SPORT Aerobatics
JUNE 2016
OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB

# Perfect Maneuvers

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This year you must be able to demonstrate a greater authority over your plane since you will need to perform rolls at near $V_{NE}$ and near stall speed.

*—Dave Watson*

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**EDITOR'S LOG**

**BY REGGIE PAULK**

# Letter to the Editor

## Understanding Spins by Marshall Friedman, IAC 5013

Dear Reggie,

Good article about spins in the January issue. I'd like to share a real-world example of the importance of understanding spin-recovery techniques and, even more important, continually practicing them.

Every time I flew my S-2C, I did at least one spin where I used Beggs/Mueller to recover. I varied the type of spin each time. The idea was that if I ever entered an accidental spin, I didn't want to have to think about how to recover—I wanted it to be automatic.

I have owned various Pitts models for 30 years, competed in the Advanced category in the early '80s to early '90s, and had *never* experienced an accidental spin. Two or three years ago, I was practicing that year's Advanced Known sequence. At one point in the sequence, the aircraft is in a 45-degree inverted climb, lay out inverted, and then an inverted one and one-quarter turn spin.

I wanted to gain altitude in the 45-degree climb, so I stretched it. When I laid out on top, I was very slow. When I made the control inputs for the inverted spin, nothing happened. As I remember, I began to bring the stick back to head the heavy part earthward. In a split second, I was in the most violent spin I'd ever experienced. The recovery, however, was so quick that it almost felt as if somebody else had done it. No question that the constant B/M practice worked magic for me.

I spoke with Gene Beggs afterward, and we decided that it was an inverted accelerated spin. When I made the control input for the inverted spin, it probably did just begin to spin, and then when I brought the stick back, it accelerated it.

The clear message was that even somebody who had all of that time in Pitts Specials (around 1,300 hours), who had done about every maneuver possible multiple times over the years, and who had never had a spin issue can still have that very exciting experience. I think it's a matter of when, not if. We do know that we've all lost friends over the years to accidental spins. I can tell you firsthand that when it happens, it can be so sudden and violent that it's hard to get the gray matter focused on what's happening. It's a whole lot better to be able to recover via a thoroughly automatic conditioned response than to have to deal with the surprise and the panic and try to figure out what's going on, and then to determine what control inputs are required for recovery. With M/B, it's just power off, hands off (I always put them on top of my head so that I won't subconsciously "help" the stick), look down the cowl to determine spin direction, and then opposite rudder. In the Pitts, it works no matter what type of spin.

Thanks, Gene! *IAC*

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

**PRESIDENT'S COLUMN**

**BY MIKE HEUER, IAC PRESIDENT, IAC 4**

# AirVenture and the IAC

## A historic and future presence

Since IAC members are also members of EAA, you hear a lot about EAA AirVenture Oshkosh in EAA's flagship publication, *Sport Aviation*, as well as in other division magazines and e-newsletters that come out of Oshkosh each month. AirVenture is truly aviation's premier event, with more to do and see than is possible in just a few days.

The IAC has had a presence at the EAA Oshkosh fly-in—now known as AirVenture—since we were founded in 1970. It was the first year the fly-in was located in Oshkosh, having been in Rockford, Illinois, for many years, and we operated out of one of the exhibit tents with folding tables and chairs. Despite the rather sparse and crude surroundings, we managed to sign up more than 120 members during those few days in Oshkosh as the interest in aerobatics and excitement about our new organization were at an all-time high. By the end of 1970, IAC signed up 1,000 new members.

We have been in Oshkosh for the EAA event ever since. Sometimes we were in a tent, later in one of the exhibit buildings, and finally in our own small building on the flightline in 1980. That building project was spearheaded by IAC president Carl Bury with Dan McGarry supervising the construction. Dan was an Advanced category pilot at the time and in the construction business. The building served as IAC's headquarters for the fly-in that year but also for the World Aerobatic Championships when it came to Oshkosh in 1980. It continued in operation until we moved it from the site to Fond du Lac, Wisconsin, and built our new pavilion in 1991.

Though it served us well since then, it was getting tired and worn and was not projecting the image of the IAC we wanted, was not inviting or welcoming, and had the atmosphere of a clubhouse rather than an information center and place for exhibits. That all changed in 2015. The pavilion underwent major renovation, and the IAC hosted the Pitts 70th anniversary celebration. We created and displayed the educational and visually attractive exhibit on the evolution of the Pitts since 1945. We refurbished our historic and iconic trophies, made their display more prominent and appealing, and introduced our new collection of IAC merchandise. Last year represented a lot of change for the IAC and a major emphasis on our participation in AirVenture. It was also the first year we introduced a theme to our part of the event.

This year it is a new theme, "Grass Roots to the Top of the World." This will include a 16-panel display—located in the same place as last year's Pitts exhibit just inside the pavilion's double doors—telling the story of aerobatics, its history, its aircraft and pilots, and the development of the aerobatic figures we know today. IAC members will learn from our exhibit and come to appreciate our aerobatic heritage and history just as with the Pitts exhibit last year. Even those of us who have been around Pitts airplanes for decades learned something about this wonderful airplane in all its models and variations last year in Oshkosh. The exhibit this year will serve a similar purpose and will introduce AirVenture attendees to the world of aerobatics.

As I have mentioned many times, one of the features of our activity is its incredible variety. Grassroots aerobatics consists of local chapters, aerobatic schools, judges clinics, practice sessions, flying for Achievement Awards, and safety seminars. "Top of the World" is our tagline for the pinnacle of success in competition at the world championship level. The IAC is active in all those and in everything between. Our members organize and attend chapter meetings and activities, and they fly at world championships. All of this is available to all in IAC if they have the means, the desire, and the passion to pursue it.

Helping people get started, to operate safely, and to be informed is also one of the IAC's hallmarks. Throughout the week in Oshkosh, we will conduct forums at the pavilion. My thanks to Michael Church who agreed to take on this assignment this year and to Lorrie Penner who preceded him and made the transition a smooth one. Hundreds of people attend our forums during the week, and this year's schedule will be interesting and rich with information.

I invite you to come to Oshkosh and join us. Make the IAC pavilion one of your first stops and say hello to the leadership team that will be working there, just as it does throughout the year.

See you in July. *IAC*

Please send your comments, questions, or suggestions to *president@iac.org*.

Photo 1: high speed roll start.

# Seeing the Perfect Maneuvers: Surviving the 2016 Sportsman Known

## Rolls—Part II

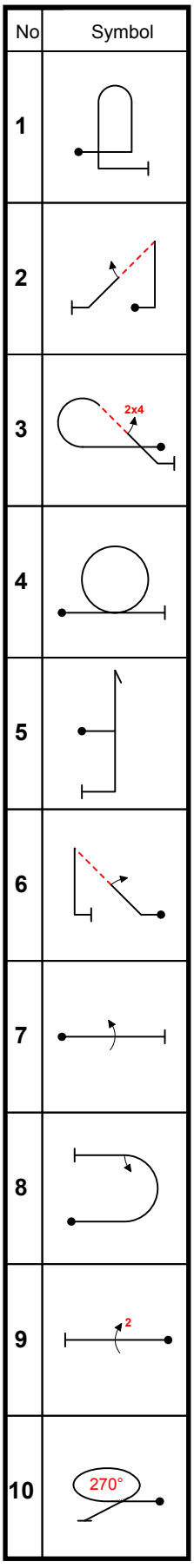
by Dave Watson

[Editor's Note: This article was supposed to run in March—which was just a reprint of an earlier article by Dave Watson. The photos in that piece didn't match the text. This is the correct version.]

