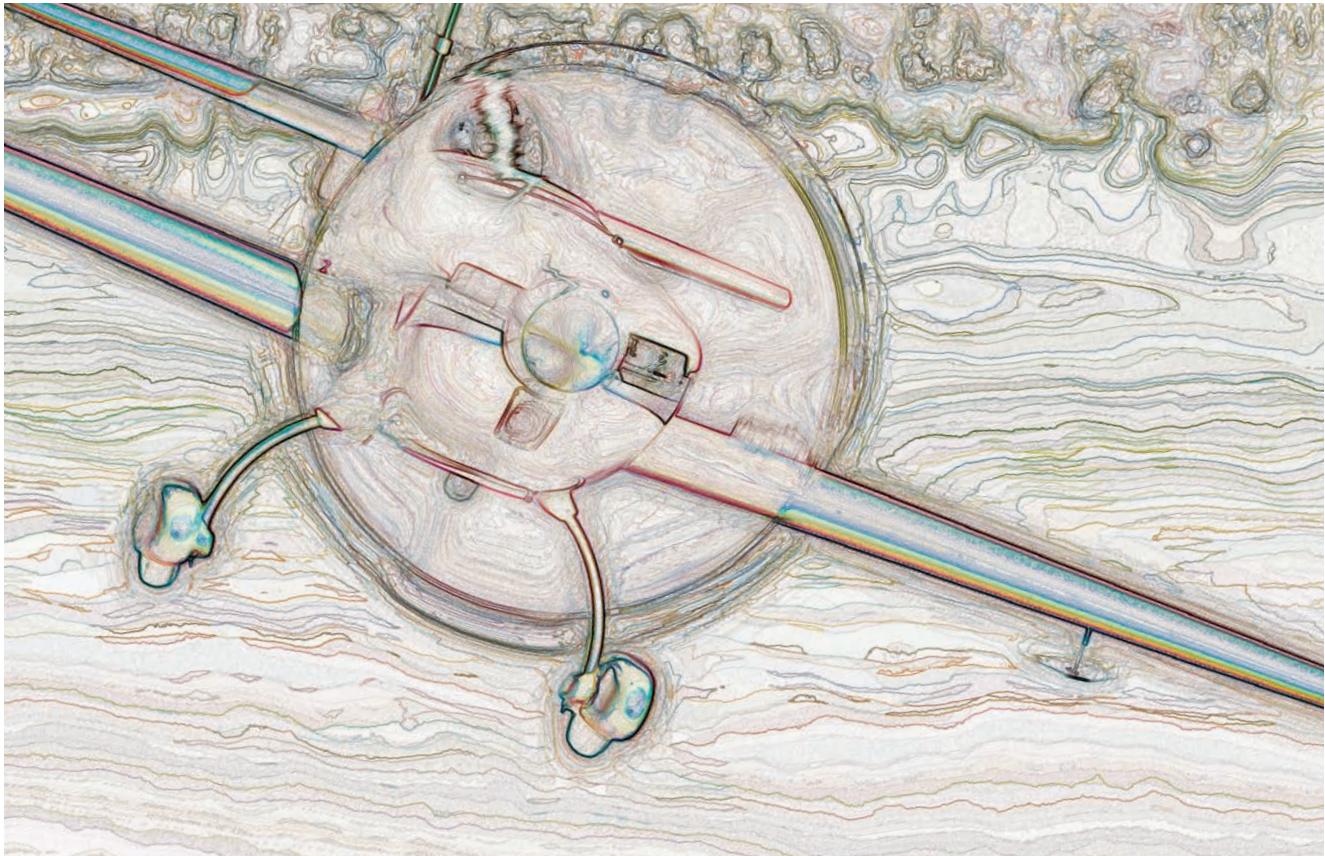


Figure 4

about 20 degrees nose-up inverted, the float is started. Just ease off the pitch somewhat to allow the airplane to float ballistically over the top.

At the very top, start the quarter-roll, but don't change the pitch yet—let the float continue to about 20 degrees nose-down, then resume the pull as in a normal loop. At the top, while inverted, find the new Y-axis heading, using the box markers or other landmarks. Hold the quarter-roll aileron in position to finish the quarter-roll as the loop is completed. As before, just before reaching level, ease off on the pitch to float the loop to level flight. The aileron should be eased at the same time so that the pitch and roll stop at the same time.

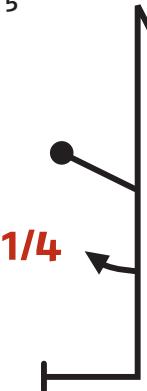
As the aircraft is now flying on the Y-axis, some explanation of the Y-axis is in order. The X-axis direction of flight is determined at the start of the contest (or each day), and the X-axis figures must be flown upwind or downwind as shown on the B or C forms in use. The Y-axis can and should be used to correct for crosswinds and positioning in the box, and the direction of flight on the Y-axis is left to the pilot. Crosswinds in the box will blow an aircraft either toward or away from the judges, and toward an edge of the box where "out" penalties wait. Use the Y-axis flight time and heading to better position yourself in the box to prevent the crosswinds from blowing you out. (Cheating is legal, as long as the judges don't see it, but that subject is for another article.) Thus, before the quarter-clover is started in Figure 4, you should determine which way you want to move on the Y-axis. The easiest decision is to move toward the larger side of the box. If you are being squeezed up against the judges, make the quarter-clover roll so that the flight path at the end is away from the judges.

FIGURE 5 is a hammerhead or stall turn on the Y-axis with a quarter-roll on the downline. When pulling for the vertical line on the Y-axis, the judges can't see the pitch as easily, but they will certainly see if you drag a wing in the pull or when you get the vertical line set. You can use your sight device to set yaw angles as well as pitch angles. Using your ground coach, fly some vertical lines on the Y-axis to let your coach see if you are dragging a wing. Do this on uplines and downlines until your sights are set to eliminate dragging wings.

The turn at the top of the hammerhead is a normal turn. Be sure you have practiced hammerheads up high, as a botched hammer can easily become an inverted power-on spin. You do know how to get out of these, right? Once the turn is completed, we need a quarter-roll on the downline. The quarter-roll must go toward the downwind side of the box. The Y-axis flight directions are up to the pilot to correct for crosswinds and positioning, but the X-axis flight paths are determined by the B and C forms. On these forms the hammerhead is shown exiting on the downwind line. The quarter-roll must roll to the downwind side of the box. In this sequence the roll in the $\frac{1}{4}$ -clover and the roll in the hammerhead must be in opposite directions to end up going the proper direction after the hammerhead. That is, if the quarter-clover roll is done to the right, the hammerhead roll must be to the left, and vice versa. (I write notes like these on my sequence cards.)

