

SPORT **Aerobatics**

September 2014

OFFICIAL MAGAZINE of the INTERNATIONAL AEROBATIC CLUB



DR-107: Sabre-Toothed **Pussy Cat**

- Grassroots Acro
- Effective Aerobatic Judging
- Of Pride and Humility



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2014

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—Rainer Huefner

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THE COVER

Rainer Huefner flies his DR-107 by Cathedral Rocks near Port Lincoln in Australia.

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REGGIE PAULK
COMMENTARY / EDITOR'S LOG

Member Feedback Is Vital

Striving to serve the members

If you're reading these words, you too can help make *Sport Aerobatics* magazine a better publication. I recently received a letter from a member, reprinted below, that highlights the type of constructive criticism vital to the continued success of not just this magazine, but to our organization as a whole. I for one appreciate forthright and heartfelt opinions for the genuine kernels of wisdom they contain. Here is one of them:

"Reggie, I just received and read my August issue of *Sport Aerobatics*. I realize that being the editor of a magazine such as *Sport Aerobatics* is a demanding and often a thankless/volunteer job, so please accept my comments as helpful suggestions rather than criticism. I am a short time member of IAC (joined at OSH 2013). My primary interest is aerobatics in my N2S-4 Stearman—not competition. I have taken instruction from Greg Koontz (which is a great experience at his facility), read and downloaded everything on the resources section of IAC's website, and read as many articles about aerobatics as I can find (Steve Johnson's article in the February 2014 issue is a good example). Unfortunately, there are too few in *Sport Aerobatics*. While articles such as 'Remembering Kiev Sparks Memory' are interesting, they don't provide information that is really beneficial to those of us who are new to aerobatics. The bulk of members may not be interested in techniques, but when one of the main articles in August's issue stresses the importance of attracting new members, I can't help but feel

While articles such as "Remembering Kiev Sparks Memory" are interesting, they don't provide information that is really beneficial to those of us who are new to aerobatics.

that instructional articles would help solve that problem while encouraging short time members like me to renew our memberships.

Thank you,
Roy M. Kinsey, Jr."

My response to Roy sums up how I feel we can make Sport Aerobatics better:

Roy,
I appreciate your comments. There's no better way to improve the magazine and direct our focus than through communications such as yours.

I'll be forwarding your comments to Mike Heuer so we can discuss them in the context of improving our publications.

Thank you for writing—I really appreciate it. It's also nice to have you on board as a new member.

Please send your thoughts, comments or suggestions. I guarantee they're not falling on deaf ears. **IAC**

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



MIKE HEUER

COMMENTARY / IAC PRESIDENT, IAC 4

Please send your comments, questions, or suggestions to: mike@mheuer.com

A Transition

I'm back—well, I never really left. The last time I wrote a column for this page was in August 1990 and a lot has happened in IAC in the intervening years. For most of that time, I have taken on various assignments for IAC—mostly in the international arena but also as a frequent contributor to this magazine as well as a member of the board of directors, historian, consultant, and most recently vice president. That changes now.

My thanks and congratulations to our outgoing president, Doug Sowder. I have known and worked with all of the IAC presidents since our foundation in 1970, and it has been an amazing, dedicated, and hard-working group of men and women who love this organization and this sport. Doug has been no different and I have a special appreciation for volunteers like him, as I previously served in this office for nine years. As Doug wrote last month, we can expect to see him around the contest scene in the future as well as at the US Nationals in September, and I know he will enjoy his retirement from the demands of this job.

While I never expected to return to the office of IAC president, I do look forward to the challenges and working with everyone involved in the sport—officers, directors, committee chairs, contest directors, chapter presidents, competitors, US team members, the staff in Oshkosh, and all involved. Our day-to-day business is complex, and the future remains ours to change and to shape. In that last column I wrote in 1990, I paid tribute to the volunteers and friends who made IAC successful and all of us look good at the leadership level. We still have a strong cadre of dedicated volunteers today, and I pledge to make their jobs as easy as possible with my cooperation, support,

and leadership. In the months ahead, I will be taking a look at all of IAC's programs and activities for ideas on improvements and ways we can assist our volunteers in doing their jobs. I will be calling on them for proposals on how we can manage and fund new initiatives that further benefit our members.

Our focus will be quality in everything we do. I consider IAC members a very special group in aviation and air sports. There are no finer "stick and rudder" pilots than the ones who populate our organization. There is an enormous amount of skill, expertise, and experience in our group of aviators. Though we are a fairly small segment of aviation, we are a very visible one and for that reason, can be wonderful ambassadors for sport aviation wherever we fly and travel. We also have so much to offer in the way of education to our other friends in the aviation community.

Back to quality—if our services to our members are the best we can make them, it will promote excitement and energy within our ranks. Nothing will escape our attention or examination—be it our monthly magazine, our contests, our rules, and how we are educating and informing members through our official publications. What I do hope for is constant feedback from you—the members. In the past few weeks, President Emeritus Doug McConnell has conducted a survey of selected members on how we can improve, expand, and retain members. The feedback has been tremendous with dozens of ideas. We will filter through those suggestions and proposals in the months ahead and implement what we believe will be effective in terms of cost and possible with our volunteer and employee resources. I have been reading through these e-mails and papers as they have come into Doug

and look forward to implementation. What has also been encouraging is so many of our veteran members care deeply about their organization and went to a lot of time and trouble to submit their ideas. My thanks to all who participated. This feedback will make a huge difference in our future.

When I took over as president in 1981, IAC had 3,129 members. When I left office last time, we had 5,286. Under Doug McConnell's administration, it climbed to over 6,000. We are now at about 3,650. No doubt, a poor economy has taken its toll on us and other segments of aviation as well. There is also little we can do to affect the costs of flying today—the price and availability of aircraft, the cost of fuel, hangars, and maintenance. But we won't stand idly by either. Things like aircraft group insurance programs can make a difference. We also want to keep our dues structure where it is today for as long as possible. We can also look at ways to boost contest participation, which helps build the sport and our organization. There truly is strength in numbers and the more members we recruit and retain, the more improvements we can make to our services to members. It all ties together—as we build value for our members, we can grow again.

I will discuss those issues in these pages in the months ahead. In the meantime, never hesitate to contact me. My contact information appears below and I encourage you to write me an e-mail or give me a call. I will respond immediately.

I look forward to seeing many of you at the US Nationals.

IAC

ASK MIKE

Call or write at any time. My home number is (901) 850-1301. E-mail mike@mheuer.com

The Sabre-Toothed



Rainer Huefner's DR-107 shows off its Leo Loudenslager-inspired paint scheme as he peels away from the camera.

Pussy Cat

Understanding the QBE DR107 (One Design)

BY RAINER HUEFNER

<http://www.YouTube.com/user/dr107egt>

The One Design class of aircraft has absorbed a lot of hangar talk over the years. It's different. Here is my biased point of view—wink!



DR107 One Design—The Design

The original objective was to create a “mono-winged Pitts” that could fly Advanced/Unlimited and compete in a class that was baselined (same engine, prop, paint scheme, color, performance) so that the measure during competitions was pilot skill...not the size of the bank account. I took the other path and built a DR107. A DR107 is a One Design that does not meet the regulations of the class. It doesn't have the standard engine, prop, paint . . . I wanted more go go!

