

JULY 2007

SPORT *aerobatics*

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

THE HEART OF A CHAMPION

Aerobatics After Heart Surgery

- Better Takeoffs & Landings
- Fatigue Can Be Deadly
- IAC AirVenture Events



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The Am will visit a One-Day Cricket Encounter at W.I.L. Cricket Grounds Park.

Source: Standard & Poor's, Market edition E-22, December 2004. Figures shown

Young's modulus of linear elastic behaviour (calculated by the method of least squares) was 10.02 GPa, that is 10.02 GPa/m², which is equivalent to 100.2 GPa/m².



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THE COVER

Bob Stark is at home in the cockpit of his Giles G202, N202RD, in the sky over Florida.

– Photo by Jim Koepnick

SPORT Aerobatics

OFFICIAL MAGAZINE OF THE INTERNATIONAL AEROBATIC CLUB

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Judson Bartlett

LETTER from the EDITOR

by Scott Westover

Celebrating Independence Day

By the time you settle in to enjoy this issue of *Sport Aerobatics*, the chances are pretty good that the taste of the Fourth of July barbecue will have already begun to fade. Every summer I find myself looking forward to celebrating Independence Day. Maybe that's because I live in a small New Hampshire town where people still turn out for the big parade and remove their hats when the American flag marches by. After the bands pass, friends huddle around the strawberry shortcake booth and strategize about the best vantage point from which to watch the fireworks—and defeat the mosquitoes—later that evening. The heart of this uniquely American holiday is the blended spirit of independence and freedom.

Aviators are experts on the subject of independence. The American Heritage Dictionary defines independence as "the state or quality of being independent." Any pilot who has ever pulled back on the stick and left the runway knows the meaning of "being independent." It's true that we all rely on an extensive network of controllers, line crew, mechanics, weather briefers, other pilots, etc. But the act of flying itself and experiencing the freedom of a loop and roll is perhaps the greatest expression of independence I can think of. Most pilots will describe their first solo as the first time they were ever truly "alone" and self-reliant.

It sounds a little corny, but I can't help but think of those brave revolu-

tionaries who fought for the concept of independence so that people like you and me could exercise the right of being independent. And thank God for those brave men and women who have stood up to protect that right over the years. We should all remember that the freedom we have in the air is something that must be protected. In the face of increasing regulation, changes in the landscape beneath us and the perception of our sport in the eyes of those who do not fly pose very real threats to the future of aerobatics. Every IAC member has an opportunity to protect our collective freedom with each flight.

Flying safely and acting as an ambassador for our sport are simple things that we can do every time we are at the airport or talking about flying with our friends. The next time you fly into a contest or touch down for a \$200 omelet (in aerobatics the \$100 hamburger is a bargain), take the time to look around and see who is curious about the unique aircraft that you are privileged to fly. Wander over and introduce yourself. Maybe offer a tour of your airplane and point out the safety features that allow you to fly with absolute confidence.

As aerobatic pilots, we celebrate Independence Day every time we turn the prop. There may not be a parade and strawberry shortcake, but any time you are strapped in the cockpit with that positive g smile plastered on your face, it's a celebration just the same. Fly safely! ☺

***Sport Aerobatics* is your magazine. To submit news, comments, articles, or article ideas, please send them to:
IAC, P.O. Box 3086, Oshkosh, WI 54903-3086; or email them to tookyflyer@tds.net.**



PRESIDENT'S PAGE

by Vicki Cruse • IAC 22968
E-mail: vcruse@earthlink.net

It's All About the People

Share the passion of flying

As the Beatles song says, "I get by with a little help from my friends." In a column in the past, I've written about how, over time, the IAC becomes more about friendships than anything else. It isn't just about competition; in fact this is a very small part of what the IAC is all about, though it was the principle on which the IAC was founded in the early 1970s. It's become much more than that today.

My guess is that the IAC began at either a bar or dinner table, with a group of friends getting together to talk about how to make things better for the majority. I'd have to check with Don Taylor or Mike Heuer, but I'd almost bet this was the case. It was a group of friends with a vision who made all of this happen. Today we are a bigger organization, but the IAC really still revolves around people and friendships and a sense of community with others who share a passion for flying beyond two dimensions.