Okay, back to the roll in the hammerhead. Once the turn is done, and the line is set, count 1-2-3-4, roll, then count 1-2-3. We are going slower at first, so the count must be longer to get the same line length. Pull out level on the downwind X-axis line. Check your altitude here. This figure can lose some altitude, so don't go low. Shorten both of your line counts if necessary to maintain altitude. **IAC**

Figure 5



Next month, we'll feature figures 6-10.—Ed.

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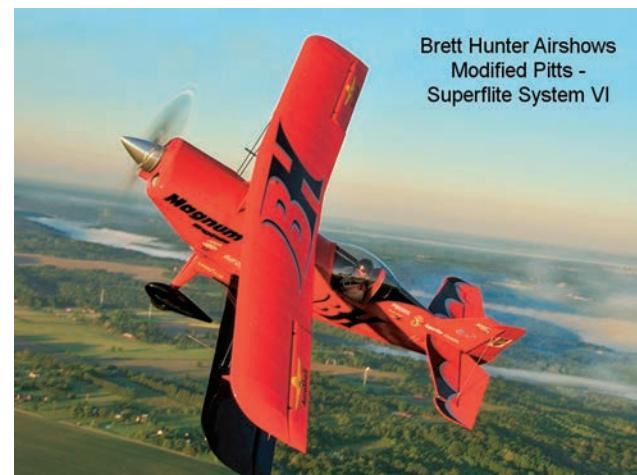
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fear factor

a pilot conquers his own demons

BY ANDY POE WITH GREG KOONTZ

PHOTOS COURTESY ANDY POE

My wife, Cora, and I run Sky Country Lodge, an aerobatic school and bed-and-breakfast in the hills of northern Alabama. In 35 years, I've flown with more students than I can count; all have come here with many different goals. People come to get their certificated flight instructor (CFI) spin endorsement; to learn how to upright an upset Cessna; to get better acquainted with airplanes; and even to get ready for jobs. Many have bought an aerobatic airplane or are giving the idea some thought. It is actually surprising how many don't come to train for sport aerobatic flying. I always hope those people leave here interested.

The following is a story by a young man named Andrew Poe. He wanted badly to be an Air Force fighter jock. The goal consumed him and his every effort, but he had a problem he knew was setting him up for failure. Andy was a private pilot and had found himself actually terrified of the flying he loved.

Probably a victim of a civilian training environment that teaches mostly technology and lightly skims the old art of flying, Andrew came to me at wits' end. He put his story into words, and with his permission, I share it with you here. This is a great tribute to just how valuable aerobatics are to so many pilots.



Terrified: Andy Poe the day he earned his Private Pilot certificate.

I LOOK OUTSIDE one October evening into the Georgia skies and decide it is a great evening to fly. In fact, it is such a great night, I invite my girlfriend and ask her to accompany me while I show off my piloting skills.

I go through the standard drill, call the local fixed-base operator (FBO), check on the weather and Notices to Airmen (NOTAMs), and, of course, do the preflight. All set, I flex my mighty muscles and we jump in. On takeoff climb I level off at 3,500 feet to play in the Georgia skies. The only problem is, unbeknownst to my girlfriend, I am white-knuckled and analyzing every convective bump and every cumulous cloud, no matter how small. If she asks, I decide that I'll respond, "I am being careful!" The reality—I am terrified.

This fear is a silent killer waiting to exploit my lack of confidence. One day my actual pilot skills will be tested. The words I heard often while getting my certificate, "Flying is not how to fly the plane, it's how to fly the plane when things go wrong," play over and over in my ears. I question if I could rise to this occasion.

SET UP

At 18 years of age, I enlisted in the military as an airborne communications technician and flew on the E-8C Joint Surveillance Target Attack Radar aircraft to gain aircrew experience and help pay for college. I eventually became a communications instructor. I would teach and mentor newly assigned individuals on how to operate and maintain equipment on a multimillion-dollar surveillance plane. I found that most of the people who struggled to learn struggled not due to inability, but a lack of self-confidence. I would then mentor these individuals to help them realize their potential. I knew deep down, I struggled with confidence myself, but this was not me. It couldn't be me. After all, I was a system

expert, a “quick burner” (a military term for one who excels ahead of his peers); this was not possible.

Over the course of three and a half years and along with six combat tours and a college degree, I earned a pilot slot in the United States Air Force. This was what I was working toward, a chance to live out my childhood dreams and fly for the military! The senior leadership in the world’s greatest combat force had confidence in my abilities, but I still did not have confidence in myself.

My fears of the airplane exceeding my abilities were so deeply ingrained; the realization I needed help did not happen overnight. I knew deep down, however, that my fear of engine failures, stalls, spins, or anything other than a 45-degree bank would have such a grip on me that I would not succeed in pilot training. If I were to find myself in any of the above situations, I would probably react sporadically, making a bad situation worse.

THE SEARCH

I went to my local FBO and asked if anyone knew of someone who could provide aerobatic training. I long felt that if I had the confidence to do aerobatics, then I would succeed. This search quickly ended with two people recommending an individual named Greg Koontz. I played with the idea and, after an Internet search, found his website.

This fear is a silent killer waiting to exploit my lack of confidence. One day my actual pilot skills will be tested.

With just over a month before I was to leave, I called. Greg and I talked for about 20 minutes; I must have asked him every question short of his Social Security number. After the conversation, I talked with my girlfriend about doing aerobatic training. She was supportive, knowing that I wanted to learn aerobatics. I tried to hide the fears from her. She knows me better



Facing his fears, Andy gets ready to take his first aerobatic flight with Greg Koontz.