In the last installment of this series, I discussed where to look and what to "see" while performing an IAC full roll at max cruise speed (see *Sport Aerobatics*, August 2015). However, for you grassroots airplane owners who are going to compete in Sportsman this year, the IAC Sequence Committee gods were not gracious enough to have given you such a roll in the Sportsman 2016 Known.

This year you must be able to demonstrate a greater authority over your plane since you will need to perform rolls at near $V_{NE}$ and near stall speed. Looking at the 2016 Sportsman Known, you can see that the combination of figures 6 through 9 present an extreme challenge to grassroots planes, especially at high-altitude densities. It gets even worse if you are lugging a safety pilot around with you.

In this article, I will present some additional tips on rolls that will hopefully help you get through these figures without experiencing the dreaded Immel-spin or wildly sagging through or snapping out of the Immelmann or the 2-point roll. This article presumes that you want to get through this sequence without taking a "planned" break before the Immelmann (and/or even a second break after the Im-




melmann). Taking breaks is, of course, a good plan if you just can't muster the required performance out of your ride to get through this overly challenging sequence. Taking one or two 5-point breaks is far less disastrous than an HZ or poor score on any one of these figures. But really, in this, the year of IAC homage to the grassroots pilots and planes, this sequence is not at all kind to you.

## The Problems With That Sequence!

The first thing you must appreciate about flying through this segment of the Sportsman sequence is that you will need to be "hauling the mail" to perform a good Immelmann (Figure 8) and then subsequently get off a level 2-point roll (Figure 9). The Immelmann is, in my opinion, the most challenging of the typical Sportsman maneuvers. It is difficult to score well in any grassroots plane, even under ideal circumstances. And yet in this sequence you will likely need to do it while compromised with lower-than-optimum energy because of the preceding full roll. Having accomplished that, you will then get the opportunity to perform two more half-rolls that may actually be harder to get through than the half-roll on the Immelmann. Figure 6, the reverse wedge, has a nice downline that you need to use to gain this speed. However, there is that full roll (Figure 7) before the Immelmann.

To have sufficient remaining airspeed for the Immelmann, you need to be as fast as you can for the full roll. Most new Sportsman pilots are not very comfortable with the sight picture of a planet rushing up at them, and the tendency is to pull to level very quickly on downlines. This would not set you up for success, so you will need to get used to holding a long downline as shown in Figure 6. A good Immelmann in a Super D (or other grassroots plane) needs to be initiated well above max cruise speed—I recommend 160-170 mph entry speed in my Super D (max cruise is 135 mph). A full roll, with lines before and after, takes at least six seconds in a Super D, and you need to remember that your induced drag is exponential to increases in airspeed, so do the math; you really need to be going nearly 180 mph at the start of that roll to be anywhere near our lowest optimum airspeed of 160 to start the Immelmann.

So a downline to near $V_{NE}$ is the first thing you need to master. If you are not accustomed to this, perhaps you can find a qualified safety pilot to help you get used to flying straight down and pulling to level at just under $V_{NE}$ without hurting yourself or your plane.

Even if you initiate that roll while flying as fast as you can, you still may not have the minimum desired airspeed for the Immelmann, so you'll need to make sure you know your go/no-go airspeed for all these maneuvers and that you waste absolutely no time between all these figures.

Let's work through these Intermediate-level challenges in a grassroots plane. In my August article, I discussed the "sacred oval." Since I was only describing how to do a roll at maximum cruise speed, this term may not have had as much significance as it may after you read this article. All the rolls in this portion of the sequence have very different airspeeds and sight pictures—i.e., vastly different sacred ovals. Let's pick them apart.

## The Sacred Oval of the High-Speed Full Roll

The full roll in this sequence needs to be done at a very high speed, so your angle of attack (AOA) will be very low at both upright and inverted. At this attitude and speed, look straight ahead to the horizon with your eyes looking parallel to your flight path—that is, your "rolling point" and the center point of your sacred oval. Your job on this roll is to keep the rolling point directly in front of you throughout the roll and to translate the nose of your plane around it in the shape of an oval. At high speed, your rolling point will most likely be just a bit above the horizon and the nose of your spinner will appear to be below the horizon (photo 1). Take note of the distance your nose is below the rolling point. This distance is critical, and it is relative to your sitting height above your plane's center of gravity.

For example, if you are tall and sitting upright in a Super D, you really have

Photo 2: hi speed 1st knife-edge.

to look "down" at the nose when in high-speed straight and level (SAL) flight. If you are shorter, or if you are recumbent in a high-performance monoplane, your eyes are closer to the longitudinal axis (and CG) and you may be looking along the top of the cowl, so you don't have to look "down" very far at the spinner during high-speed SAL flight. Where you "see" the nose now in relation to the rolling point is the bottom point of the sacred oval.

Likewise, if you fly level-inverted at this same airspeed and don't move your eye's attention, your rolling point should still be directly in front of you and the spinner at roughly the same height above the rolling point as it was below it when you were upright (photo 3). This is the top point of the sacred oval. If you are flying a plane with any angle of incidence or with a flat-bottom wing, the spinner will be higher above your rolling point while inverted than it was below it while in upright flight.

Also, since you initiated this roll well above cruise speed, you will have decelerated a bit already, so to maintain level-inverted flight at a slightly lower speed your inverted attitude will need to be at a slightly higher angle of attack than your starting upright AOA, so your nose must be just a bit higher in relation to your rolling point at inverted than it was below it when you started.

You will also decelerate about the same amount in the second half of the roll, so to maintain level flight at the finishing airspeed your finish attitude will need to be at a slightly higher AOA than your starting AOA, so your nose must stop slightly higher than where it started at the end of the roll. The more "grassrootsie" your plane is, the more significant this will be. The height of this sacred oval is defined by the distance between the start and inverted points; it is going to be the shortest of any of your rolls in your plane, and the spinner's oval trajectory will nearly be centered on your rolling point just above the horizon.

As I noted in my August article, the width of this sacred oval (and all your sacred ovals regardless of speed) will always be the same, and that is predicated on your sight picture of your spinner in relation to the height of your eyes at zero AOA. What, you say? At the two knife-edge points of our roll, we must have the wings vertical and at zero AOA or we will be pushing or pulling off heading. The starting point of our high-speed sacred oval was previously determined to be a set distance below our rolling point when we were at nearly zero AOA (i.e., at max speed).

At knife-edge, we also must be at zero AOA. So the width of the sacred oval is the same left and right of the center of your rolling point as the starting point was below it (photos 2 and 4). Assuming you could do a roll at $V_{NE}$ without losing any airspeed and you have a symmetrical airfoil with no angle of incidence, your sacred oval would be a perfect circle and generally centered just above the horizon. We are not graced with those circumstances, but a high-speed roll is as close as you will ever get, so perhaps a sacred circle is your best starting point as a means to master it.

Visualize the nose transcribing a perfect circle around the rolling point centered just above the horizon. Keep your eyes looking

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Photo 3: hi speed invert.

straight ahead and observe (do not focus on) the spinner moving around this point. Other key points to consider: Your control forces will be very heavy due to the high airspeed; the elevator and rudder will not need as much movement as in slower rolls because they have much great authority, but they will feel heavy; and you should not "over-control" this roll. Use just as much control force as it takes to transcribe the nose around your sacred circle about your rolling point—no more, no less. You need to conserve energy, so you need to get through this roll as quickly as possible, deflecting your ailerons as much as you can. Use both hands if you need to, and get that stick to the left stop any way you can.

You have now grunted yourself through a high-speed roll. Practice just this maneuver until you get your highest exit speed consistently without exceeding your $V_{NE}$ at the beginning. Check your altitude before and after and make sure you are within 25 to 50 feet of your original starting altitude—

Photo 4 hi speed 2nd knife-edge.

you do not want to be higher and throwing away additional energy. Determine your routine exit speed from the roll and move on to your next challenge.