Every IAC member shares something few people know about, much less understand; it's a passion for flying, simple as that, but in three "real" dimensions. To some, competition is the focus, but most eventually learn that the competition is really a competition with yourself, to do the best you can against the standard you set for you. Those who don't figure this out don't last long

in this sport; it isn't about ego, and it isn't about beating every opponent. The majority of members are not competitors. They never will be and couldn't care less about it. Many don't even own an airplane. So what is it about the IAC that brings people in? One is a passion for something different and a wish to be a part of it and the resulting friendships made along the way.

*The IAC has brought
some very special people
into my life, many of
whom will be lifelong
friends even if I decide to
pursue other interests.*

Take Chapter 38 in Livermore, California, for instance. With membership topping more than 100 people, this is the largest IAC chapter in the country. Fewer than one-third of the members fly competition, the rest we tag "enthusiasts." These people enjoy being around other people with the same interests. Chapter 38 gives them something in return—activities they can be involved with as non-competitors and even as non-pilots.

Think about the people you've met at competitions or chapter meetings. Some of these people have become very good friends in your life. If it were not for an interest in flying, this friendship would likely have never taken place. Friends come and go in our lives, and most of the meetings happen by chance. The IAC has brought some very special people into my life, many of whom will be lifelong friends even if I decide to pursue other interests.

All of this being said, the one thing the IAC could do better is foster a sense of community outside the competition environment. Most of our chapters are formed for the sole purpose of holding a competition, and for the rest of the year, they do nothing as a group. It doesn't have to be this way. If we want more people to share in this adventure, we have to invite them and give them a sense they can belong.

Sharing the passion of aerobatics means sharing knowledge and time. This organization can easily become a group of burned-out volunteers because people often want the benefit without the work. Come on, guys, stop complaining and do something; make things happen. All it takes is a little time and a little giving of yourself. Give a little and reap the benefits. The next person you introduce to the freedom of flying may just turn out to be a lifelong friend. ☺

LETTERS to the EDITOR



Constructive criticism is always appreciated

To the Editor:

Since Bruce Johnson's article was published I have received a number of calls and emails concerning its references to our aircraft, the Extra 300.

The thrust of the article is not to slander the airplane but to focus attention on the need for currency and risk management by the performer and the industry. Clearly there are a variety of aircraft used in air shows. Each has strengths and limitations, and each can efficiently kill the pilot when disrespected. By far, miscalculation and error are the leading causes of air show accidents. Surface-level aerobatics are inherently dangerous. The public knows this and that is part of the attraction. Mr. Johnson is correct to point out that discipline and currency are the professional responses to these risks.

Now, as for the article referring to the Extra 300 as a "station wagon" or somehow inappropriate for surface level performance, Mr. Johnson's suggestion is unfair when the referenced accidents suggest pilot error. If anything, the performance capabilities of the Extra 300 series (control harmony, predictable recovery and robust construction) have had a positive influence on industry safety and deserve credit for this contribution.

Sincerely,

Kramer Upchurch
Extra Aircraft

To the Editor:

Thanks for an excellent safety issue (May 2007 *Sport Aerobatics*). I do



take issue, however, with a portion of Safety Director Bruce Johnson's "Thoughts on Safety," wherein Bruce seems to imply that the Extra 300 series of aircraft may be a poor choice for low-level air shows. I'll admit up front that I am fortunate enough to own and fly one of these superb aircraft, but it's not my intent to defend it. Rather, I'd ask: "How much is enough?" Should low-level air show performances be limited to the small, and probably diminishing, handful of one-off and no-longer-in-production aircraft which sport better overall performance? This would make for a pretty boring air show.

This past April, my wife, Pat, and I spent several days at Sun 'n Fun. We were treated to interesting and exciting air show performances by pilots flying aircraft from an Interstate Cadet to a Twin Beech to an Edge 540, and everything in between, including Extra 300s. My

personal favorite was John Mohr's act in a stock 220-hp Stearman; John redefines the term "low-level" with this ancient machine, hardly a paragon of performance. Isn't it really the air show pilot's responsibility to plan and fly his or her flight within the capabilities of whatever aircraft he or she is flying, with due consideration for the weather and other prevailing conditions?

There is no indication that any aircraft-related problem contributed to any of the cited accidents. Nor is there any assurance that a bit more performance would have saved the day. As much as I empathize with those involved, that leaves the pilot.