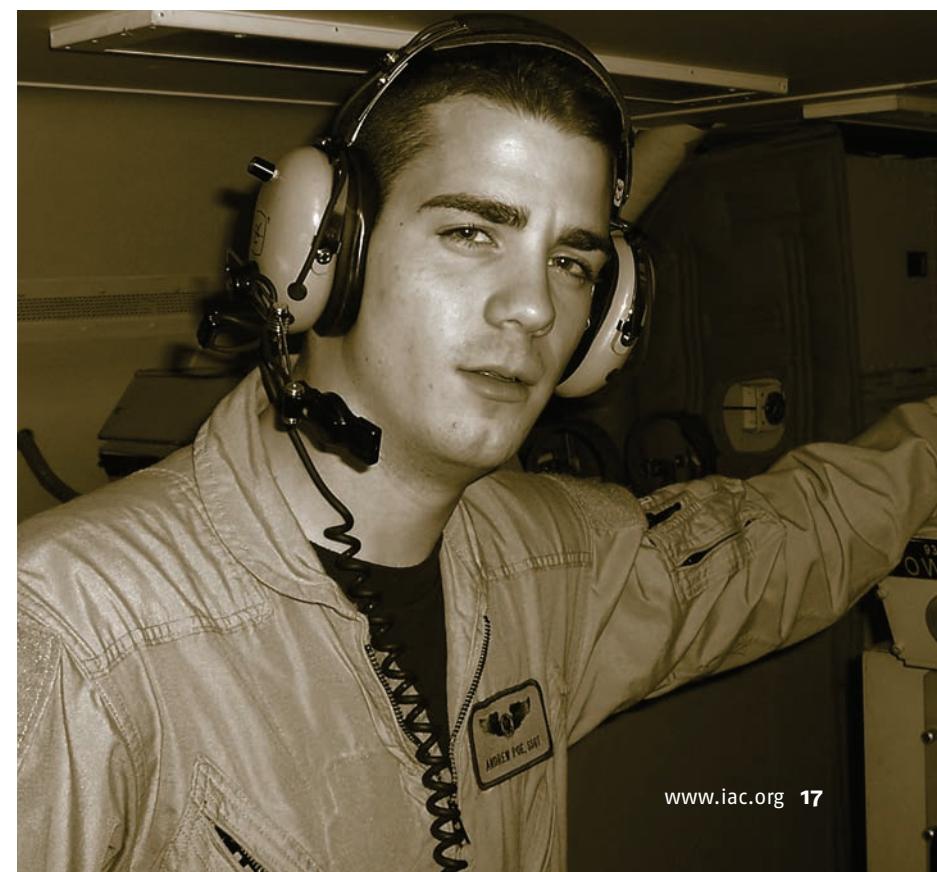
than most, though, and knew that I needed training to overcome my fears. I decided to do it and felt like I’d found an instructor who would teach me and not just give me an aerobatic ride.

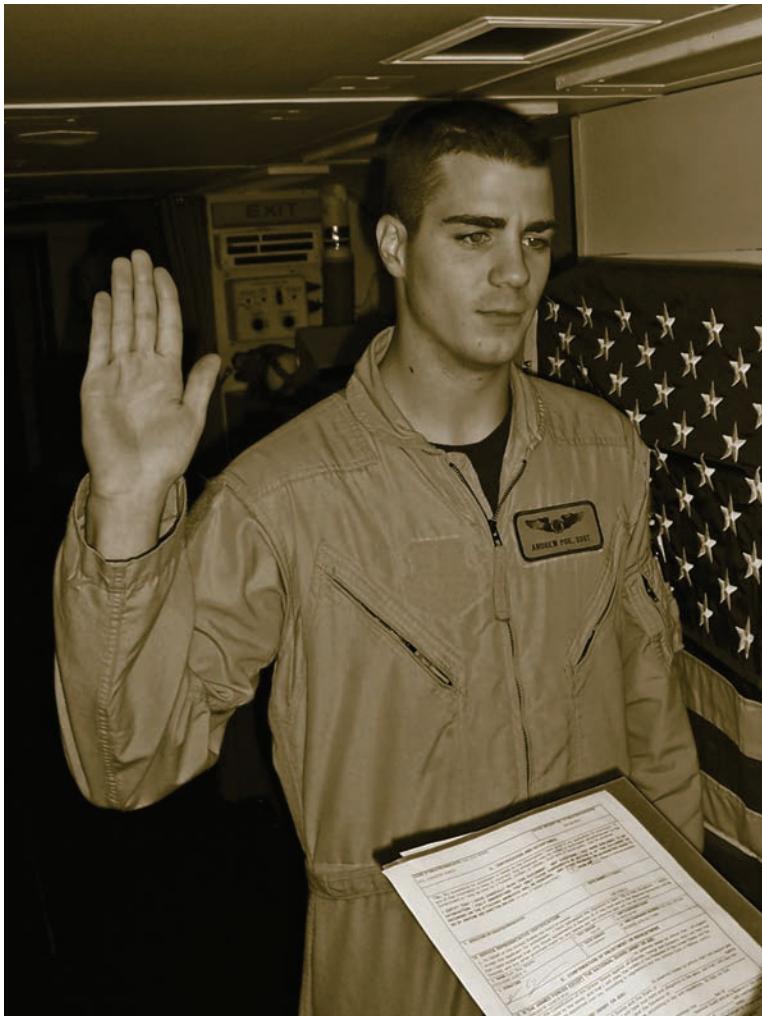
I called Greg a few days later and asked if he had an opening. He said he was busy but could tell this training was important, so he let me schedule the courses over New Year’s weekend. I was excited and also a bit confused. Why would an instructor whom I had never met schedule me into his holiday plans? I soon learned it was because he could tell through our conversations that I was desperate for help.

NEW BEGINNINGS

That is how my girlfriend and I found ourselves celebrating New Year’s Eve, staying at a bed-and-breakfast for aviators in northern Alabama. When we

Andy Poe was a communications technician aboard an E-8C surveillance aircraft before pursuing his dream of flying for the Air Force.





Andy Re-enlists in the Air Force.



Andy stands in the briefing room after a successful first solo in the T-38 Talon.

arrived at Sky Country Lodge, we found welcoming hosts, a hangar with a Piper Cub (my favorite airplane), and the impressive Super Decathlon. The following morning we started off with an hour and a half of detailed ground instruction and then a flight nothing short of amazing. We took off from Greg's private grass strip in the hills of Ashville, Alabama, and did basic stall awareness and aircraft handling, and then the aerobatics started. I froze—the most dangerous thing to do in an aircraft—failing to react. Greg tried to help me in the air, but soon decided to guide us to the ground to discuss my fears in a calm environment. Greg knew my fears were a danger to others and myself, and like a great coach, this fellow aviator explained to me how my fears were crippling me. Despite this, he wanted to help me overcome them in order to achieve my dreams.