The Construction

Dan Rihn (you know who he is) led the design process. Part of the philosophy was that the aircraft could be built and then flown in the experimental category. It was a good idea and to some extent is now having its day... at least in Australia. The glitch here is that there are some very good builders and some very good pilots—not many of both.

The heritage of the design is strong. Some people may remember Cecilia Aragon had the Sabre aircraft designed by Dan and built by Zivko. Everybody knows a Zivko Edge 540; well, it was the direct result of the Sabre.

My QBE DR107 took a long time to build—a very long time. I know this aircraft down to literally every rivet and stitch.

Many materials have been used in its construction. I have really enjoyed working with the Sitka spruce, chromoly, aluminum, carbon, Kevlar, magnesium, and fabric to mention some! These are all purposefully used to optimize every aspect of performance.

I have put a lot of additional R&D into my airplane in the quest to optimize performance, quality, and simplicity. Things I have changed are engines, props, rudder, wingtips (carbon lockers), paint (Leo inspired), and longer and wider air-profiled gear. Just these modifications have made noticeable improvements in performance over a normal DR107. It worked out okay. I won the Sport Aircraft Association's Concours d'Elegance and the John Liddell Award!





I have set the aircraft up for air displays as distinct from competition. I have a lot of bits and pieces (smoke tanks, pumps, electronics, etc.) that are designed to be removed when engaging in competition flying as your primary focus.

The current configuration includes a brand new AEIO-375-Bxx with Skydynamics finger magnesium sump, cold air induction, electronic ignition, and 205 hp thanks to Riverina Airmotive and the latest WW200AC.

It is pampered, lives in its own hangar, and gets put in pajamas at the end of every flight. It is a very simple aircraft to maintain and certainly delivers incredible performance for the money.

The Pilot

I have been flying the dream of aerobatics since my 16th birthday. That now means some 35 years, and I know there are a lot of pilots with a hell of a lot more knowledge and capability than me. So trying to pass on what it's like to fly this thing is a skewed view; sorry.

I have flown only a few aerobatic aircraft: C-152, Zlin 242, Pitts S-2A, Pitts S-1S, RV-4, RV-6, Wichawk, Super Cub, and DR107 (and quite a few non-aerobatic). They are all different, and some are more different than others.

The Wing Is the Thing!

My experience so far is the QBE DR107 is the most capable of the lot I have flown. I note that not all DR107s are the same in construction and performance. There is a lot of variation.

So what's it like to fly? The first test flight was exhilarating and challenging. After 150 hours of DR107 flight time, it is still a very pleasing performance, especially with the new firewall forward package.

The cockpit is well laid out and has excellent visibility. My instrument layout is conventional; it works...especially when working on the deck. There

is a lot more space in the cabin than a Pitts. I am 6-foot-5 and because of the adjustable seating design have had people as short as 5-foot-8 fly the plane. There is a baggage area behind the pilot and space in the cabin for additional bags in ferry mode.

With practice you can get airborne with a 400-meter ground roll. You can then land in the same distance, depending on the conditions. Eight hundred meters is plenty. Climb out at 100 knots, and climb rate on a good day is around 2,600 feet per minute sustained at sea level. I regularly pull +9.5g and push -5g. I am not tough enough to do more negative—I'm getting old! It rolls at an easy 400 degrees/second, and when it snaps it's fantastic!

Here is the thing: Barnaby Wainfan did a fantastic job of designing a lift curve that goes to 16 degrees... and then STOPS, cleanly and neatly. As soon as you hit the >16 stick position, you can stop the plane from flying. For the ab initio this is completely foreign and may ruffle your feathers. It took me some time till I understood this meant I could control the plane through all maneuvers. I could "unstick" the wing at will without major effort. You get used to the stall stick position, and with time you get to feel the nuances of being just before the stall—the feedback is there—you just have to be aware. The thing this plane is guilty of is doing exactly what the





guy behind the stick tells it to do! But if you know what you're dealing with, it's a pussy cat (Sabre-toothed!).

Normal approach speeds for me are 85-90 knots low (acro) weight—95 knots ferry weight. Stall is 56 knots at acro. The aircraft is easy to slow down with tons of available sideslip and the big ide chord prop on front. I have learned to leave the prop coarse (2500 rpm) on approach and landing; this helps ne-

gate a tendency to pirouette on the big spinning air brake out front. There is so much power and grip that go-arounds in this configuration are a doddle.

Steep approaches are easiest, and the measure of your capability to handle this aircraft for landing is this: if you can land a Pitts from the front seat, then the DR107 will be easy. As the aircraft has no flaps, the extra speed is very handy for visibility. My personal view is that wheeling it on is the best for control and visibility; keeping the tail up as long as practical, using brakes to steer and stop; and if need be, a gentle puff of power if the tail starts to get covered/shrouded by the fuselage as the tail is put down in a controlled manner.

An interesting note for the first time flier is that the landing is a bit like a speedboat. You hammer it in steep, and it keeps skimming across the water—in ground effect—and then, as the speedboat comes off the plane, it bogs down into the water and stops quicker than most.

Overall the transition from stationary to flight to stop again, any maneuvers on the ground or in the air, are

quicker than any aircraft I have flown before. I love it!

I am still running the new engine in, but so far when ferrying the aircraft I am cruising around at 165-170 knots/28 inches/2450 rpm/41 lph (rich). Interestingly, I recently flew with my buddy James Hart in his Pitts S1-SS across the Hay Plain and had to slow down for him to 120 knots. The fuel computer substantiated that between the 120-165 knot range the same amount of fuel would be used +/-1 lph . . . only the time taken to get from A to B changed. The wing is the thing.

In the Air—Unlimited Maneuvers

I have flown back seat of a Yak-52, pushed a Pitts around, and have quite a bit of time in RVs. The Pitts and RV roll rates and feel are similar. The DR107 is easier/lighter in all axes. It isn't touchy or twitchy; it's just easy. This means that when you start pushing it through its paces with lomcevaks (all sorts), shoulder rolls, upright, inverted, knife-edge spins, hang-hovers, etc., it takes little effort



to instigate and recover. It does really cool double rotation stall turns and all the standard maneuvers simply. It is a very reliable mount. The way you fly this aircraft is different from the Pitts. You seem to storm around the sky more than a Pitts. The QBE DR107 is faster, stronger, and more agile than the Pitts, but a good S1-SS will give it a run for its money in terms of climb. They are just different!

Without doubt I would never have been able to fly this aircraft without some serious mentoring. I treat it as business. I have been very lucky to have Chris Sperou (13-time Australian Unlimited champion) mentoring me all the way. I would encourage any prospective DR107 pilot to seek and really listen and learn from the people with years of real experience in the discipline you choose. Air displays and competition flying are similar but very different in many areas. Getting help to understand what is really going on before you throw yourself in the air is just common sense.

So What Now?

I think that the DR107 is a great Advanced/Unlimited aircraft that is very economical to run and technically more capable than I am able. I set out to be a person who did the dream instead of talking about it. I have enjoyed the friends I have met on the way from all over the world. My time is coming to an end as I have two teenage boys who I want to spend more time with, so it is appropriate to move the Blue Beast on. It will be a sad day when it goes, but I do have some other bucket list items to do!