Doug Sowder
IAC 14590

To the Editor:

I am writing in response to the recent article in the May *Sport Aerobatics* on page 8, "Thoughts on Safety," by your IAC "mishap guru." Mr. Johnson shows his absolute ignorance of the Extra 300 series of aircraft. I am sure he has little, if any, experience in the aircraft at all. Of the four aircraft accidents he mentions, only two were in an Extra 300/L. Maybe your guru should do some investigating. Also, three of the pilots were professional air show pilots. One was flying an Extra 300/S, another a straight Extra 300, and two in an Extra 300/L. I have been involved in professional aerobatics and air show work for 42 years. I could write a long list of air show

pilots who are no longer with us. None were killed because of the type of aircraft they flew.

If Mr. Johnson thinks the Extra 300/L is a "station wagon," what does he think of Mr. Koontz's Decathlon on the cover? Greg flies one hell of a good show in that aircraft. It also has two seats. Has Mr. Johnson ever watched Bob Hoover fly his Shrike Commander? Or an F-14 or F-15 demo? All have multiple seats.

Mr. Johnson's implication that people go to air shows to see a crash is pure garbage. In 42 years of flying I have never heard anyone mention that they go to see a crash. Air shows are wonderful family entertainment, and a great value. Aircraft don't make pilots make mistakes, or use poor judgment. Air show pilots are no different than the rest of us, but if they make a mistake close to the ground the outcome is usually not good. There are many air show professionals flying the Extra 300/L. It is an excellent aircraft for training and the air show industry. The current chairman of ICAS flies an Extra 300/L and does a fantastic, safe show in it.

The IAC, and the editor, show the complete lack of integrity of the organization to print such garbage. And to include a picture of Sean's crashed aircraft with the article is just as insulting.

Sincerely,

Craig A. "Yoda" Fordem
Total Time: 16,500 hours
Total Time in Extra 300 Series
Aircraft: 6,500-plus hours

Here's the context for Bruce's comments regarding the Extra: "The Extra 300 is a fine aerobatic machine and has fantastic control harmonies. Yet the aircraft is what I call a 'station wagon' and has more seats than needed for an air show performance. Most pilots purchase the 300L to give aerobatic instruction or to pass on the experience of aerobatics to others. But serious air show performances require an aircraft with lower wing loading and more power." However, the points made in these letters are well taken, and Bruce Johnson would like to offer the following comment: "The intent of my article was to address performers' judgment on

many levels, choice of aircraft being just one. It is clear that air shows can be safely performed in a 65-hp Cub. But to do so to the surface one had better have his 'act' together. When flying an aircraft as capable as the Extra 300 series, one might be lulled into a false sense that the aircraft can fix his or her mistakes. I put the idea out for food for thought. If the story did not hit a nerve somewhere, then we haven't done our job of provoking thoughts about safety."—SW

To the Editor:

I look forward to *Sport Aerobatics* magazine each month and hope the great information keeps coming. The May 2007 issue has a great article on inverted spins, and I will take the advice of finding a good instructor to learn from. The same issue also has an article titled "Fly the Wing." I found that article not to be up to the usual standards of the magazine. It doesn't clearly address the issue of wing stall. A lift coefficient VS angle of attack diagram would help make things much clearer. On page 24, the scenario of the pilot pulling up to flare for landing and stalling is described as "the airplane passing into the area of reverse command."

My recollection is that that term is used to describe the speed regime of an aircraft where in order to fly slower, more power is required. It has nothing to do with wing stall. Also, on page 24, another scenario is given where the aircraft has become inverted. Your article suggests that if the airplane were near its 1g stall speed, the appropriate method of recovery would be to "add power and push the

stick or yoke forward," then roll the airplane upright. I suggest that this maneuver might better be performed after study of the article on inverted spins with attention to the section on inverted flat spins. An untrained pilot would probably push the wrong rudder when trying to make his coordinated roll, and the results would cause confusion.

Again, an article on the subject of stalls might be better understood if there were reference made to a graph of lift and drag VS angle of attack. It clearly shows what will happen if you "Pull up to flare" if you are already close to your 1g stall speed. Some wing profiles are much more severe in their response to such treatment.

Thanks again for the mostly superb articles in your great magazine.

Bob Garrison
IAC 0505335

Thank you for the kind words regarding our high standards and the suggestion of adding diagrams to make technical articles more readable.—SW

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Pooped Pilots are Dangerous Pilots!



Mental fatigue & metal fatigue: Both will toast you.