## The Immelmann and Its Roll

The Immelmann by definition is a wind-corrected half-loop up, followed by a half-roll on heading at constant altitude from inverted to upright. As mentioned, the Immelmann is a challenging Sportsman maneuver under optimum circumstances; odds are that after that previous roll you may not be going at as high an airspeed as you would have preferred. To perfect the Immelmann and particularly its half-roll without beating yourself up, we shall break the Immelmann into pieces.

## The Half-Loop Up

I shall digress momentarily from our work on rolls and talk briefly about the half-loop up. First, we will just do the half-loop up from your expected entry speed (whatever that was after finishing the roll) and try to fly off level-inverted. The half-loop is initiated by crisply getting your stick back (never by jerking) to load your wings at 3.5 to 3.75*g*. Less *g* will make your half-loop too tall and will waste energy, while higher *g* will just induce excessive drag and kill your airspeed, too.

Keep your attention forward on your initial heading point and, with your "big eyes," use your peripheral vision and watch the horizon drop equally on both sides until it is out of your sight (photo 5). Then immediately look to your left and observe your sighting device (or wingtip) rotating on a point. Do not let that point of rotation move in relation to the horizon. Hold that optimal *g* until you are about 45 degrees on your back (photo 6) and then look directly back behind you and pick up the horizon that was on your tail.

The reciprocal heading should be directly on your nose; if it's not, you yawed (or rolled) off heading in the pull. Once you have this point in view, keep the *g* on with very little float until you get to the top of the loop and stop the half-loop with abrupt forward stick; immediately check your airspeed and altimeter, and determine your airspeed as you fly off level-inverted. You must be able to sustain constant altitude in inverted flight at this low airspeed or you will have no chance of pulling off a clean Immelmann.

To help visualize the inverted finishing attitude, you should *not* be looking at the nose; it will likely be buried in the blue sky without any usable reference points. Instead, look "higher" in the windscreen and see where the horizon transects some part of your plane—e.g., nearly where the wing root mates to the windscreen of a Super D (photo 5). This will be the point where you abruptly stop your pull for the half-loop (and is the starting position for the half-roll of the Immelmann). Practice that half-loop until you can finish it in level-inverted flight at the highest airspeed that you can manage (with the same starting airspeed). Then move onto following it with an immediate half-roll.

## The Sacred Oval of the Immelmann Half-Roll

The starting attitude and airspeed for the half-roll is exactly the same as the ending point for the half-loop up (photo 5). Since our windscreen is full of blue sky, without any good point to roll on, for this half-roll we are *not* going to look at the rolling point. Instead we will focus on the horizon along our heading. Let's construct the sacred-oval trajectory of the nose of the Immelmann. We already know the starting point for this sacred oval; the nose is way up

Photo 5: start Immelmann roll.

in blue sky, but we are actually looking "higher" in our view at where the horizon cuts through high in the windscreen (photo 7), yet we can observe the nose in the blue sky quite some distance lower (in relation to your eyes) in the windscreen. Now we need the finishing position of the half-roll. Fly your plane SAL upright at the same airspeed as you did when finishing the half-loop up. This is likely just a bit above stall in your grassroots plane. Note and memorize the nose position in relationship to the horizon at this airspeed while maintaining upright SAL flight. The nose is most likely some distance slightly above the horizon (photo 7). This is the finishing point for the half-roll and the bottom point of the sacred oval. We already know that the *width* of any sacred oval at knife-edge is the same for all rolls, so we know how far right of our heading (as observed while inverted) our nose will be as it passes through knife-edge on its way down to the finishing point (see photo 6—note similarity to photo 4). We have now constructed the sacred half-oval of the Immelmann roll. Your job now is to link those points with these sight pictures in a smooth manner.

## Doing the Roll

At first just try this without the half-loop up. Just roll to inverted at low airspeed (more on this as we talk about the 2-point roll) and get to the same initial attitude and airspeed as at the end of the half-loop up. While performing the Immelmann roll, *do not* stare at the blue sky in front of you. Keep your attention on a single point on the horizon (along your flight path).

Start at your half-loop-finishing-inverted SAL attitude and then smoothly apply full left aileron. Then, using your mad pilot skills, bring the nose from its starting point high above the horizon through the midpoint of the oval at knife-edge and then to its ending point. The nose will swing right of your sight line the width of your sacred oval and should stop on heading at that finish attitude. Remember, this oval is quite tall, yet it's the same width as the high-speed roll, and you are *not* looking at the rolling point. You should be looking at the finishing point continuously and bringing the nose down to it through that oval path.

The hard aileron deflection will create adverse yaw that will tend to draw your nose a little left of your heading, so you may need a brief moment of right rudder to compensate and keep on heading. However, you are flying so slowly that you may want to ignore this (at first) if it is not too severe because it is unlikely to drive your CG off trajectory very much. Then, as the left-roll proceeds, despite the beneficial (nose-deflecting-upward) adverse yaw, you must control the rapid descent of the nose with some top (left) rudder so that it passes through the knife-edge point with the nose the same amount right (your current right, of course) as it would in any other roll while still being well in the sky with the nose no more than halfway down to its finishing point (generally well above the horizon). It requires more rudder and less stick force than is commonly used by beginners.

As you pass though knife-edge, the wing goes from negative loading to neutral (immediately at knife-edge) to positive loading as you finish the roll upright. As a result, that initial beneficial adverse yaw (nose upward) switches to the other side of the wing and smartly drives the nose down—in the same direction of gravity and inertia; this is not beneficial at all. You now



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Photo 6 knife-edge in Immelmann roll.

need to apply boatloads of top (left) rudder and progressively more back-stick after you pass through knife-edge to compensate. If you smoothly bring the nose through the path of the sacred oval and it ends up in the finish position, you should be flying off on heading and at constant altitude. Verify this and make corrections as needed.

## Putting It Together

Now let's simply link these two maneuvers. Dive in to your starting airspeed and perform the half-roll exactly as you had previously, and when the horizon hits your finish point, briskly shove the stick directly forward, unloading that positive *g* and loading the wing negatively for inverted flight (as you had before). Then immediately after (not simultaneously—do not blend the beginning of the roll with the transition from pull to push) get full left aileron deflection and do the half-roll as previously described. You should be going in exactly the opposite heading, at a low speed, yet at constant altitude and slowly accelerating. No problems, right?

## Some Tips

If at any point the nose is seen dropping below the horizon, you have dished the roll and *are* sinking out of the Immelmann and descending. At this point, pulling harder on the stick to recover (the usual reaction) is generally more disastrous than helpful, so just "fly the plane" in as slow a descent as you can manage while trying to keep it from stalling or snapping. If this is happening, wag your wings as anemically as you can (so as not to stall out) and take a break; you cannot perform a subsequent 2-point roll under these circumstances.

If you do try to muscle your way through the roll with heavy and/or abrupt stick forces or abrupt rudder movements as the nose is adversely dropping, you may not like the result. This is the point of the dreaded Immel-spin, or Immel-snap. At knife-edge, you should (will) be holding a lot of top rudder, and the wing must be neutrally loaded. If you are still pushing on that stick (or started pulling too soon) while standing on top rudder, you have heavily cross-controlled at low airspeed and may end up doing a knife-edge snap, likely ending up in a power-on flat spin. To avoid this, use only the amount of control inputs you need to allow the nose to fall to its finish point while slowly sweeping through the knife-edge point. A strong tendency is to try to hold the nose up with forward stick as the roll progresses, and snapping and spinning is unfortunately not at all uncommon with entry-level Sportsman pilots. So please make sure you know how to deal with inadvertent spins and/or have a safety pilot with you when you learn this new skill. Ensure that you are at neutral stick when at maximum top rudder at knife-edge at the halfway point. Again, please learn this maneuver with experienced dual support.