At this point Andy was a mess. It was the stress of knowing his appointment to Air Force flight training was looming up ahead. He was way too distracted to absorb much instruction.

Greg continued with the second planned lesson in the afternoon, catering to helping me overcome my fears. Through the course of the next flight I finally tried my first aileron roll! But I still froze in fear and needed help more than ever. He flew us back to the airport again and then gave me a big wakeup call. Greg told me I was my

Greg told me I was my own obstacle, . . . and at this point, I was even dangerous as a private pilot.

own obstacle, my fears could prevent me from graduating from military pilot training, and at this point, I was even dangerous as a private pilot. After this startling speech I felt sick to my stomach and was thinking of quitting. But Greg, refusing to let this happen, reacted by inviting me for a ride in his Piper Cub. This was something he knew meant a lot to me—a ride in my favorite airplane, and best of all, it was offered just for fun! We flew to a friend's house, and on the way he did some stalls with no warning to me. I was so upset at my own failures earlier, I just stared off into space. In my current frame of mind he could have offered me the airplane to take home and I would not have noticed. He recognized what was holding me back from success; it was me.

It was time to find a way to break the tension. There's nothing like a Cub flight to do it for me, so I tried it on Andy. It took some poking at him, but I finally got him to take the controls and just fly. It worked like a puppy dog. By the time we landed, it had him grinning.

BREAKTHROUGH

Arriving back at Sky Country Lodge, Greg informed me that he had canceled his holiday plans, and invited me to stay an extra day. The next day proceeded a bit differently. We started ground school and his first statement was, "Today we are going to talk about rolls, loops, and spins." Today would be two more flights, the first one aerobatics and the second one spins. We started this morning no different than the rest: an amazing breakfast, ground school, and a thorough preflight. We got into the air and did basic air work first. He asked me if I thought about the prior conversation, and I said, "Sure, let's do it." He demonstrated a loop and asked me to follow him on the controls. His demeanor and airmanship were stellar, so I trusted him even though I was scared. So I closed my eyes, and when I opened them and looked up, I was looking at the ground. I was inverted, and still alive. I realized at this moment that I could do this. So I had him demonstrate another, this time with my eyes open, and I asked if I could try one. I did it! I conquered this fear in the 10 seconds it took to perform a loop and realized that if others can do it, then I could, too. This was the pinnacle of the course.

When Andy and I got off that flight he must have said 200 times, "I did a loop." Cora and I were just shaking our



UPPER: The T-34C Mentor was Andy's introduction to Air Force flight training. LOWER: The T-38 Talon.

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Conquering his fear helped Andy Poe achieve his Air Force wings.



heads and saying to ourselves, "So this is our next generation of fighter pilot?" What Andy didn't tell you is, he would do only the one loop! When asked to do a second he just said, "Nope, I've done one, that's enough."

Greg suggested the next flight we do spin training, since this training was commonly feared and the most important part. We took off that afternoon and climbed above the hills of Ashville, and he demonstrated a spin. I remember watching outside, taking in the moment, and then Greg recovered the spin and said, "That's a spin. Let's review the recovery." Then it was my turn, so I stalled and yawed and sure enough I was spinning. The recovery was actually easy. I knew then that by sticking with the whole course, I had overcome my mental fears and could now succeed in the U.S. Air Force pilot training, do my own flying safely, and confidently make the proper decisions under stress.

When Andrew and his girlfriend left our place, he entered a busy life. Months went by, and I have to tell you, Cora and I just figured Andrew must have panicked the first time they rolled him over, and he was never going to face us.

ON TRACK

I left for pilot training a few months later to fly the T-34C Turbo Mentor, learning basic aircraft control, precision aerobatics, and formation and instrument flight. I received some of the best instruction from the most capable pilots in the Navy, Marines, and Air Force. Six months into training you are given a follow-on assignment that determines which "track" you will proceed on: fighters, bombers, transports, or helicopters.

Which track one gets is determined partially by pilot preference, but mostly by instructor and commander recommendations. I was given my dream assignment; my good flight scores qualified me for the T-38C Talon/fighter-bomber track. I did it! My dreams have been reached. I conquered my fears and went on to fly the T-38C. I have since completed all requirements of this demanding training and graduated pilot training. I look back now after the journey has ended and owe my successes to hard work, to my family who supported me on this journey, to my supportive girlfriend (who is now my wife), and to the decision to get some aerobatic flight instruction. The training I received helped me overcome a crippling fear and get control of the airplanes I fly. The aerobatic and spin training I received from Greg was also pivotal to my success in military flight school.



Andy Poe gets ready to make his first solo flight in a T-38.