By Budd Davisson

A pilot is nothing more than a complex compost heap made of water and carbon, which, in turn, is molded into two major functioning units that govern our ability to fly – our brain and our body. Although our brain supposedly controls our body, the truth is that, when we fly, if either of them isn't functioning properly, we stand a chance of making our insurance company and our spouses unhappy.

Although we're constantly being flooded with no-fly warnings about alcohol, the dire consequences of every known drug, aspirin included, and the effects of debilitating diseases ranging from the sniffles to elephantiasis, we seldom hear anyone cautioning us about the dangers of flying when we're either physically or mentally tired. And fatigue can hammer our ability to fly just as flat as any of the other factors mentioned. What's worse, fatigue is insidious and sometimes difficult to diagnose, and given the kind of flying we do (aerobatic) and the kinds of airplanes some of us fly (more demanding), there is even less room for having our performance marginalized.

We don't talk about fatigue very much because at any given time it seems as if at least half of the population is either physically or mentally pooped—generally both. That's just one of the prices attached to "enjoying" civilization. Show me someone who isn't tired from just trying to make a living and cope with life in general and I'll show you someone who just hit the lottery. We've come to accept being fatigued as being one of the inherent facts of life, so we just suck it up and work through it. When we're at the office or on the job, we're usually able to get away with it. But not in the cockpit.

Flying of any kind is a contradictory activity because on the one hand it generates its own share of endorphins that pump us up and make us feel alive. At the same time, however, the very activity that generates the excitement and the mental "high" is taking its toll on our systems. Without realizing it, we're asking our brain to concentrate even more than usual and deal with a lot of constantly changing factors, all of which have to do with keeping us safe. And then there's aerobatics.

Nothing pumps the system full of adrenaline as quickly as dropping the hammer on a high-powered aerobatic airplane on takeoff, or coming around the top of a hammerhead and fixating on a point straight down for a roll on the downline before pushing inverted. It really feels good (in a sometimes painful sort of way), but at the same time, we're asking our body to do things it was not designed for. As we push and pull, we're using

And don't think that just flying cross-country in an aerobatic bird doesn't eat up some of our ability to think and perform.

internal muscles to resist forces that we'll never even come close to seeing in our everyday life. Plus, the mental concentration of keeping up with the airplane in a constantly changing ballet while trying to make it do exactly what we want burns up some of our mental reserves. The brain is a muscle and will tire just like the rest of our systems. On the best day we've ever had, when we're rested and feeling great, even 40 minutes of hard sequences sees us coming back with our butts dragging. If we're tired when we get into the cockpit, the flight is going to accelerate the fatigue curve drastically and can have tragic results.

And don't think that just flying cross-country in an aerobatic bird doesn't eat up some of our ability to think and perform. Cross-countries, in general, are strangely fatiguing. Even though in theory we're just sit-

ting there, three hours of flying does a lot more damage to us than three hours of driving does. Here too, it's because we're concentrating more, which is a contradiction because in the air there are no telephone poles to hit or idiot drivers coming our way. When we saddle up our airplane, especially the specialty animals like a Pitts or an Extra and point the nose at a contest or fly-in 500 miles away, we can count on barely remembering our own names when we get there. Between not having enough fuel to fly long legs, having less than wonderful visibility (Pitts) so we're constantly trying to orient ourselves, having no place to store stuff or room to unfold sectionals, and dealing with cockpit ergonomics that are designed for short hops, not long hauls, the trip wears us out. Then toss in low ceilings and/or limited visibility and our brains soon resemble Silly Putty.



Kate DeBaun

Tight cockpits speed up the effects of fatigue, especially after long flights.

Fatigue does a wonderful job of robbing us of those skills we worked so hard at perfecting. Sometimes things that we usually take for granted turn out to be major challenges. Have you ever been out in the practice area trying hard to perfect some maneuver and come back to the airport and make a really lousy landing, and you don't know exactly why? Most of the time fatigue is at the core of the incident. Although you were sharp as a tack out in the practice area and really nailing the angles and lines, when you changed mode and started to "relax" while coming into the pattern, the adrenaline let go of you and your systems started to shut down. The same thing happens at the end of a long cross-country. The simplest maneuver, a landing, becomes a challenge. It's sometimes amazing to find ourselves in flare and our hands and feet act as if we haven't made a landing in months.