## On to the Low-Speed 2 of 2 Roll!

As a result of this sequence, you do not have much time to accelerate for the 2-point roll because you have used up a sizable portion of the box for the Immelmann and you need to leave some room in the box for the last 270-degree turn without going out. So in contrast to our high-speed roll, that low-speed 2 of 2 of our 2016 Sportsman sequence will be at a very high AOA, and consequently its oval is going to be taller, with the spinner totally within the blue sky and nothing (except possibly a fortu-

Photo 7: finishing Immelamn and starting 2-by-2.

itous cloud) to center it about. Since we are not going much faster than the half-roll of the Immelmann, we already know all the points of our sacred oval. The start and finish points for your nose are at the same point as your finished point of the Immelmann roll. The top point is nearly as high as the start point was for the half-roll of the Immelmann, and of course the knife-edge points are always the same side to side. Easier said than done. Let's try one.

## The First Half

As discussed earlier, if you tried to perfect the Immelmann by breaking it into two parts, you needed to do a half-roll from upright to get inverted to work on the low-speed half-roll from inverted. Well, the first half of that was actually the tricky part, and it is exactly how we need to fly the first half of the 2 of 2. Your starting point of the sacred oval is the same as the finishing point of the Immelmann (photo 7).

When you are upright, slow, and at a high AOA and then initiate the roll to the left, the adverse yaw is much more of a factor on your performance than at a higher AOA. So when you push the stick to the left to start the low-speed roll, the right wing will lag significantly and you will need to compensate momentarily with a touch of left rudder to keep your nose on heading. Then during the first quarter of the roll to knife-edge, the adverse yaw is beneficial but not at all sufficient to get the nose up to its knife-edge position, so you must immediately transition from that touch of left rudder to right (top) rudder to get that nose going up.

As we pass through knife-edge (photo 8) and the lift shifts to the bottom of the wing, the adverse yaw also shifts to the other side, and now it wants to help pull the nose down just as you are already struggling to get it up. So you may need even more top rudder. But as you approach that inverted attitude, you must be back to neutral rudder to keep from flying off heading when you stop the roll at the inverted position. Do not stare into space; keep your sight picture on your heading on the horizon and watch the nose

Photo 8: 1st knife-edge in 2-by-2.

go up to your inverted low-speed attitude, confirmed by the horizon (your focus point) cutting through the windscreen in the same place as you finished your half-loop up.

Use your big eyes and watch your wings, and just as they are parallel to the horizon, stop the roll with brisk centering of the ailerons and hold the stick forward (and neutral) with your rudders neutral. Hold this for at least a second or two to give the judges a chance to see and appreciate your perfect point. Then do the second half exactly as you did the half-roll of the Immelmann. Perform the 270 turn (see "Seeing the Perfect Maneuvers—Turns," *Sport Aerobatics*, March 2015), wag out, catch your breath, collect your thoughts, land safely, and collect your clinkie.

All that aside, I believe a low-speed roll, flown perfectly and to the rules, will generally not score nearly as well as one flown at a higher speed and lower AOA. The high oscillation of the longitudinal axis is easily confused with "porpoising" and can lead to undeserved deductions. A break amounts to less than a 0.5 loss in average score on the 2-by-2, so if you are struggling to keep your aircraft up after the Immelmann, a break is absolutely better than a poorly flown 2-point roll. You will have to learn your go/no-go airspeed for this maneuver.

I hope this article helps you see the sight pictures necessary to muscle your grassroots plane through the 2016 Sportsman sequence and helps put you on an even playing field with higher-performance planes being flown in your category. One last tip: Given the excessive challenges pilots of grassroots planes face when flying this sequence, this is definitely the year to design and fly a Sportsman Free so you don't have to grunt through those tough rolls multiple times . ***IAC***

*Dave Watson is an 18-year veteran of the IAC who flies Unlimited out west in a four-banger Lazer, recently placing first in the 2015 IAC Northwest Region and second in the Southwest. He has worked his way up, flying his Super Decathlon to wins in Sportsman and Intermediate. He may be the only person to have competed in a stock Super D at all competition levels. He did one Advanced Unknown in it when his Yak-55 had a mechanical issue at the last minute, and he currently performs the Unlimited 4-Minute Free in his Super D (not the Lazer), winning the 2015 Southwest Region in it. You can follow him at* www.Aerobatika.com. *You may watch a video of this sequence of maneuvers at:* https://youtu.be/voo4_6jRvfs

# Aerobatics

## It's never too late

BY RICHARD DENMAN
PHOTOS COURTESY RICHARD DENMAN

Growing up on a farm keeps you pretty isolated from the rest of the world. We had everything we needed for a family of eight on 142 acres in rural Sussex, New Jersey. Summers we were mostly barefoot, but we got new shoes in the fall for school. Every August we would go to the county fair. At 8 years old I discovered the airplane ride. Around and around it went. If you pulled the stick back, you went up . . . pushed forward, and your stomach dropped. I couldn't get enough.

As a teenager I went with friends to the Sussex Air Show, the "Biggest Little Air Show in the East." I was filled with awe as I watched the performers from all over the country fill the air with swirls of smoke in what seemed like impossible patterns. But the most amazing pilot with the most incredible airplane, to me, was local legend Leo Loudenslager in his Laser 200. All I could do was dream about what it must feel like to be so free.

Leo was the best of the best: seven-time National Champion and 1980 World Champion aerobatic pilot. He and his family lived just down the road. My sister would babysit for them from time to time. When she told him I was a fan, he sent home an autographed picture for me to have. To this day, it is one of my most prized possessions.

**Richard Denman flies over his Pleasant Acres Campground.**

When I turned 18 I wanted to get a motorcycle, but my mom was dead set against it. Thinking it was not nearly as dangerous as other things, I asked, "Would you rather I took up flying?" To which she replied, "Anything but a motorcycle." The very next day I went to the airport and took my first flying lesson. It was a day I will never forget.

The pilot community at Sussex was awesome. I was a quiet farm boy, but they welcomed me, encouraged me, and invited me into their lives. Leo was no different. I was always welcome to pop in and see what modifications he was working on for his airplane. He created aileron spades, sighting devices, and even wingtip smoke flares. His mind never stopped. One day I stopped by to find him building removable, fiberglass wingtip fuel tanks to get him to air shows with fewer fuel stops. He asked if I wanted to help and handed me some sandpaper.

I also got to know Leo's engine mechanic. His name was Sylvester, but we all called him Joe. I liked to stop by Joe's shop to see the airplanes he was working on. One day, as he worked away, he casually said, "You should buy that old Tri-Pacer down at the end of the runway. It's only $6,000, and I can help you fix it up."

I said, "I don't have $6,000."

To which he replied, "Well, I'll be your partner."

When I told him I only had $2,000, he looked at me over his glasses and said, "Soooo, I'll be two-thirds partner and you'll be one-third partner."

So, we bought the 1956 flying milk stool and towed it over to Joe's shop. Every week he had me taking apart and rebuilding a different part of that airplane, until it was running like a champ and ready to fly. I got my certificate in it and was eventually able to buy him out. Joe never flew the airplane; he just wanted me to have it.

Top Caption: Leo Loudenslager personalized this photo for Richard, who later recreated this shot in his Extra.

Left Caption: Richard fuels his Piper Tri-Pacer during his early flying days.

Richard with his new toy.