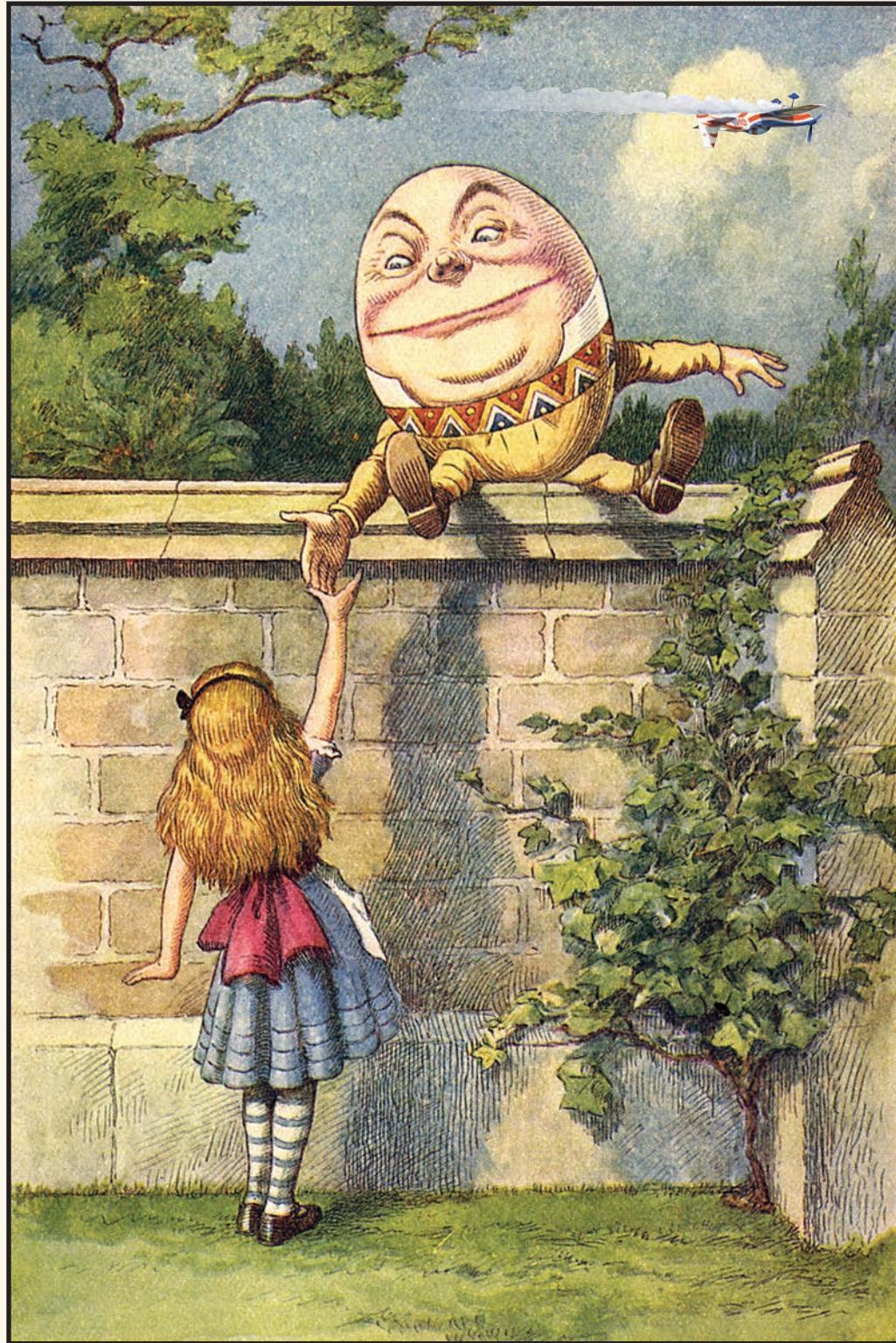
Andy served aboard an E-8C over Afghanistan before becoming an Air Force pilot.

One day my cell phone rang while I was getting strapped in the Super Decathlon with a student. On the line was Andy laughing and talking with a lump in his throat all at the same time! He had just landed after his first solo aerobatic flight in a T-34C and was trying to tell me everything he had done in one long excited run-on sentence! He graciously kept trying to say it was all because of our flying (as if a little outfit like the U.S. Air Force played some minor role!). What Andy had done, he had earned.

A bunch of months later the phone rings again. Here was Andy again, this time telling me he just did 10,000-foot loops in a T-38 jet, SOLO! He sent me a picture of him getting into his T-38, and I have to admit, it was my turn for a laugh with a lump in my throat.

Andrew is a real-life testimony for the value of aerobatic instruction. Aerobic training, on the surface, seems like a very extreme way to smooth out your flying skills. In reality, a good aerobatic course builds from the basic skills of flight and works like a building-block structure to add proficiency one piece at a time. The final product should be a better pilot with a bag full of new (and useful) tricks!

*If you are thinking about starting aerobatics for a sport or even just to overcome some rough areas in your flying, you should go now, find a good aerobatic instructor, and, as the ad on TV says, just do it. No matter where you decide to go with aerobatics, that basic aerobatic course you take will improve the way you fly forever. **IAC***



The Humpty Bumps

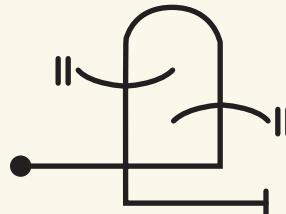
Newer pilots tend to incorrectly think of the humpty bump as a maneuver that's too advanced for them. It's actually just a combination of uplines and downlines with a half-loop in the middle. It is, however, the first time that a new aerobatic pilot has to deal with propeller gyroscopics in a big way. In the end it is well within the capability of the new Sportsman pilot, and well within the capability of a Citabria or like-performing aircraft. I strongly encourage all Sportsman pilots, even new ones, to create a Freestyle program, and I almost always have a humpty in mine. British Champion Alan Cassidy, in his landmark book *Better Aerobatics* (2003), says the humpty "...is the ideal platform for learning more about ultra-low speed handling, balance and elevator management."

BY GORDON PENNER, FAA GOLD SEAL CFI, MASTER INSTRUCTOR-AEROBATICS

First, we have to get past the slang terms. These terms for the different kinds of humptys (which in itself is a slang term!) just describe what the pilot is doing for each of the three looping segments. A pull is a positive *g* maneuver, and the push is a negative *g* maneuver.

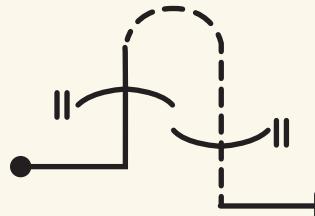
The pull-pull-pull humpty means starting in upright flight, followed by a pull to an uphill vertical line, a pull to an inside half-loop, a vertical downline, then a pull to level. A pull-push-pull humpty means a pull to go uphill, a push to a half outside loop, a downline, then a pull to level. A laydown humpty is where the uplines and downlines on each side of the half-loop segment are at 45 degrees to the horizon. A push-push-push humpty starts inverted, has a push to uphill, a push for the half-loop, and a push back to level inverted. Figures 1 and 2 are two examples of what we are talking about.

Figure 1



Pull-Pull-Pull Humpty

Figure 2



Pull-Push-Pull Humpty

Remember, when reading Aresti symbols, you start at the dot and end at the perpendicular cap line. The first symbol presented here is a pull-pull-pull humpty. The second is a pull-push-pull humpty. For those of you who are new, don't be

**"That is precisely
where the difficulty
comes in."**



distracted by the arc symbols on the uplines and downlines. Those arcs are where optional rolls can be placed. If you decide to place a roll on a line, it must be centered. Putting a quarter-roll on one of the lines is an excellent way to deal with the Y-axis. If no roll is inserted in those places, the lines don't appear in the final drawn version of the symbols in an actual flight sequence.