I have helped a few people with build and flight support and will continue to be happy to do so—just give me a call.

Cheers and thanks for listening to me ramble on!

IAC

Contact Rainer at

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m: +614 418 800010

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

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

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

www.airbum.com

Grassroots Acro

Past and future

BY GILES HENDERSON, IAC #159



Chuck Dixon

Over the IAC's history we have seen a steady decline in the number of contestants as the performance and cost of our aircraft have dramatically increased. There were 51 Sportsman and 135 competitors at the IAC championships at Fond du Lac WI in 1975. The average Aerobatic Performance Index (API) calculated from the horsepower/weight ratio, maximum speed and roll rate of the 1975 competitors was 27. In 2005 (the most recent year for which I have statistics), the average API was 62. Some representative API values are tabulated in Table 1.

Table 1. Some representative API values.

Citabria	3
Clipped Wing Cub	4
150 hp Decathlon	8
180 hp Great Lakes	9
Super Decathlon	10
Skybolt	23
Pitts S-2A	36
Extra 200	41
Pitts S-1S	48
Pitts S-2B	51
Extra 300	76
Edge 540	94

The future of our sport is highly dependent on attracting and retaining our entry level competitors. During the early years of IAC, Sportsman pilots were flying low performance aircraft, many without inverted fuel or oil systems. Examples of that era include 115 hp Citabrias, 65 and 85 hp Clipped wing Cubs and Taylorcrafts, Luscombes, Ryan PT-22, stock Stearmans, the Great Lakes and Waco biplanes, the Bucker Jungmann, Monocoupe, Chipmunk, CAP 10 and the homebuilt Stitts Playboy, EAA Acrosport, PJ-260, Starduster, Skybolt, Pitts Special, and the Acroduster.

In recent years we have seen most of these early classics sitting on the side-

lines and replaced in the box by high performance monoplanes. Most of our current Sportsman competitors are flying much higher performance aircraft. The up-ramping of the energy requirements for the Sportsman sequence, aircraft performance and cost has gradually excluded a great many aerobatic-capable aircraft and pilots.

The Primary category has the potential of attracting entry level competitors and providing a home for the classic as well as RV and other modern aircraft capable of light aerobatics. However, it's hard to justify the cost of attending a regional contest to fly three aerobatic figures. Many standard aerobatic flight training programs are now of the 10-hour variety concluding with an aerobatic sequence approximately $\frac{1}{4}$ the level of difficulty of the present Sportsman known. For these pilots the Primary category, at its present level of difficulty, is a step backwards. Moreover, for those few that are attracted to IAC and fly Primary with a low API aircraft, the quantum jump in difficulty excludes many from advancing to Sportsman. The transition from Primary to Sportsman currently has a more than 300% increase in K-value. The other rungs of our competition ladder are more uniformly spaced with an average increase of about 140% in the K-values of their respective knowns. Indeed, past studies have revealed that few of the Primary pilots in a given year continue in subsequent years or advance to higher levels. For the experienced pilot flying a low API aircraft the current Primary sequence is dumbed down to a humiliating level and certainly not serving its intended function.

There is little we can do to affect the health our nation's economy or the costs of fuel, hanger, insurance and maintenance, all of which have and will take a significant toll on general aviation and our sport. We can however, improve our entry-level competition environment. In recent years there has not been a good home for the low performance aircraft (API < 20). The Sportsman sequence has been too difficult and the Primary too easy for the experienced pilot flying a low performance aircraft.



Dan Gathright



Scott Roger



Jack Lane



Henry Haigh



French Connections CAP10

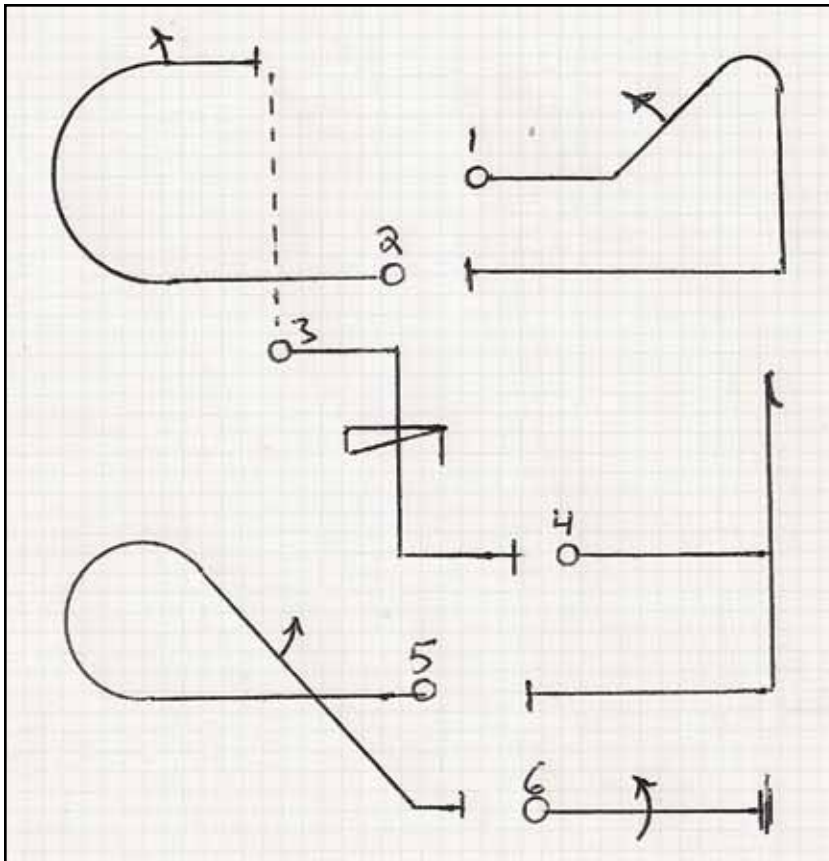


Lou Shaw

Our challenge is then to construct an entry level sequence that will encourage and retain new participants and provide a home for the low performance aircraft with a sequence that measures airman-ship rather than API values. In order to address the issues discussed above, the sequence should target a K-value of perhaps 80 or 100. The most fundamental consideration for a well designed sequence that meets our criteria is energy flow. The low API aircraft requires careful energy management with the right hand, not the left. The pilot must expend a finite altitude rather than more fire on kinetic energy. In my view, fair competition can exist between aircraft of widely different API providing the sequence gives the low performance aircraft access to its potential energy. If a given figure has a critical minimum energy requirement, there must be an opportunity to convert altitude into speed in the preceding figure.

An example:

Loop
Hammerhead
Immelmann
1-turn spin
Half Cuban
180
Aileron Roll



Aerobatic competition is recognized as an extreme sport and yes, we are all very much aware of how botched Immelmans, hammerheads, etc. can evolve into various spin modes and how a mishandled-spin has a lethal potential, particularly in some types of aircraft. All the more reason to make sure that aerobatic competition pilots at all levels are familiar with proper spin recovery techniques.

Perhaps the name of such an entry level category might be changed from Primary to Grassroots, or Classic or something to better reflect its nature. An entry level sequence at this level will provide sufficient challenge to attract and retain new participants, provide a home for the low performance aircraft and a much more reasonable platform to advance to Sportsman.