I remember seeing an airplane in front of Leo's hangar one day. It looked kind of like his Laser, but bigger, and it had a three-bladed prop. I learned that a guy from Germany had admired Leo's airplane so much that he set out to create one like it for himself. That guy was Walter Extra. It was the first time I had ever seen an Extra, and I was in awe, and once again the dream of flying aerobatics swirled through my brain.

Two of my college buddies said they wanted to learn to fly. So, in the spirit of giving, which I had learned so well from my pilot family at Sussex, I said, "Use my plane." They both took lessons, but my friend Fred really "took off" with it, and was flying as much as I was. I never charged him a nickel, but he made sure that plane was always clean and fueled, and he took care of any repairs or improvements that were needed. I just wanted him to be able to fly, but it was a good deal for both of us.

When we took the plane for its annual, I stopped to visit my friend Mike, who was an aircraft broker. While we chatted Fred spotted a Mooney listed on the board. Mike said, "It's right here on the field if you want to see it." We, of course, loved it, but it was $25,000. We discussed it. I figured I could get $9,000 for the Tri-Pacer, and that was about Fred's limit, too, so all we had was a possible $18,000. We walked away.

The next day, Mike called and said the Mooney owner wanted to take us for a ride. We flew up to Middletown, New York, with him to have some pie and coffee. He told us stories about flying in the military and how much he loved the Mooney because it flew most like the T-6s he had learned in. We agreed that it was a great airplane, but we only had $18,000. To our great surprise, he said he liked us and wanted us to have the airplane. So, two farm boys from Sussex bought a Mooney together, and the world became a smaller place.

Leo Loudenslager gets ready to fire up his Bud Light Laser 200 for an air show.


Leo talks to a fan under the wing of his Laser before it was painted with the Bud Light colors.

After college, life got busy. We each got married, had kids, and started careers. My family's farm had become a campground, hosting hundreds of guests every weekend, and I ended up taking over the business from my folks. Fred moved to Long Island and started working in aviation. Since I wasn't flying much at all, I let him take the Mooney with him. Eventually, he bought me out, and I stopped flying.

Leo moved away, too, and my heart sank when I heard that he had died in a motorcycle accident; Mom was right. When I took my kids to the Smithsonian one summer, they didn't really understand why the little red airplane at the end of the hall brought a tear to Daddy's eye.

As I approached age 50, I was able to look back on my life with pride. I was fairly successful and had accomplished many things, but there was one thing I still regretted not trying, aerobatics. The dream

Inspiration for aerobatics can last years—Leo Loudenslager's contribution to Richard's aerobatics is evident in his cherished photographs of him.

was back, and I couldn't, and didn't want to, shake it. I decided that I at least had to try, and that I had better get started while I was still physically able.

My family knew how much I wanted it, too, and with Fred's help, they bought me a Citabria. I was back in the air. It was a great little airplane to get me started flying again, and to get my tailwheel endorsement, but I never tried to do aerobatics in it. I wanted a plane like Leo's. I wanted an Extra.

Even though I thought it was only a dream, I searched all of the listings and even built a spreadsheet to keep track of all of the Extras on the market. I recorded year, model, hours, and selling price. I watched them come and go. I knew what was selling and for how much.

On a very snowy evening in January, I got a notification from Trade-A-Plane. An Extra 300L had just been listed in Florida. I recognized it right away as one that had been listed a few months earlier, but now the price was quite a bit lower. Just for kicks, I e-mailed the guy and said, "I thought you sold it." To which he responded, "Yeah, they decided to buy a Pitts, go figure. Hey, you must be tired of shoveling snow. Why don't you come down and fly this thing with me?"

Wow, all of a sudden this was getting serious, but, at that price, I really had to consider if the time was right. Unfortunately, I had to work at a trade show the following week so it would be two weeks before I could possibly go. I figured by then it would be gone and this nonsense would be over. But, when I told him about having to work, he replied, "Tell you what; you make your reservation to come down here, send me a copy of your itinerary, and I'll hold the plane for you." Suddenly, it started to feel like it was meant to be, so I booked a flight to meet Damon Wack and see N747CJ.

For the next two weeks, my mind was spinning. Was my lifelong dream about to come true? Could I really afford to do this? I would have to finance and sell the Citabria, but the price was so good. Was there a catch? There was only one way to find out.

Damon picked me up, and we drove to his home at a residential airpark. When he opened the hangar door, I was in awe. It was everything I dreamed it would be, and soon we were strapped in and headed for the clouds. When I took the stick, I could not believe the responsiveness. As I banked and yanked, Damon said, "You're almost at stall, pull harder." When I did, it broke away, but flew right out of it when I eased off. Wow, I was amazed.

"Okay, let's roll it." The world spun before me. "Now, you try it." Words cannot express all of the thoughts and feelings going through my head as I did my very first aileron roll. It was so fast, so smooth, so easy, so amazing. I just kept doing them: left, right, slow, fast. I loved it and realized that because I was controlling it, I didn't feel sick.

"Ready for a loop? Look at your left wing. Steady pull. Watch your horizon. A little right rudder. There's your inverted. Over the top. Hold the stick right there. Feel the *g*'s? And, level it off. You did it!"

How do you express the feeling of your lifelong childhood dream coming true? How do you tell someone that they just did that for you? Well, I guess you buy his airplane. Not only did I buy the airplane of my dreams that day, I also made a new friend. Damon and I still keep in touch and bump into each other at flying events from time to time. Aviation is a wonderfully small and bonded community. We all have the same passion, and we love sharing it with each other.

Once I arranged financing and insurance, I needed to get the plane home. Damon said that Southeast Aero had some pilots who liked to ferry Extras, so I contacted Doug Vayda, and he sent me some résumés. Greg Bruyn stood out because he was also an Extra instructor. I e-mailed him to see if he could bring the plane to Sussex, and if he could give me the 10 hours of instruction that was required by my insurance company. To my surprise, he said he was originally from the area and would be happy to spend a few days with his mom while giving me instruction.

Greg really put me through my paces. He said he would not sign me off until he was sure I could get myself out of anything I could get myself into, including inverted flat spins. And, so he did. Luckily, after dreaming about aerobatics my en-

tire life, I seemed to have a good feel for it. After Greg left, I was able to fly to my heart's content and enjoy the freedom that I had always longed for.

Most of the time, I would practice over the hayfields of our family farm, which is also where we operate the campground. It didn't take long for my customers to realize it was me, and began asking when I was going to fly again, because they wanted to watch. Soon, I was flying every Saturday morning so that everyone could see me punching holes and leaving smoke trails in the sky. Then to my surprise, I started getting e-mails and Facebook messages from my neighbors, telling me how much they enjoyed it as well. More often, they would just head to the airport when they saw me flying, then wait for me to land so they could meet me. Honestly, knowing that so many people enjoy watching has become as much fun as the actual flying. It is a wonderful feeling.

In my hangar, I still had the autographed picture that Leo had given me. Looking at it one day, I realized that the picture had been taken over the onion fields near Sussex, so I set a goal to find the exact spot and re-create the picture. It took a while to find the spot and rig up the camera (this was before GoPros), but I finally got the shot and proudly hung it on the wall alongside of Leo's picture.

Not long after that, the local newspaper was running a contest of sorts, and asked everyone to take local pictures on a specific day so that they could make a book out of them. I couldn't resist the challenge, and on the appointed day, I snapped a picture from the wing, of me, inverted, over High Point Monument. I sent it in and never heard a thing until the book was released. Lo and behold, there I was on the cover of the book.

Aerobatics has become a huge part of who I am today. I often get people stopping by my hangar to meet me and see my airplane. At their instructor's request, I've taken several student pilots up to show them what unusual attitudes and spins feel like, and how to recover from them. I feel it is an important thing to learn, but more so, I want them to experience how thrilling aerobatics can be. I also want to give to them what was given to me by so many pilots for so many years—the support they need to achieve their dreams and to make flying a part of their lives.