In the Aresti catalog, humptys are actually called "Combinations of Lines, Angles and Loops," and are also called Family 8 figures. In the International Aerobatic Club (IAC) Official Contest Rule Book, chapter eight covers the criteria for humptys in two places. Under the heading of "Lines," the rule book says that the length of the lines in a humpty bump do not need to be equal. Later, under the heading of "Humpty Bumps," the rule book states, "...the radii of the first and last partial loops must be equal. However, the half loop in the middle of the figure can be of a different radius. These half loops must still have a constant radius from the time they depart the vertical or 45-degree line. This requires a change in angular velocity during the half loop."



Those last two sentences illuminate the main problem of flying the humpty bump. The half-loop in the middle of the maneuver must be a perfect half-circle, and looping segments are judged by the trajectory of the center of gravity "dot" of the aircraft. That means the half-loop must be completed directly across from the point where it began. If the half-loop finishes after, or lower, than that point, it is called "finishing late," which is a downgrade. Since the speed of the aircraft is changing quite a bit throughout the half-loop, quite slow at first, then faster and faster, the pilot must change the pitch rate throughout to match it.

That is precisely where the difficulty comes in. Considering just the pitching, the first part of the half-loop is slow, whether you are pushing or pulling. As a result the pitch rate is low. Make sure that you enter the maneuver with enough speed to

perform the upline AND the beginning of the half-loop. In the second half of the half-loop the airspeed is increasing, so the pitch rate must be increased with it to continue to draw a constant radius and avoid finishing late.

As you push or pull faster and faster, the gyroscopic forces of the propeller induce a yaw force. The yaw then induces a roll due to yaw-roll coupling. A left yaw will give an uncommanded left roll. These forces conspire to pull the aircraft off course. The aircraft must stay on heading, or "in plane" throughout the maneuver, and it must not have a low wing.

As for the yawing, there won't be much initially when the pitch rate is low. The required rudder won't be much different than that needed to prevent a low wingtip when on the uphill line. However, when on the downside of the half-loop with an American engine, more and more *left rudder* will be required on an *inside* half-loop. In **Diagrams 3** and **4** you can see the rudder work required.

"Make sure that you enter the maneuver with enough speed . . ."

Diagram 3

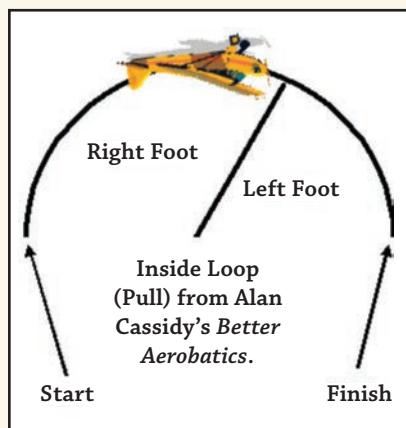
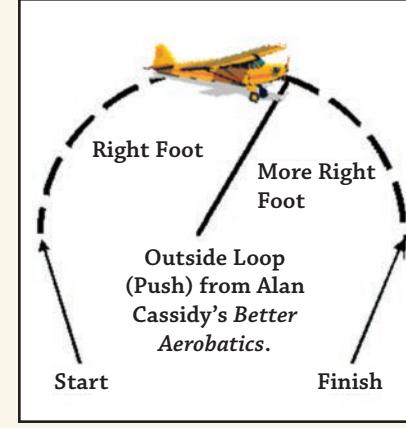


Diagram 4



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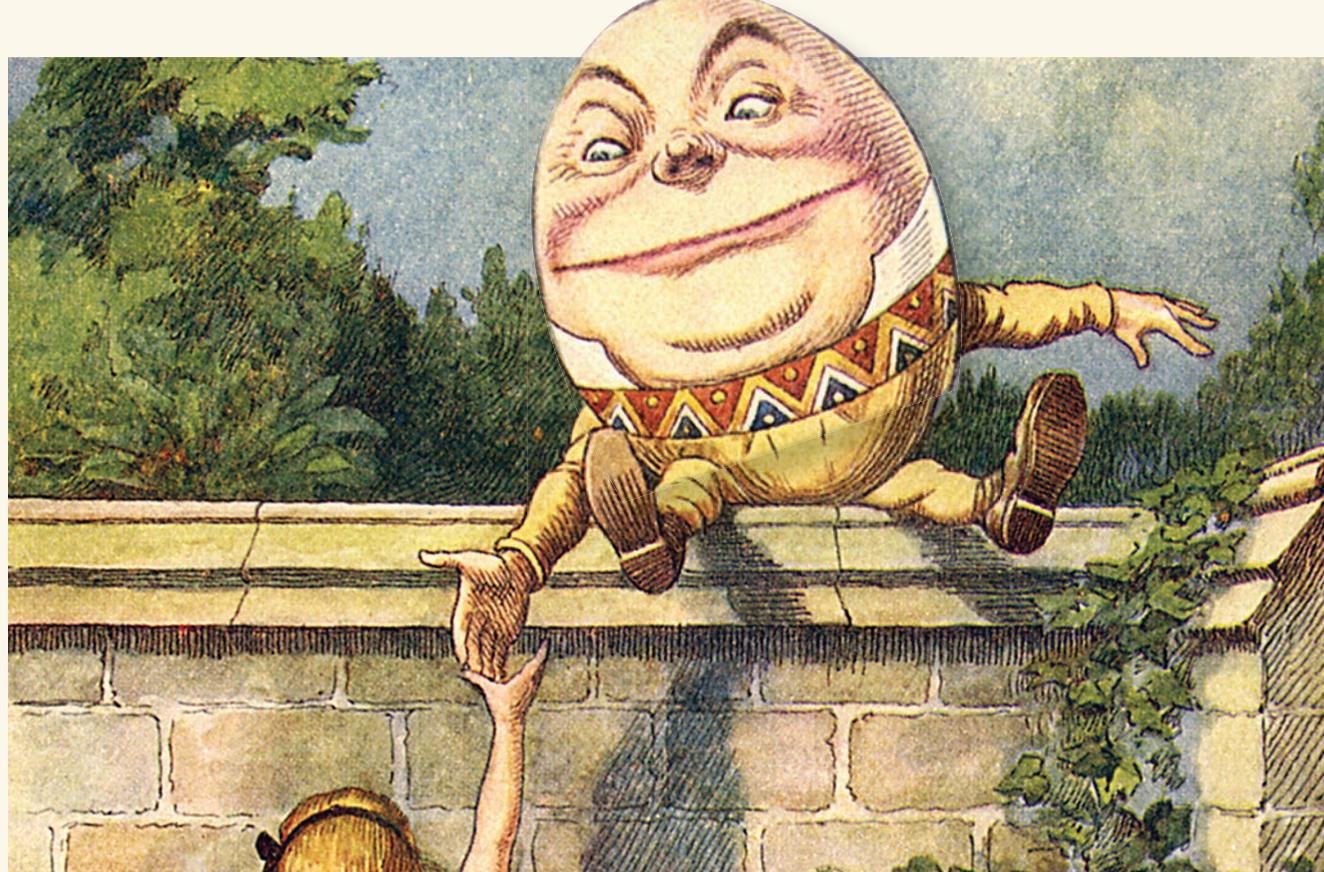