IAC

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Effective Aerobatic Judging

The fair judge

BY WES LIU

Everyone who volunteers their time and effort to earn certification as an IAC judge walks out to the contest judges line planning to do the best job that they can. We all do work to award scores that properly rank the pilots they see in the contest box. At any contest, the judges on the line will have a range of experience. Sometimes the least experienced judges will be grading the higher-level categories with the more difficult flight programs. With this in mind, I found myself looking at the scores awarded at a recent contest, and I noted a surprising number of 8's, 9's, and 10's awarded. Having seen a number of the flights, it appeared that there were overlooked opportunities to award downgrades. Our statistics experts tell us that when a judge finds a way to award scores in the range of 10 to 0 rather than 10 to 7.5, the ranking of the pilots becomes much clearer and fairer. And when we use the contest rules to award a wider range of scores, the judges are in charge of the pilot ranking rather than the scoring computer. With this in mind I will offer some suggestions to everyone who volunteers as a judge.

There is more to each figure than just the lines and big loops. While the flying is fast paced, the more parts of each figure you can look at, the more deductions you can find. And while it is not obvious, the more deductions you find, the fairer your score is to the competitors. The judge's job is to consistently grade so that the really good pilots are ranked ahead of the pretty good pilots. So if we award lots of 8's, 9's, and some 10's, the resulting ranking is less likely to be appropriate and fair than if we award grades from say 4 to 10.

So as the competitor pulls, pushes,

and rotates in front of us, what do we look for to better grade the difference between a figure flown well by one pilot but flown even better by another?

I start by looking at the details of the beginning of a figure. An example is a simple pull to vertical. What does the $\frac{1}{4}$ loop that starts the figure look like?

Does it look like this?



Or does it look like this?



That second flight path can be a $\frac{1}{2}$ or 1 point deduction.

Look at a wedge (45 up, $\frac{1}{2}$ roll, pull to vertical down), and watch closely to see whether the corner looks like this



Or looks like this



The second flight path can be another point off the figure.

When a competitor flies a Half Cuban, look hard at the transition between the line and the loop. Does it look like this



Or more like this



The second flight path can be another point deduction.

Finally, we see competitors demonstrate many flight paths that are called "loops." How do we award scores for all of the different efforts that we see? I will suggest that the fairest grades for

loops result from hard but consistent deductions that take into account all aspects of the flight path when compared to the perfect vertical circle. I hope we agree that a perfectly flown loop looks like this.



If that is scored as a 10, what is this scored at?



Example 1

Is the above flight path an 8 or a 6? What is the loop below?



Example 2

Do I score the above flight path the same as the one above it? Is that fair? What about the flight path that we see some new competitors fly, shown below?



Example 3



All of the flight paths shown change the radius of the loop four times following the initial pull to start the loop. I will suggest that if we as judges award the same score to pilots who fly the three examples the result is unfair. I personally apply the roll-centered-on-a-line deductions (IAC rule book paragraph 8.4.1 (f)) to loops in addition to the deductions for changing radius. So the first example is not perfectly round. Four radius variations plus one deduction for shape, score 7. The second example is twice as tall as wide. Four radius variations plus two deductions for shape, score 6. The third example is three times as tall as wide. Four radius variations plus three deductions for shape, score 5. Whatever deductions you as an individual judge decide on, I suggest that you be consistent, and apply more deductions for larger deviations from what a perfectly flown figure is supposed to look like.

The examples are just a few parts of figures where a judge can see and grade the difference between a good flight and an outstanding flight. There are other points to look for in figures. Line lengths for example are easy to grade. If a competitor pulls to the 45, rolls 200 feet up the line, and then flies off to the edge of space, is a grade of 9 appropriate? The more small bobbles you can spot in addition to the large ones, the fairer you are in your ranking of the pilots.

I hope this discussion makes you think, and is helpful. See you at the box. **IAC**

Wes Liu is a current IAC national judge and Intermediate competitor in a Pitts S-2A. He has flown 35 contests and participated as judge in 30.

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Build It and They Will Come

Part III—Enthusiasm: The energy and force that builds momentum

“Holy nonstop action adventure, Batman!”—Robin

Seriously, you guys, the last few months have been amazing for Chapter 38. From our kick-ass judge school to seven critique days at our aerobatic practice area to joining community with the illustrious Patriots Jet Team.

But I get ahead of myself.

IAC 38 held our March meeting on location at the Patriots Jet Team facility in Byron, California. The Patriots Jet Team is a civilian aerobatic formation team that flies air shows across the western United States, flying the Aero L-39 Albatros. The team is composed of Thunderbird, Blue Angel, Snowbird, and other accomplished aerobatic pilots. Their performance features fast-paced formation flying and choreographed six-ship aerobatic maneuvers, featuring their signature “tail slide” maneuver.

Fifty-four of us, both IAC members and friends from other aviation associations, gathered at the Patriots Jet Team Hangar of Dreams. The hangar was completed in the summer of 2012. What was once just a flat stretch of land nestled among the farmland in the Sacramento Delta is now a state-of-the-art hangar. At over 30,000 square feet, it easily fits six jets and still has room to spare. It was recently featured on the Travel Channel’s *America Declassified* with Kari Byron.

Randy Howell, owner and founder of the PJT, and his team threw open the hangar doors and knocked our socks off with a tour of their stunning facility. We got a behind-the-scenes glimpse of the unbelievable logistics that make this all-volunteer organization tick. We got up close with the L-39 jets and Russian MiG fighter jets. We also got to check out the classroom of the Patriots Jet Team Foundation Aerospace Academy.

The Patriots Jet Team Foundation is a new, all-volunteer, nonprofit organization dedicated to inspiring the youth of America with a love of aviation and aerospace.

The Foundation’s STEM-based (science, technology, engineering, mathematics) aerospace education activities provide stimulating, hands-on programs to middle and high school students. Academy students have fun while learning critical skills they can apply throughout life, no



Sexy jet.



Randy Howell, owner and founder of the Patriots Jet Team, talks to Chapter 38.

matter the career path they choose. The demand for the Academy’s programs is growing fast. We all talk about getting kids interested in aviation. The Foundation gives us the opportunity to walk our talk. Several IAC 38 members have already stepped up to volunteer!

Not Just Sexy Jets

Vicky Benzing, our former southwest regional director, suggested a few months ago that the experienced chapter members should present a how-to on flying this season’s



Randy explaining the maintenance and logistics of the Patriots Jets.



Dave, Beth and Randy.

Known sequences at one of our meetings. I asked our vice president, Dave Watson, if he would throw something together for us. Dave is a longtime Advanced and Unlimited competitor, regional judge, and coach. I was thinking along the lines of something simple like a box taped onto the floor and photocopied handouts. But no.

After the tour of the Patriot's hangar, we gathered in their giant "living room" and settled in. Dave gave a fantastic presentation on flying the 2014 Primary and Sportsman Knowns. The time and effort put into this invaluable tutorial was clearly evident. It includes in-cockpit, pilot-view video and graphics depicting the Borrego Springs box with satellite imagery. He coached strategies on how to best present the sequences to the judges.