The Sussex Air Show is a thing of the past, but we have a new owner at KFWN, and things around the airport are really improving. Who knows, maybe someday he will bring the fun and excitement of a hometown air show back to Sussex. If he does, one thing is for sure. I will be first in line and do whatever it takes to participate. Nothing would complete my journey better than flying like Leo in the "Greatest Little Air Show" and inspiring a new generation of aerobatic pilots. IAC



BY BETH STANTON

bethstanton@gmail.com

# Happy 21st Birthday, Super Decathlon 59AC!

**Celebrating a plane and a coach that have made aerobatic competition a reality for a multitude of pilots.**

**Last year, past IAC 38 President Martin Price** said to me, "You know, Five Niner is turning 21 next year. We should throw her a birthday party." Not that we need an excuse for a party, but this would be an event definitely worthy of celebration. Martin was referring to Dave Watson's Super Decathlon N59AC. This airplane holds a very special place in the hearts of the many pilots who have flown her over the years. Getting started in aerobatic competition can be daunting. Access to a plane and a coach to teach you how to fly competition-level aerobatics in it is like hitting the jackpot. For the past 17 years, Dave has introduced close to 150 people to the joys of aerobatic flight in this airplane. Almost three dozen pilots have flown 59AC in competition.

## Pulling Off the Surprise

"You're throwing a birthday party for an airplane? You guys are weird."—Aaron Sumpter, our IAC 38 printing guy.

Super Decathlon N59AC took flight from American Champion Aircraft Company in Rochester, Wis-

> "I'm having such a good time, I'm having a ball."
>
> —Don't Stop Me Now, *Queen*


Dave's first Grassroots award and second place Sportsman, August 2000.

Flight of three across America, departing Mansfield, Massachusetts. Dave flying his Yak 55, Hans Bok flying his Lazer, Mike Ganor flying 59AC.

consin, on April 6, 1995. To pull off a surprise 21st birthday party, we needed to get Dave away from his airplanes and hangars at KLVK in Livermore, California. The weekend of the Mojave Experimental Fly-In on April 16-17 was the perfect opportunity. Since I was already planning on attending, I encouraged Dave to come along so we'd be "official IAC 38 delegates" at the event. He agreed. Next, party invitations were sent out to assemble a gathering of pilots who have flown Five Niner over the years. Dave and I left for Mojave, California (near Edwards Air Force Base), in Five Niner early Saturday morning. The Livermore party crew immediately sprang into action. The hangar was tidied. Party paraphernalia such as balloons, cake, and adult beverages were assembled. All was made festivity-ready. Surprise success was now dependent upon weather, winds, and timing of the return flight home on Sunday. Dave didn't have a clue.

The party plan was to have guests arrive at 1 p.m. and be hiding in the hangar when we pulled up at 1:30 p.m. Timing a relatively precise arrival was tricky. Show up early and guests wouldn't have arrived or be hidden yet. Show up late and all the beer would be gone. First thing that morning in Mojave, I checked the winds aloft along our route home. It looked like we'd have strong tailwinds. Delay tactics and dilly-dallying commenced. Another cup of coffee, chatting with folks at the restaurant, yet another trip to the bathroom, a long, detailed weather briefing, and a thorough preflight check killed a bunch of time. I begged off pilot-in-command duty and asked Dave if he would mind flying home. I needed to keep Martin appraised via text of our progress and ETA.

## Chance Happenstance

"I got my pilot's license solely to fly aerobatics. I had no intention of doing anything else with an airplane."—Dave Watson

On February 8, 1995, Dave was on a business trip in Florida. He had a free afternoon and was perusing the brochure rack in the hotel lobby, looking for something to do. He picked up a flier that read, "Turn your world upside down with Dagmar!" He'd never been in a small airplane before, and the biplane on the cover looked like fun. A few hours later, he found himself in Dagmar Kress' Pitts S-2B, having the time of his life.

Sea to shining sea, approaching Monterey Bay, California.

# The FIVE NINER


The Five Niner Flying Circus, Borrego Springs, California, 2014.

After demonstrating a turn, a roll, and a loop, Dagmar told him, "The plane is yours; do whatever you want. You're not going to break my airplane." On his first flight, Dave performed turns, aileron rolls, loops, inverted flight, Immelmanns, and stall-spin recovery. He was a natural. Upon landing, Dagmar logged the flight, handed him the book, and said, "If you do not get your pilot's license, it will be a waste of talent."

Upon returning home, Dave began flying lessons in Santa Barbara, California. Before he finished his flight training, he and his family moved to the East Coast. He switched from flying Cessnas in Class C airspace in Santa Barbara to flying a Tomahawk in Richmond, Rhode Island, at a 2,100-foot grass strip in the woods. While he was finishing his training, one of the other students bought a Super Decathlon…N59AC. The plane was 3 years old and had 300 hours on it. This third owner put it on lease-back to the flight school. For Dave, this was perfect. "My intent was to fly aerobatics, and now the flight school gets this airplane." Dave started flying dual with his instructor in the Super Decathlon and began working toward his tailwheel endorsement before he got his private pilot certificate. Dave was the first person to be checked out solo in the plane. The owner eventually became frustrated that he couldn't solo his own airplane at that airfield. One evening, Dave's flight instructor called him and said, "Dave, 59AC is going up for sale. I thought you might want to be the first one to know about this." Dave's wife, Lori, ever supportive, exclaimed, "Just don't expect me to fly in it with you!" They took out a second mortgage on their home and bought the plane.

## Let the Games Begin

Dave flew in both the Primary and Sportsman categories at his first contest in 1999. "Primary in those days was a one-turn spin, a loop, a 180-degree turn, and a roll. This airport had a massive runway that ran at a 45-degree angle corner to corner through the box," he said. He dove into the box and did a perfect 1-1/4 turn spin that lined up with the runway. "I rat-

# Proud Partner with EAA


I have been a proud member of EAA for more than 17 years and have purchased multiple vehicles through Ford's Partner Recognition Vehicle Purchase Program. Currently I have a Ford Explorer that I purchased in 2012 and an F-150 that I bought in 2014. Both were purchased from Fremont Motors in Sheridan, WY. The people there are fantastic and the purchase process was painless and straightforward.

I love the Ford Partner Recognition Program because it makes car buying simple and hassle-free. I choose the vehicle I want and the dealer gives me the EAA member price. There's no haggling, no worrying if I'm getting the best price and no wondering if I should be shopping multiple dealers. All car buying should be like this!

This is a great benefit from EAA and Ford that I would highly recommend to fellow EAA members!

Tod W. EAA# 601104

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## Tell Us Your Story

Ford Motor Company is proud of our long-standing partnership with EAA and wants to hear from you! Feedback from those who have participated in Ford's Partner Recognition Program is appreciated and owners are occasionally featured in EAA publications. Send us your story and photos to Kevin at kkeling@ford.com. We look forward to hearing from you!

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cheted it back and zeroed my very first aerobatic maneuver at a contest," he said. "That was the only time I flew Primary, so I blew the patch right off the bat. I flew better in Sportsman than I did in Primary after making that mistake. The first of trillions."

A member of IAC 35, Dave plunged into aerobatic competition in earnest. He averaged about five contests a season, one year flying six contests. In 2000, two pilots flying 59AC won the North East Championship in two categories: Mike Ganor in Primary and Dave in Sportsman. After winning the Sportsman championship, Dave became obsessed with winning the Intermediate category in his Super D. After racking up several second-place finishes, he finally achieved his goal with a first-place Intermediate victory toward the end of the 2001 season. The plane's annual that year revealed that the wings were trashed from the beating they took flying Intermediate. Several thousand dollars of repairs later, Dave knew he'd need a different plane to fly Intermediate and beyond. CFI Craig Lesinski was Dave's main aerobatic mentor. Dave bought into half of Craig's Yak-55.