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"I like the humpty with the push on top . . ."



According to Rob Dorsey, you can push an outside half-loop at a slower speed than you can pull an inside half-loop. I tried it, and it's true. I like the humpty with the push on top, especially with a low-powered aircraft. In this case more and more *right rudder* is required as the rate of pushing is increased in the second half of the *outside* half-loop. At slow speed after the top of the pull-push-pull Humpty, I have to have almost full right rudder in to cancel the propeller's gyroscopic effect in my 150-hp Decathlon. Starting the half-loop at a faster speed can mitigate the effect. More speed at the beginning of the half-loop would give more airflow over the vertical tail and the sides of the fuselage,

resisting the yaw force. The rudder will also be more powerful. Ground coaching will help you find when to begin the half-loop.

I placed a pull-push-pull humpty in my Freestyle and put a quarter-roll on the downline. I use this as a high-energy way to go from one axis back to the other axis with a lot of smash being fed into the next maneuver. Since I can push slower than I can pull, I can get just a few more vertical feet before the half-loop. A half-roll on the downline also makes a nice heading reversal, but watch your airspeed redlines!

Remember, do not begin the half-loop at too slow a speed, especially on an inside half-loop. You must have enough energy to not only draw the half-loop, but you must also have enough energy to control the aircraft attitude while doing it.

The humpty is a fun maneuver that doesn't take a lot of practice to do well. Fly safely! **IAC**



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	1	Cory Woodsum Van Snow	84.60 82.22
Sportsman	1	John Howell	88.19
	2	Jason McDermott	87.27
	3	Dan Franscioni	86.05
Intermed	1	Ben Hodges	83.80
	2	Hiroyasu Endo	83.21
	3	Mike Hartenstine	82.53
Advanced	1	Reinaldo Beyer	84.43
	2	Malcolm Pond	83.15
	3	Patrick Dugan	80.10
Unlimited	1	Tim Just	76.35
	2	Todd Whitmer	71.86
	3	Rory Moore	62.84

SOUTHEAST

	Rank	Pilot	PP%
	1	Stanley Moye	84.56
	2	Mikhael Ponso	82.94
	3	Clifford Roberts	82.57
	1	Charlie Wilkinson	83.31
	2	Mikhael Ponso	82.37
	3	Michael Kovalcik	82.09
	1	Joe Brinker	83.27
	2	Bryan Taylor	81.11
	3	Mark Nowosielski	79.52
	1	Hector Ramirez	80.14
	2	Hubert Tolson	79.86
	3	Pete Eslick	74.95

SOUTH CENTRAL

	Rank	Pilot	PP%
	1	Aaron McCartan	84.14
	2	Christopher Price	81.41
	3	J. Humphreys	79.52
	1	William Denton	85.29
	2	Matthew Tanner	80.91
	3	John Ostmeyer	80.89
	1	Craig Dobesh	81.51
	2	Robert Freeman	78.39
	3	Kelly Adams	78.39
	1	D. Rihn-Harvey	79.40
	2	Robert Phillips	78.92
	3	Jeffrey Stoltzenberg	64.94



NORTHWEST

	Rank	Pilot	PP%
PRIMARY	1	Anandeep Pannu	73.92
SPORTSMAN	1	Jason McDermott	84.06
	2	John Howell	83.22
	3	Dan Franscioni	81.91
INTERMED	1	Steve Packer	83.16
	2	Mike Hartenstein	82.21
	3	Mark Loewen	82.02
ADVANCED	1	Reinaldo Beyer	79.25
	2	Douglas Sowder	75.35
	3	Victoria Benzing	73.10
UNLIMITED	1	Ann Marie Ward	79.48
	2	Norman DeWitt	76.54
	3	Tim Just	70.22

NORTHEAST

	Rank	Pilot	PP%
	1	Joseph Tesauro	75.19
	2		
	3		
	1	Jason Flood	83.28
	2	Aaron Ham	82.37
	3	Grant Russell	81.49%
	1		
	2		
	3		
	1	Larry Bashore	81.22
	2	Kirill Barsukov	79.73
	3	Adam Cope	78.13
	1		
	2		
	3		
	1	Sergey Prolagayev	80.06
	2	Scott Francis	71.76
	3	Douglas Lovell	68.36
	1		
	2		
	3		
	1	Dennis Thompson	64.21
	2	Kendal Simpson	63.31
	1		
	2		
	3		

MIDAMERICA

	Rank	Pilot	PP%
	1	Christopher Napier	82.92
	2	Wm. Marinangel	82.79
	3	Klaus Mueller	81.74
	1	Randy Wolfe	83.30
	2	Patrick McAlee	82.85
	3	Tom Adams	81.79
	1	Steven Johnson	85.23
	2	Jeffery Granger	72.09
	1		
	2		
	3		

Congratulations to the winners and everyone who flew in the **2009 REGIONAL SERIES!**

This Series began in 2002 with 60 pilots competing. To be eligible, a pilot must fly at least three contests during the year (two for the Northwest Region) and may include U.S. Nationals. If more than three contests are flown, the highest scores are used to calculate total percentages.

First, second, and third place trophies are usually awarded in each category (Primary through Unlimited) in each of the six regions. Unfortunately, the IAC was unable to do this in 2009 due to a lack of sponsorship.