Dave's presentation, Flying the 2014 Primary and Sportsman Routines—Where to Be and Where to Look, is



Dave Watson presenting "Flying the 2014 Primary and Sportsman Routines—Where to Be and Where to Look."

now available online at IAC38.org.

Go to What's New, and then to Flying the Figures.

If you watch the presentation, we request that you make a \$10 tax-deductible donation to the Patriots Jet Team Foundation: www.PJTf.org/?page_id=7814

Let's support their great work and help pay it forward.

School House Rock

"Chapter 38 is corrupting me!"—Brian Howard

Our 2014 Judge School was a resounding success. We had a total of 13 participants, 11 for both days, two for the refresher day. Three of the participants were new Chapter 38 members and had never been to a contest. Logistics were seamless, and a rollicking time was had by all.

We were incredibly fortunate to have Brian Howard as



Cub Scout/Young Eagles Day.



TCY practice day.



Fun and relaxation.

our instructor. I had never met Brian before, but discovered quickly what an amazingly dedicated and valuable resource he is to our sport. The tireless work he does on behalf of the aerobatic community is unbelievable. We learned a lot and laughed a lot this weekend.

When I asked the attendees what was their favorite part of judge school, here were some of the responses:

“Having someone who knows the rulebook inside and out, and understands the rationale for rules being as they are, to drill in however much depth my classmates and I desired.”

“Getting a chance to get to know each other better, hang out, and learn the sport. One of the best things about the school was basically everything—fantastic host and location, really well-organized, an expert instructor who had excellent communication and made things easier to understand, and the camaraderie of the people there who share a common passion—the whole package made it really worth the time. It was fun while really gaining the skills to improve in practice and when supporting the competitions.”

Brian's parting comment was, “When I arrived here on Friday, I was pure as the driven snow. After one weekend, I have become . . . evil.”

I have full confidence that the psychological damage Brian sustained from hanging out with us for the weekend is temporary and that he will make a full recovery.

Two Sacred Boxes

Both of our aerobatic practice areas were renewed in February for two more years. There has been a flurry of aero-

batic flying at Tracy, California (KTCY), and New Jerusalem (1Q4), a small airstrip east of Tracy. In addition to the usual cast of characters, we have new members getting their first critique flights in a box, as well as folks trying out their new acro planes for the first time. One session featured a bevy of Decathlons with excited grassroots-level pilots. Another day, one of our student members flew with his CFI in the box a few weeks before he got his certificate. Not too many get a Pitts ride before their checkride!

With this increased activity, we are eager to be good neighbors at Tracy. When we were asked to participate in the Livermore EAA Chapter 663's Young Eagles day for the Tracy Cub Scouts, we jumped right on it.

The Scouts were there for Aviation Merit Badges as well as Young Eagles flights. This was a great way for us to give back. The kids checked out our airplanes and asked lots of questions. In addition to two of our members flying (non-aerobatic) Young Eagles flights, we flew practice flights in the box throughout the day.

The kids (and parents) loved it. Events like this give us the opportunity to promote general aviation and be aerobatic ambassadors. The feedback we got was heartening. One dad mentioned that they watch from their porch whenever we have a practice day. As I was chatting with another couple, I pointed to a Cessna parked on the ramp and said, “Every captain flying a jet for an airline got their start flying a plane like this. Keeping small airports like Tracy open is so important.” The mom said, “Hmm, I never thought of it like that before.”

Doing our part to win hearts and minds . . .

FAAST Safety Seminar

Several local pilots recently voiced concerns about uncertainty of the exact location of our aerobatic box. Tracy Airport is a busy nontowered facility just east of the San Francisco Bay Area. In addition to our adjacent aerobatic practice area, there is extensive flight training, an active general aviation community, and occasional balloon operations. Nearby neighborhoods are noise-sensitive.

We decided to be proactive. With the leadership of Vince Nastro, designated pilot examiner and FAAS Team lead representative, IAC 38 joined him in conducting a FAAST Seminar called Sharing the Skies; Caution: Converging Traffic. Our seminar focused on each of the above activities with a goal of improving safety.

We had the opportunity to explain what we are doing and where we do it. There were some great questions from the attendees, and as it turns out, there were no oppositions to our aerobatic activities. This FAAST meeting was a great way to facilitate communication with local pilots. It helped to get everyone on the same page regarding the safety and communication procedures we have in place when the box is active.

In the “more information is good” category, we printed a banner that depicts both the Tracy and New Jerusalem

boxes and posted it on the fence outside the Tracy FBO in clear sight of transient pilots. We also made paper copies to distribute to local airports and aviation associations.

Elated Optimism

“Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has.” —Margaret Mead

Looking back upon the past eight months since I became Chapter 38’s president, I would not believe all we have accomplished if I wasn’t here living it. My experience has been that IAC chapters are hotbeds of passionate people eager to help and give generously of their time and talent. Sometimes the coals just need a little stoking, and then oh my, what blazes can get cooking!

Doug McConnell leads the National IAC Membership Committee. He has some rocket-fuel ideas to launch a new era of the IAC. He and Mike Heuer, our new IAC president, have invited me to accompany them to help lead the charge. The time has come for us all to join forces and make a large group of thoughtful, committed people to elevate the IAC to exciting new levels. See you up there.

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Of Pride and Humility

Meet your nemesis

BY DENNY HALL

Well, Mr. Embry-Riddle grad, ex-naval aviator, retired Air Force fighter pilot, and 777 captain . . . meet your nemesis.

What do you mean “when you lose sight of the runway it’s time to land”?

With more than 14,000 hours of flight time, training, and experience, one fact is indelibly etched in my mind. If the runway environment is lost, then go around, wave off, do not attempt to land.

With the exception of certain CAT III, auto-land approaches, 99 percent of all landings hold one fact to be self-evident: if you lose sight of the runway, then execute a go-around. You know what I am talking about. Who

can argue that simple fact? Taildragger pilots will argue it, that’s who.

Having gone the route of Navy attack pilot, Air Guard fighter pilot, and now airline captain, I decided to revisit my general aviation roots. Through my years of experience I have seen stick and rudder skills become rusty as a result of flying highly automated aircraft. Yes, the automation does a wonderful job and frees the pilot to concentrate on other important matters that pertain to the big picture of aircraft, crew, and passenger safety. However, the automation when utilized to the degree that certain airline manuals recommend can certainly diminish basic pilot skills. Does Asiana’s hand-flying accident in

San Francisco come to mind?

Many factors were involved in that accident. In my study of airline mishaps, this Asiana accident stands out in my mind as not only pilot confusion with the automation, but primarily a lack of stick and rudder skills. Skills that were no doubt once sharp, but diminished by the use of too much automation. Apparently many in the airline industry agree with this perception because six months after Asiana’s accident my airline incorporated more hand-flying into its simulator syllabus.

Due to sophisticated cockpit electronics coupled with autopilot systems, I felt that I had been losing some basic flying skills back when I flew the

767. Perhaps that is why every pilot I flew with, including myself, did more hand-flying than our company manuals suggested or required. Flying the 777 made this fact more apparent to me. I knew that I needed to get back into flying and thought that perhaps having a personal airplane that had no autopilot of any kind would hone my skills and even pay dividends should an emergency arise while flying my passengers and crew.