A practice box directly over their airport created a perfect scenario for ground critiquing. Dave, Craig, Mike Ganor, and Hans Bok hardly flew a practice flight without ground coaching each other. Since the Yak is fundamentally so different from flying the Super D, Dave took his time before flying his first Intermediate contest in it. Dave wryly noted, "I got DFL flying my first contest in the Yak in August 2001." He flew about 25 contests in his five years on the East Coast before moving back to California in 2005. A flight of three left Mansfield, Massachusetts, for the cross-country trip across the United States. Dave flew his Yak-55. Hans Bok, builder and owner of the Lazer, flew it to deliver it to its new owner, Darren Pleasance. Mike Ganor flew 59AC. Dave fondly remembers the trip: "The three of us flew the planes across the country for five days. It was a wonderful experience."

## 4-Minute Free

"Tonight I'm gonna have myself a real good time,I feel alive and the world I'll turn it inside out…"

—Don't Stop Me Now, *Queen*

Many years and stories later, Dave now flies the Lazer in the Unlimited category. Howard Kirker described flying the four-banger Lazer in Unlimited as "bringing a knife to a gunfight." The Lazer is capable of Unlimited competition, but Dave feels it just can't compete against Extras and Edges in the 4-Minute Freestyle. So naturally, he flies his Super D instead. "I love showcasing the grace and fluidity of the Super D in the 4-Minute Free. It's hard work for the both of us. The more you know how to fly it, the more it will do for you." Dave flies his signature routine to the song "Don't Stop Me Now" by Queen. The spectacle of a Super Decathlon flown skillfully in the 4-Minute Freestyle (especially the eight-sided stop sign figure) never ceases to wow the audience. For Dave, flying this plane precisely to the edges of her limits is the best part of a contest.

**For the Love of the Sport**

The IAC theme for EAA AirVenture Oshkosh 2016 is "Grass Roots to the Top of the World." As competition aerobatic pilots, we all have to start somewhere. Veteran IAC members such as Dave are on the grassroot front lines, ushering people into the sport and nurturing their fledgling interest. He gives his time and talent freely, to the astonishment of all who witness it. An excellent coach, he not only tells you what you are doing wrong, he can tell you how to fix it. At contests, in addition to flying Unlimited category, he can be found running around as safety pilot for numerous students and line judging. A veritable circus of pilots (six pilots flying four categories) flew 59AC at the Borrego Springs, California, contest in October 2014. This type of team flying in 59AC has been going with different casts of characters for years. Dave loves passing down his hard-earned aerobatic knowledge in the classroom as well as in the cockpit. Last year, he became a Nationals judge and judge school instructor. He's been heard to say that he enjoys teaching and watching the progress of his students even more than flying competition himself.

**Celebration**

And the surprise party? Everyone was hiding in the hangar, listening on the radio as Dave taxied up and pulled the mixture. When the hangar doors opened and people poured out, he was dumbfounded, then started laughing when he saw the happy birthday banner. We spent the rest of the afternoon in the very best way that one passes time at the airport: surrounded by friends, sharing stories. We saluted with a toast—a great plane and a great mentor. *IAC*



# Ten Cool Things About *www.IAC.org*

## If I do say so myself

BY DJ MOLNY
IAC 25097

The new and improved IAC website went live a little over three years ago. Since then we've quietly added more features and content, and today there are more than 1,000 pages of material and some capabilities that you might not be aware of.

Note: Many of these features are for members only, so be sure to log in to get the full experience.

We have an archive of more than 1,250 aerobatic sequences. You can filter by type (Known, Free, Unknown), year(s), and category. Look under the Pubs/Archives menu. We don't have many Free programs, so if you want to share, please mail yours to *webmaster@iac.org*. PDFs are preferred, but Aresti, OpenAero, or image files will work.

Current and aspiring judges can take advantage of online testing and self-paced training, and any member can view the list of current judges. You can also see all of your judging, assisting, and competition flying since 2006. Look under Programs > Judges.

The Tech Tips manuals, published between 1971 and 1990, contain a wealth of information for aircraft builders, maintainers, and pilots. Look under the Pubs/Archives menu.

The main website is tightly integrated with the IAC Contest Database, *https://IACCDB.IAC.org*. Thanks to IAC director Doug Lovell and JaSPer author Bob Buckley, it contains every score from every judge for every figure of every flight by every pilot in every contest (!) since 2006, as well as some interesting metrics about judge performance. To get there, click on Competition > Chapter Contests > Results.

The beautiful banner photos are all member contributions. We're always looking for more, especially grassroots aircraft and people. Think Clipped Cubs, T-carts, RVs and other homebuilts, banquets, judges lines, tech inspectors, ramp dancers, etc. Send your favorites to *webmaster@iac.org*.

The website is powered by 100 percent open-source software running on a cloud server. This makes it easy to maintain and easy on the club's budget.

The venerable "CD packet" is now reorganized as webpages. You can find it, along with many other useful links, under Competition > Supporting Info. Many thanks to Lorrie Penner for her hard work on this voluminous material!

The Yellow Pages directory lists all of our officers, directors, and committee members. Clicking on a name will bring up that person's contact info. It's amazing how many people volunteer their time and skills to make our club work. Navigate to About > Leadership, then look for the Yellow Pages link.

We host a directory of more than 150 aerobatic flight schools in the United States and around the world, ranging from large operations to individual instructors. And there's no charge to add a listing. Visit Where to Begin > Aerobatic Schools.

If you can't find what you're looking for, try the Search box. It's hiding in plain sight, in the right-hand sidebar.


# WALK THE TALK

## LOOK THE PART IN IAC UNLIMITED COLLECTION AEROBATIC APPAREL

UNIMITED COLLECTION POLOS WORN HERE BY REGGIE PAULK, GERRY MOLIDOR AND BOB HART. GET THEM AND MORE AT WWW.IAC.ORG STORE.

PHOTO BY EVAN PEERS, AIRSPACE MEDIA

## CONTEST CALENDAR

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

**Salem Regional Aerobatic Contest (Mid-America)**
Friday, June 3 - Sunday, June 5, 2016
Practice/Registration: Friday, June 3
Power: Primary through Unlimited
Location: Salem-Leckrone (SLO): Salem, IL
Contest Director: Joe Overman
Phone: 314-452-6049
E-Mail: *joeoverman2000@yahoo.com*

**Coalinga Western Open Championship (Southwest)**
Friday, June 3 - Saturday, June 4, 2016
Practice/Registration: Thursday, June 2
Power: Primary through Unlimited
Location: New Coalinga (C80): Coalinga, CA
Contest Director: Tom Myers
Phone: 650-799-6854
E-Mail: *tom.myers@stanfordalumni.org*
Website: *www.iac38.org*

**Lone Star Aerobatic Championships (South Central)**
Friday, June 10 - Saturday, June 11, 2016
Practice/Registration: Thursday, June 9
Power: Primary through Unlimited
Location: North Texas Regional Airport (GYI): Denison, Tx
Contest Director: J. J. Humphreys
Phone: 940-564-6673
E-Mail: *jjhump1@brazosnet.com*
Website: *www.iac24.org*

**Wildwood Acroblast (Northeast)**
Saturday, June 11 - Sunday, June 12, 2016
Practice/Registration: Friday, June 10
Power: Primary through Unlimited
Location: Cape May County Airport (WWD): Cape May, NJ
Contest Director: Tom Barrett
Phone: 202-679-6600
E-Mail: *tbarrett@nert.com*
Website: *www.iac58.org*