For detailed information on the 2009 Regional Series, go to <http://Members.IAC.org> under Contest Results. Information and registration for 2010 is also available.

CONTEST CALENDAR DEPARTMENTS



// **Borrego Hammerhead Roundup (Southwest)**

Friday, April 9 – Saturday, April 10, 2010

Location: Borrego Valley Airport (L08): Borrego Springs, CA
Tel: 714-512-2531 • **Website:** www.iac36.org
E-Mail: webmaster@iac36.org

// **Armed Forces Memorial (Southeast)**

Friday, May 14 – Saturday, May 15, 2010

Location: Grenada Municipal (KGNF): Grenada, MS
Tel: 662-417-5698 • **E-Mail:** wroberts@waco-eng.com
Website: www.iac27.org (under construction)

// **Jersey Skylands Aerobatic Championships (Northeast)**

Friday, May 14 – Sunday, May 16, 2010

Location: Greenwood Lake Airport (4N1): West Milford, NJ
Tel: 1-908-635-2815 • **Website:** www.iac52.org
E-Mail: stephenseidel@embarqmail.com

// **Southeast Aerobic Open (Southeast)**

Friday, June 4 – Saturday, June 5, 2010

Location: Tara (4A7): Hampton (Atlanta), GA
Tel: 706-326-4877 • **E-Mail:** marty.flournoy@fcrealtors.com

// **Lone Star Aerobic Contest (South Central)**

Friday, June 11 – Saturday, June 12, 2010

Location: Grayson County (GYI): Sherman/Denison, TX
Tel: 469-713-4505 • **E-Mail:** Loop4fun@aol.com
Website: www.IAC24.org

// **Ohio Aerobic Open (Mid-America)**

Friday, June 18 – Saturday, June 19, 2010

Location: Union County (MRT): Marysville, OH
Tel: 614-505-6555 • **Website:** www.iac34.com
E-Mail: jgranger@columbus.rr.com

// **Apple Cup 25th Anniversary (Northwest)**

Friday, June 18 – Saturday, June 19, 2010

Location: Ephrata Municipal Airport (KEPH): Ephrata, WA
Tel: 603-860-4456
E-Mail: AppleCupCD@gmail.com
Website: www.iac67.org

MARK YOUR CALENDARS

for these upcoming contests. A complete list, and the latest calendar, is at www.IAC.org. And, if you're hosting a contest, let the world know by posting it there!

// **Wildwoods AcroBlast (Northeast)**

Friday, June 25 – Sunday, June 27, 2010

Location: Cape May County (KWWD): Lower Township, NJ
Tel: 717-756-6781 • **E-Mail:** cwisman@comcast.net
Website: www.iac52.org

// **Midwest Aerobatic Club Challenge (South Central)**

Saturday, June 26 – Sunday, June 27, 2010

Location: Seward Municipal Airport (SWT): Seward, NB
Tel: 402-785-1060 • **E-Mail:** lynn.bowes@hotmail.com
Website: www.2connect.us/mac80

// **Michigan Aerobic Open (Mid-America)**

Saturday, July 10 – Sunday, July 11, 2010

Location: Jackson County – Reynolds Field (KJXN): Jackson, MI
Tel: 734-255-2263 • **E-Mail:** rbutts@live.com

// **Salem Regional Aerobic Contest (Mid-America)**

Saturday, July 17 – Sunday, July 18, 2010

Location: Salem/Leckrone Airport (KSLO): Salem, IL
Phone: 314.369.3723 • **E-Mail:** bruceballew@earthlink.net

// **Doug Yost Challenge (Mid-America)**

Saturday, August 14 – Sunday, August 15, 2010

Location: Spencer Municipal Airport (KSPW): Spencer, IA
Tel: 712-335-0744 • **E-Mail:** Aaron.mccartan@gmail.com
Website: www.iac78.org

// **Happiness is Delano 2010 (Southwest)**

Saturday, September 4 – Sunday, September 5, 2010

Location: Delano Municipal Airport (KDLO): Delano, CA
Tel: 661 917 4573 • **E-Mail:** 1jkhowell_1954@sbcglobal.net
Website: www.IACChapter26.org

// **Rebel Regional (Southeast)**

Friday, September 10 – Saturday, September 11, 2010

Location: Everett-Stewart Regional (KUCY): Union City, TN
Tel: 731-420-4053 • **E-Mail:** nagriffin36@charter.net

// **Tequila Cup (Southwest)**

Friday, November 12 – Saturday, November 13, 2010

Location: Marana NW Regional Airport (AVQ): Marana, AZ
Tel: 603-860-4456 • **E-Mail:** tequilacup@gmail.com

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STAN BURKS
COLUMNS / SAFETY CORNER

2009 Year-end Statistics

THANKFULLY '09 HAS COME to a close, and things are looking brighter for 2010. Although the south has been in a deep freeze the last few weeks, we have been blessed with a few days with the highs in the mid 60s. Yes, I did get the Pitts out and had a go at the new Sportsman sequence. It was fun and flyable.

We ended 2009 with a total of 22 accidents with 15 fatalities involving aerobatics. This is an increase over 2008, where we had 10 accidents with 11 fatalities. The majority of accidents were classified as flight while maneuvering. The range of experience, flight time, ratings, and aircraft are broad; there is no single factor we can point to that explains the increase in fatalities. I am concerned that several of the accidents occurred while performing aerobatics at low altitudes. It appears we

are still bitten by the show-off bug, and this bite is deadly. Please, folks, do not perform aerobatics below the legal altitudes; the consequences are not worth the reward.

I am very pleased our president has taken the initiative to form a committee to look into this problem and to make suggestions where necessary. I have talked with both Doug Bartlett and Bob Meyer, and there are some great ideas being discussed. I look forward to working with Bob and the committee to create a heightened culture of safety for our organization.

I would like to remind each of you that the steps we take to improve safety will work only with help from you. Please take time to review and consider these initiatives, then send us any feedback you feel necessary.

As always, please continue to train, plan, and practice. **IAC**

**"I am concerned
that several of
the accidents
occurred with
performing
aerobatics at
low altitudes."**

MISHAPS by MONTH: 2009

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTALS
Accidents	1	0	1	4	3	1	4	4	0	2	2	0	22
Fatalities	1	0	2	3	0	0	4	3	0	0	2	0	15

**Remember,
things don't always go
according to plan!**



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