The first step was to renew my CFI. A certificate that I had not used since I instructed at my alma mater before and after graduation. Rather than a simple renewal, why not add an MEI, which auto updated my previously held single-engine CFI and CFI-I.

Step two. The following season it was time to further expand my general aviation horizons and get a float rating. I sought the challenge by going to Alaska and adding a little bush pilot experience to my syllabus. Mission accomplished; however, I still needed and wanted more.

Next step: A tailwheel endorsement. What could be easier? It is merely an endorsement, not a certificate or rating. No checkride in the tra-

ditional sense required. Pure fun and without the pressure, right? Maybe yes, maybe no, because I was about to meet my nemesis.

Flying the Decathlon was fun, and landing it was not that difficult. I just had to be cognizant of that ground loop thing and not allow myself to relax for a second during takeoff, landing, or taxiing until the engine was shut down. Okay, fair enough demand, so I did as instructed. No problem, and after the first or second landing it became easy to land. I just told myself to never forget what I had learned, and I moved on with confidence.

Now I was ready for the next step, which would culminate in my reason for choosing this particular school. The instructor also owned a Pitts. I reasoned then if I was going to get a taildragger endorsement, why not get it in a plane with a reputation? A plane with an attitude. I just mastered landing the Decathlon, at least in my mind I did, so why not get on with it and master the technique of landing the Pitts Special?

The reader must understand that although I write this with a certain amount of vibrato, I was a good stu-

dent who assumed nothing. I was fully aware of what I was taking upon myself and did so with a total respect for general aviation. Knowing full well that an 80 mile an hour small plane crash will kill me just as sure as a supersonic F-16 foul-up would have killed me back in the day.

So this good student and his excellent instructor, Johnny, strapped on his S-2A, and off we went. The takeoff was interesting. Very sensitive rudder controls that must be an intricate part of every maneuver, unlike a jet. Once airborne I fell in love. What a fine aircraft. Literally the closest thing to a fighter that I had flown since my Navy A-7E Corsair II and Air Guard Viper days.

How can this feeling be duplicated in this wood, fabric, and metal airplane, with a prop? What have I been missing all these years? I thought my Twin Turbo 911 was a satisfactory substitute for fighter jets after I retired, but it was not even close to the feel and the feelings that this Curtis Pitts aircraft provided me. The aircraft that Mr. Pitts called special. And special it is, my friend, very special.

After much fun and maneuvering it was time to return to the field



My hangar at North Perry with my hangar mates airplanes. Mine is on the right and it's the one I earned my tailwheel endorsement in.



I took this picture a year ago last July 4th when I named the plane *Nemesis*. I sat there with an adult beverage staring at it and trying to figure out why I could not land it to my satisfaction.



and land. How hard can that be for a master Decathlon landing expert? Ha. The only thing I proved expert in during the landing phase of my Pitts training was the go-around. I listened to Johnny, who patiently showed me his technique for landing the Pitts. "A good landing is preceded by a good pattern," he would say. "Trim often

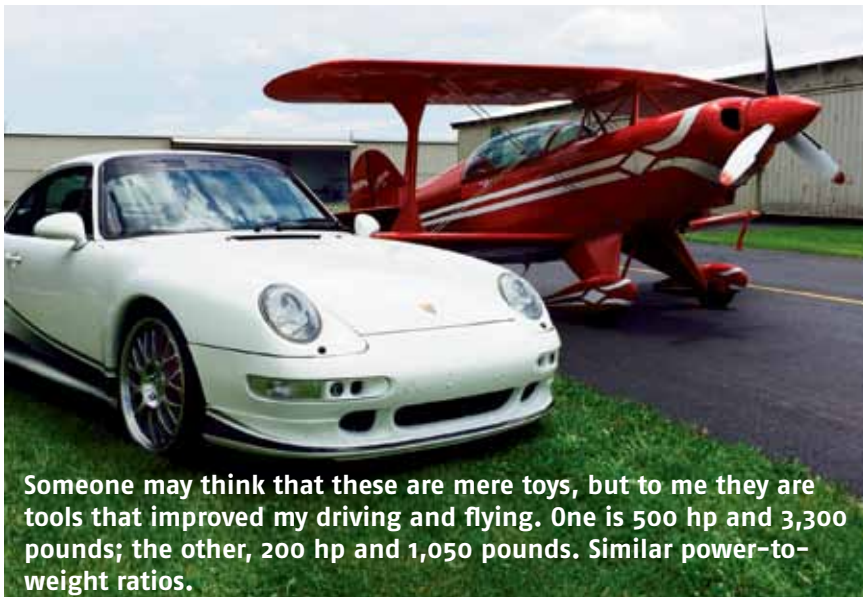
Left: My wife Lisa's first ride.

and accurately, forward slip to see the runway and lose altitude, watch your airspeed." All valid and all taken seriously and duplicated to my best ability. Then I asked the \$100 question: "Okay, Johnny, what do I do in the flare when I lose sight of the runway?" His response: "Well, you land." My response to his response: "But I can't see the damn runway." Johnny: "Use your peripheral vision to see the runway edge on either side, but don't move your head from side to side; just look straight ahead. Don't flare too high; this isn't a 777. Don't forget about the crosswind, don't balloon during the flare, be careful—the stick is very sensitive, don't over control, fingertips only on the stick, easy, steady . . . go around!" Another pattern, another opportunity to excel, another go-around. After much ado I learned to land the Pitts, but not to my satisfaction. However, I did successfully finish my training and received the endorsement. I left Johnny's aircraft plantation with great humility and knowing at least one thing with great certainty—I had to have a Pitts.

After much shopping and convinc-



DeLand, FL the day the new prop was installed. Next landing: Sun & Fun later that day.



Someone may think that these are mere toys, but to me they are tools that improved my driving and flying. One is 500 hp and 3,300 pounds; the other, 200 hp and 1,050 pounds. Similar power-to-weight ratios.

ing my wife for two months that I needed a Pitts, I purchased the very one that I had trained in when it came onto the market. Now, 10 months later, and after 100-plus hours in the Pitts, I am still not completely happy with my landings. Perhaps I will never be; maybe that is the challenge

and satisfaction of owning this type of plane. You are never completely happy with your performance. Kinda like golf.

IAC and EAA and AOPA membership activities as well as aerobatics practice are part of my life now. Regarding acro; I find it interesting that

many of the maneuvers I now practice for style points were once in part, if not in whole, modern defensive and offensive fighter and attack maneuvers. Aircraft handling necessary to deliver weapons on target or shoot down the bad guy. Now these are practiced within the confines of a box and judged by ground observers and peers. This is an entirely different approach to aviation for me that fits perfectly into my new world of aircraft ownership.

Yes, the Pitts is my first plane. My former nemesis is now my friend. A friend that has taught me humility, and out of that humility came wisdom that is directly linked to honing my aviation skills to better my professionalism as an airline captain. It also just happens to be fun.

To those of you who fly and land more difficult aircraft, and to my fellow Pitts owners, my hat goes off to you. May we cross paths soon.

Is anyone interested in buying a used 911?

IAC

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Being proactive

Just about the time I wonder what subject to write about, something or someone comes into my shop to remind me why you need to have your equipment serviced at regular intervals. I'm not saying you must get your parachute inspected and packed every 180 days. However, it needs to be serviced and in date prior to you flying. This is especially true if it's been sitting in your closet or lying on a bench in your hangar (Hopefully Not).