**Ohio Aerobatic Open (Mid-America)**
Friday, June 17 - Saturday, June 18, 2016
Practice/Registration: Thursday, June 16
Rain/Weather: Sunday, June 19
Power: Primary through Unlimited
Location: Bellefontaine Regional Airport (KEDJ), Bellefontaine, OH
Contest Director: Samuel Weaver
Phone: 937-681-2680
E-Mail: *piperj3cub46@gmail.com*
Website: *http://www.iac34.eaachapter.org/*

**Killam-Flagstaff Aerobatic Contest (International)**
Saturday, June 18 - Saturday, June 18, 2016
Practice/Registration: Friday, June 17
Rain/Weather: Sunday, June 19
Power: Primary through Unlimited
Location: Killam-Sedgwich/Flagstaff Regional (CEK6), Killam,Alberta, Canada
Contest Director: Randy Skiba
Phone: 403-504-7788
E-Mail: *randallj@shaw.ca*
Website: *www.aerobaticscanada.org*

**Apple Cup (Northwest)**
Friday, June 24 - Saturday, June 25, 2016
Practice/Registration: Thursday, June 23
Power: Primary through Unlimited
Location: Ephrata Municipal Airport (EPH): Ephrata, WA
Contest Director: Jerry Riedinger
Phone: 425-985-9469
E-Mail: *jriedinger@perkinscoie.com*

**Midwest Aerobatic Championships 2016 (South Central)**
Saturday, June 25 - Sunday, June 26, 2016
Practice/Registration: Friday, June 24
Power: Primary through Unlimited
Location: Seward Municipal (KSWT): Seward, NE
Contest Director: Doug Roth
Phone: 402-432-7124
E-Mail: *acrod@aol.com*
Website: *http://www.iac80.org*

**HighPlanes HotPoxia Fest (South Central)**
Friday, July 8 - Sunday, July 10, 2016
Practice/Registration: Friday, July 8 - Saturday, July 9
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Fort Morgan (FMM): Fort Morgan, Colorado
Contest Director: Dagmar Kress
Phone: (303) 887-4473
E-Mail: *dagmaraerobatics@me.com*
Website: *http://www.iac12.org*

**Bear Creek Bash (Mid-America)**
Friday, July 8 - Sunday, July 10, 2016
Practice/Registration: Thursday, June 9
Rain/Weather: Sunday, June 12
Power: Primary through Unlimited
Location: Richard B. Russell Regional (RMG): Rome, GA
Contest Director: Mark Fullerton
Phone: 864-316-5250
E-Mail: *markpcc2003@yahoo.com*

**aSuper D Tango (South Central)**
Saturday, July 9 - Saturday, July 9, 2016
Practice/Registration: Saturday, July 9
Power Categories: Sportsman
Location: Akroville (XA68): Denton, Tx./ Slidell, Tx.
Region: South Central
Contest Director: Tom Rhodes
Phone: 214-202-7008
E-Mail: *tom@tomrhodes.com*

**Michigan Aerobatic Open (Mid-America)**
Saturday, July 9 - Sunday, July 10, 2016
Practice/Registration: Wednesday, July 8
Rain/Weather: Sunday, July 10
Power: Primary through Unlimited
Location: Bay City James Clements Municipal Airport (3CM): Bay City, Michigan
Contest Director: Brian Roodvoets
Phone: 810-338-7654
E-Mail: *redfoot@chartermi.net*
Website: *iac88.eaachapter.org*

**The Corvallis Corkscrew (Northwest)**
Friday, July 15 - Saturday, July 16, 2016
Practice/Registration: Thursday, July 14
Rain/Weather: Friday, July 22 - Saturday, July 23
Power: Primary through Unlimited
Location: Corvallis Municipal Airport (CVO): Corvallis, Oregon
Contest Director: Jim Bourke
Phone: 541-231-6077
E-Mail: *jtbourke@gmail.com*
Website: *www.iac77.com/contests/corvallis-corkscrew/*

**Green Mountain Aerobatics Contest (GMAC) (Northeast)**
Friday, July 15 - Sunday, July 17, 2016
Practice/Registration: Monday, January 4 - Friday, July 15
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Hartness State Airport (Springfield) (VSF): Springfield, Vermont
Contest Director: Bill Gordon
Phone: 802-585-0366
E-Mail: *wsgordon@earthlink.net*

Website: *IAC35.aerobaticsweb.org*

**CanAm Aerobatic Challenge (Northwest)**
Friday, July 22 – Saturday, July 23, 2016
Practice/Registration: Thursday, July 21
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Cut Bank International (KCTB): CutBank, MT
Contest Director: Robert Harris
Phone: 503-550-1496
E-Mail: *flyhran@aol.com*
Website: *www.iac77.com*

**East Coast Open Championship (Southeast)**
Friday, August 12 – Saturday, August 13, 2016
Practice/Registration: Wednesday, August 10 – Thursday, August 11
Rain/Weather: Sunday, August 14
Power: Primary through Unlimited
Location: Everett-Stewart Regional Airport (UCY): Union City, TN
Contest Director: Mike Rinker
Phone: 731-796-0849
E-Mail: *mdr@vaughnelectric.com*
Website: *www.iac27.org*

**Beaver State Regional Contest (Northwest)**
Friday, August 12 – Saturday, August 13, 2016
Practice/Registration: Wednesday, August 10 – Thursday, August 11
Glider Categories: Sportsman through Unlimited
Power: Primary through Unlimited
Location: Pendleton Regional Airport (PDT): Pendleton, OR
Contest Director: Sean VanHatten
Phone: 154-148-07456
E-Mail: *seanvanhatten@gmail.com*
Website: *www.iac77.com*

**Kathy Jaffe Challenge (Northeast)**
Friday, August 12 – Sunday, August 14, 2016
Practice/Registration: Thursday, August 11 – Friday, August 12
Power: Primary through Unlimited
Location: South Jersey Regional Airport (VAY): Lumberton, NJ
Contest Director: John Fellenzer
Phone: 845-978-0511
E-Mail: *jdf@fellp.com*

Website: *IAC52.org*

**Doug Yost Challenge (Mid-America)**
Friday, August 19 – Sunday, August 21, 2016
Power: Primary through Unlimited
Location: Spencer Municipal (KSPW): Spencer, IA
Contest Director: Justin Hickson
Phone: 651-338-3345
E-Mail: *jhisbatman@yahoo.com*
Website: *www.iac78.org*

**Upper Canada Open (Mid-America)**
Saturday, August 20 – Sunday, August 21, 2016
Power: Primary through Unlimited
Location: Saugeen municipal (CYHS): Hanover Ontario
Region: Mid-America
Contest Director: Ryan Chapman.
Phone: 416-388-5850
E-Mail: *ryangkc@hotmail.com*

**Rocky Mountain House Aerobatic Contest (International)**
Saturday, September 3 – Sunday, September 4, 2016
Practice/Registration: Friday, September 2
Power: Primary through Unlimited
Location: Rocky Mountain House (CYRM): Rocky Mountain House, Alberta, Canada
Region: International
Contest Director: Dave Barbet
Phone: 403-875-3467
E-Mail: *dbarbet@telus.net*
Website: *www.aerobaticscanada.org*

**Hill Country Hammerfest (South Central)**
Saturday, September 3 – Sunday, September 4, 2016
Practice/Registration: Friday, September 2
Rain/Weather: Monday, September 5
Power: Primary through Unlimited
Location: Llano Municipal (AQO): Llano, TX
Region: South Central
Contest Director: Jeffery Poehlmann
Phone: 512 423 5333
E-Mail: *jeffery@texas.net*
Website: *iac107.org*

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