Just this past week I had a customer bring me a damp parachute. This is typically not a problem if it's just water. Moisture can attract insects that may find their way into your parachute and chew on it or lay their eggs. Also the juices from insects that get squashed on the nylon parachute material may be acidic and harmful to the material. It could easily weaken it. I thanked the customer for bringing in their damp parachute. I hung it up to dry for a day or two before I inspected and repacked it. If you have a wet parachute and decide to hang and dry it yourself, be careful. **Never** dry it in direct sunlight. The rays from the sun (UV) are very harmful to nylon. Some of you may not realize it but your entire parachute assembly which includes the harness/container and the parachute canopy are made of nylon except for the metal snaps and buckles. UV damage and normal weakening with age are just two of the reasons

why professional riggers, at the recommendation of most manufacturers, will not pack anything over twenty years of age no matter what shape it appears to be in.

No sooner had I taken care of the wet parachute than UPS delivered another that was so far out of adjustment, the owner stood a better than even chance of falling out of the harness during an actual bailout and deployment. What a surprise they would have been in for. Imagine successfully bailing out of your disabled aircraft, and just out of your reach, you see a parachute just like yours. This is another sign of a very bad day that's going to get a lot worse.

How can you prevent this from happening to you? You need to become intimately familiar with your equipment. This not only applies to your parachute, but to your aircraft. Bailing out because you forgot one small detail is something I suspect you would like to prevent. Just imagine all the heated discussions your friends and fellow pilots will have because you forgot just one small seemingly unimportant detail. I can hear them now. "That would never happen to me." Hopefully you'll be around to defend yourself. If you've received egress training and have a good grasp on what you should do and how your parachute should fit then please take the time to observe your fellow pilots. It's better to question something that appears incorrect now than wish you had later.



The number one thing you can do is be proactive and take preventive steps now. Tomorrow may be too late. The number one thing I push for is an actual hands on bailout seminar by someone like me. Unfortunately there are very few parachute riggers who are familiar with pilot emergency equipment. That's why I travel extensively giving bailout seminars. They include not only egress training, but I talk about other survival equipment such as the proper wearing and care of your Nomex flightsuit, gloves and helmet. I also discuss the minimum survival equipment I feel you should carry.

Nearly my entire 25 year Air Force career was spent dealing with survival equipment. That's why I manufacture a small survival kit that can be attached to your parachute harness. I call it a SMAK Pak. That's an acronym for "Save My A@* Kit. At each of my presentations I always ask how many have survival kits. Quite a few hands will go up. Then I ask where they carry the survival kits and almost all will say they are stored safely in their aircraft. That's when I educate them and explain that any survival equipment stored in their aircraft is called camping gear, **not survival gear**. It can only be called survival gear if it's carried on you. The few pilots who carry survival equipment on their person are almost always former military pilots, and they know where it belongs. They've had it drummed into them, throughout their military careers, that it'll do them no

good if it's buried in a smoking crater.

Check out the photos of recent seminars I gave. What are these people doing? Are they greeting me with a secret handshake or is this an integral part of my presentations? Set up a seminar and you'll find out. It could even save your life.

How can your flying group not afford a bailout seminar? I'm already booked in Texas next March. Florida is "Spring Break for Pilots" called Sun N Fun. I'll be in the state of Washington next year and the list keeps growing. Are you waiting for an incident to occur before you become proactive? My seminars are free. All I require is my travel expenses be covered and a cold beer or two. I would love to be standing before you answering your questions and knowing that when I leave you'll be better prepared to handle an emergency.

I'll leave you with a recent email I received from a customer who came to my shop seeking advice. "THANK YOU so much for your help and advice during our short meeting. I flew the other day and the chute never felt better....nice to know that I won't be falling out of it in the event I ever need it." You don't necessarily have to drive or fly to my shop for advice. If you have a concern please know that I'm only a phone call or email away. Fly Safe. Allen (209) 532-7070 or allen@silverparachutes.com **IAC**



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My EAA

Experimental Aviation Art

BY CAROL GRANGER

www.carolgranger.com

I have been married to an aviation enthusiast for 36 years. I have watched him grow as a pilot and have encouraged his passion for aviation for many years. He has become a good solid pilot, always diligent in every aspect of his flying, especially as an aerobatic pilot, and I truly believe that being an aerobatic pilot has made him a safer pilot.

My passion happens to be in the world of art and design. Trained as a commercial interior designer, I retired from the workforce to raise our children full time. I have been fortunate to devote time to study my passion—painting—especially now that our children are out of the nest.

I was recently asked to combine our two passions in the form of an aviation painting that was auctioned off for our local IAC Chapter 34 during their contest this past June. I donated the proceeds to help defray the expense of the contest.

Because Chapter 34 was celebrating their 40th year as a chapter, I decided to “experiment” and produce something unique for the pilots. I began in late winter/early spring by reviewing past contest photos that included nice layouts of colorful airplanes. Our Chapter webmaster keeps wonderful records and photos of the contests, so I had much to choose from. Once I had selected the photos, and had an idea for the main focus of the painting, I began collecting materials of historical value to complete the theme. I decided to paint the painting on top of a sectional chart and was able to get one of the state of Ohio from the Ohio Department of Transportation. I



selected the part of the chart which best showed the airports where contests and fly-ins had been held over the life of the chapter. Once I had adhered the sectional chart to the board for the painting, I added other historical items on top. This included logos from past newsletters, and written highlights for the chapter. I also included the five known programs for the contest, which were reduced in size and copied on sectional chart paper. All of this information was also adhered to the board on top of the sectional chart, leaving room in the middle for the painting.

I then began preparation for the painting process. Because I did not want all of the information I had included on the board to overwhelm the focus of the painting, I covered the entire board with thinned gesso. Gesso is a white painting ground used by painters to prepare canvases, so it was an ideal material to use for this painting. I then used a thinned down color matching the color of the sectional chart to blend in the rest of the items with the chart, creating a muted green background for the painting.

I completed the drawing for the painting using several photos from the chapter website plus some photos I had

taken myself. Because our contest was going to be held at a completely different airport from those of the past, my husband and I flew there so I could get some photos of the hangar and ramp to include in the painting. Once the drawing was transferred to the painting, I sprayed it with a fixative so the drawing would not bleed when I started the painting process.

The rest of the process was pure fun, the very best of what a person feels when doing something they love. I suppose it is what aerobatic pilots feel when they are dancing in the sky, only it was my brush that was doing the dancing. I let the color around the edges of the painting bleed out onto the sectional chart part of the painting. I added a painting medium to the paint that helped the oil dry faster than normal, which was essential for finishing the painting on time. Getting the details right was also essential, because I knew the pilots would notice anything out of place. My husband was a big help in that regard.

The painting was a success and raised a good amount of money for the chapter. I had many pilots thank me for doing the painting and that has encouraged me to try my hand at more aviation themed art in the future.

IAC

Mark your calendars for these upcoming contests. For a complete list of contests **and for the most up-to-date contest 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.



Apple Turnover (Northwest)

Friday, September 5 – Saturday, September 6, 2014

Practice/Registration: Thursday, September 4

Rain/Weather: Sunday, September 7

Power: Primary through Unlimited

Location: Ephrata Municipal (EPH): Ephrata, WA

Region: Northwest

Contest Director: Peggy Riedinger

Contact Information: 206-783-5141

E-Mail: iac67president@gmail.com

East Coast Aerobatic Contest (Northeast)

Friday, September 5 – Sunday, September 7, 2014

Power: Primary through Unlimited

Location: Warrenton-Fauquier Airport (HWY): Midland, WA

Region: Northeast

Harold Neumann Barnstormer (South Central)

Saturday, September 6 – Sunday, September 7, 2014

Practice/Registration: Friday, September 5

Power: Primary through Unlimited

Location: New Century AirCenter (IXD): Olathe, KS

Region: South Central

Contest Director: Greg Shetterly

Contact Information: 913-486-8498

E-Mail: Halfreverscuban8@gmail.com

Website: www.iac15.org

The Bill Thomas U.S./Canada Aerobatic Challenge (Northeast)

Saturday, September 6 – Sunday, September 7, 2014

Practice/Registration: Thursday, September 4 – Friday, September 5

Rain/Weather: Monday, September 8 – Tuesday, September 9

Power: Primary through Unlimited

Location: Olean Municipal Airport (ole): Olean, NY

Region: Northeast

Contest Director: Pat Barrett

Contact Information: 716-361-7888

E-Mail: cbpbmb@aol.com

Website: IAC126.blogspot.com

Rocky Mountain "OYSTER" Invitational Aerobatic Contest (South Central)

Saturday, September 13 – Sunday, September 14, 2014

Practice/Registration: Friday, September 12

Glider Categories: Sportsman through Unlimited

Power: Primary through Unlimited

Location: Lamar Municipal Airport (KLAA): Lamar, CO

Region: South Central

Contest Director: Jamie S. Treat

Contact Information: 303-304-7937

E-Mail: jamietreat@q.com

Website: www.iac5.org

Salem Regional Aerobatic Contest (Mid-America)

Saturday, September 13 – Sunday, September 14, 2014

Practice/Registration: Friday, September 12

Power: Primary through Unlimited

Location: Salem-Leckrone Airport (KSLO): Salem, IL

Region: Mid-America

Contest Director: Bruce Ballew

Contact Information: 314-369-3723

E-Mail: bruceballew@earthlink.net

2014 US National Aerobatic Championships (South Central)

Sunday, September 21 – Friday, September 26, 2014

Practice/Registration: Saturday, September 20

Rain/Weather: Saturday, September 27

Glider Categories: Sportsman through Unlimited

Power: Primary through Unlimited

Location: North Texas Regional Airport (KGYI): Sherman, TX

Region: South Central

Contest Director: Gray Brandt

Contact Information: 970-948-0816

E-Mail: graybrandt@yahoo.com

Website: <http://nationals.iac.org/>

Ace's High Aerobatic Contest (South Central)

Saturday, October 11 – Sunday, October 12, 2014

Practice/Registration: Friday, October 10

Power: Primary through Unlimited

Location: Newton City Airport (EWK): Newton, KS

Region: South Central

Contest Director: Ross Schoneboom

Contact Information: 316-519-2079

E-Mail: schoneboomr@prodigy.net

Website: <http://www.iac119.webs.com/>

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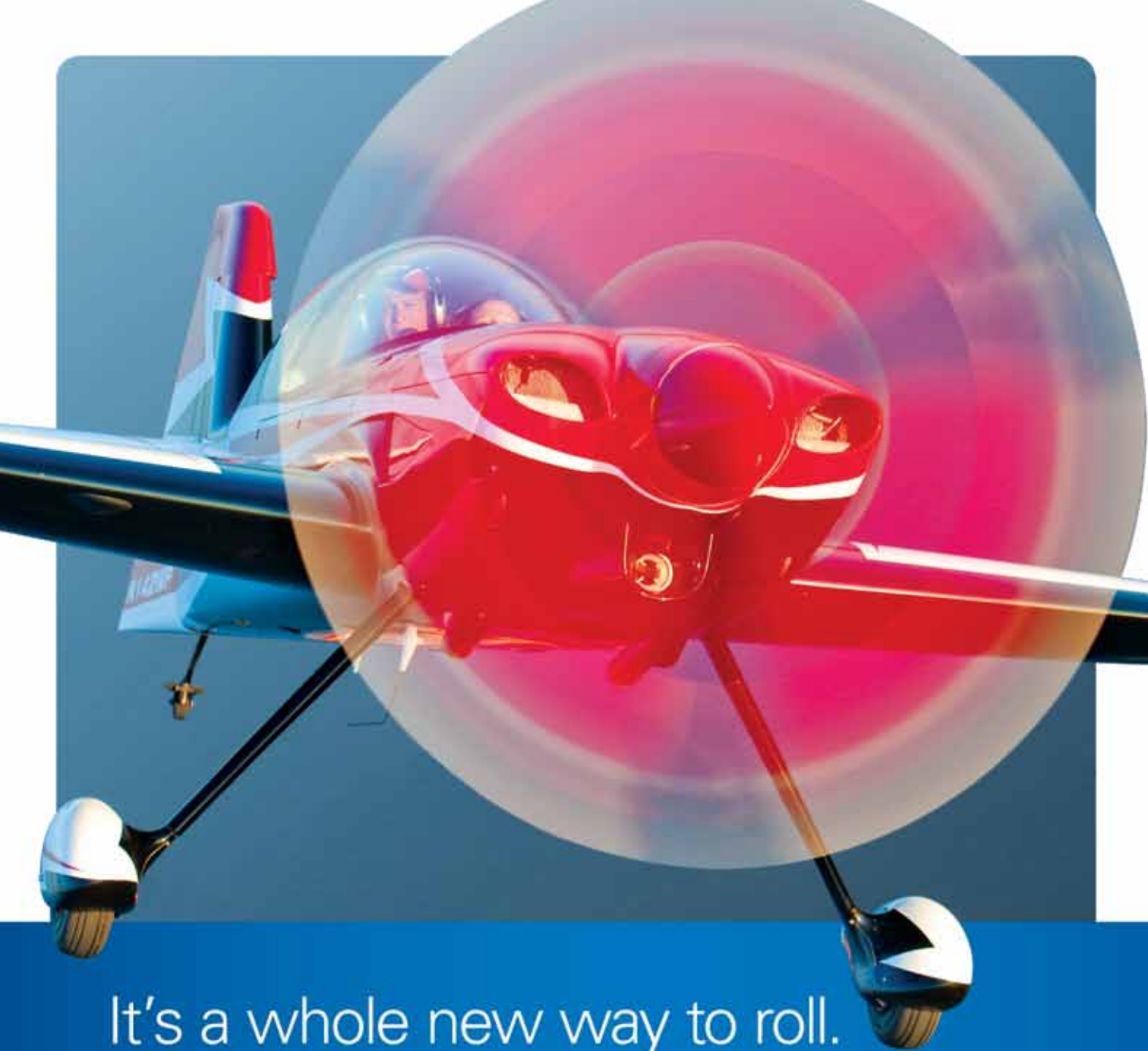
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