A more insidious aspect of fatigue is that our judgment can be severely impaired. We may be able to physically manipulate the controls fine, but our ability to make decisions may be going downhill and we won't even know it. For example, think about when we're on the last leg of the trip to the contest and our fuel state is a little on the tight

side, but we're "pretty sure" we can make it without stopping. Just the fact that we let the phrase "pretty sure" pop up on our mental screen is a sure sign that we're not thinking clearly. In aviation, we should deal with absolutes, not approximations, and we should always think about the back side of our decisions: What are the consequences of being wrong? The consequences of a "pretty sure" decision concerning fuel are never good, so even thinking about stretching it without a surefire, absolutely-cannot-fail, backup plan shows our brain isn't doing what it's supposed to be doing.

The signs that someone is fatiguing are sometimes quite clear-cut and sometimes not. At one end of the fatigue spectrum a pilot will suddenly drop one task entirely. Maybe his coordination goes away. Or he can't hold his airspeed at all. Or his heading is all over the place. At the other extreme, a pilot is trucking along just fine, and then suddenly he can't do anything right. Like a NiCad battery, his entire mental system shuts down, and he's struggling with every aspect of flying. Most people fall between these two extremes, and if we're aware of some of the indications, we'll know that fatigue is catching up with us and we need to do what we can

about it until we can get safely on the ground.

Most of the indications that fatigue is setting in are subtle. For instance, we'll go to change a radio frequency, and maybe for the briefest of moments we have to think which knob does what. Or maybe our hand momentarily heads for the panel when the radio is mounted between our legs. Maybe the tower says to report on a left downwind for Runway 3, and we have to mentally back off for a few seconds while our mind wrestles with the geometry of the approach and we hear our mind having a conversation with itself, "Let's see, Runway 3 runs 030 and we're north of the airport, so we have to turn...." When something intuitive requires more than the normal amount of concentration to come up with an answer, we know our ability to fly is being compromised by fatigue.

Or maybe we've been out working on snaps on the top of a loop when suddenly, twice in a row, for reasons totally unfathomable, when we start the snap, we cross-control and use the wrong rudder. It produces an "interesting" maneuver, but it wasn't the one we had in mind. When fatigue is causing our brain to fire off signals over which we apparently don't have control, it's time to head for the barn. Even then, with the fatigue-warning flag up, on the way into the airport to land we need to be having a severe talk with ourselves while trying to get ourselves to wake up for the approach.

When coming in from a long cross-country, it helps if we take our feet off the rudders and pull them back under our knees, flexing our legs as much as practical to get the blood flowing and the muscles back in sync with our brain. Twist around in the seat and stretch every muscle and try some deep breathing exercise in an attempt to wake up as many cells as possible.

Like carbon monoxide, fatigue can be the silent killer. It has no taste, no smell, and no form and can sneak up on us when we least expect it. However, just being aware that it can be lurking in the bushes waiting for us will at least *keep us* on our toes. ☺



While flying aerobatics produces a "high" for the pilot, the maneuvers also result in rapid consumption of physical and emotional energy.

RULES TO LIVE (OR STAY ALIVE) BY

Because it's subtle and seemingly inconsequential, it's easy for us to ignore something as intangible as fatigue. However, the very fact that it is subtle and intangible is a perfect reason to raise our antennae a little higher than usual to protect ourselves against it. So, here are some possible rules that, although they don't need to be an addendum to an Aresti card, should at least be posted in a corner of our mind where we can refer to them from time to time.

PREFLIGHT MENTAL/PHYSICAL CONDITION BEFORE STRAPPING IN. We preflight the airplane; why not do the same for ourselves? It doesn't do any good for the airplane to be ready to fly when we aren't.

DO A MENTAL PRE-TAKEOFF CHECK WHILE TAXIING. As we're working our way out to the runway, it helps if we look at what we're doing as if we are outside the cockpit watching from an unbiased position. Is our performance what we think it is? Are we totally connected to the airplane with no distractions or lapses causing our focus to wander?

LOOK FOR ERRATIC MOTIONS. Did our hand come up to reset the altimeter and go to the g-meter instead? Did we jab a brake when we really didn't mean to?

BE AWARE OF LAPSES IN MENTAL ACUITY. Did we just do something stupid? Maybe come close to clipping a taxiway light or not S-turn enough and nearly miss seeing an airplane ahead of us in the run-up area? After takeoff did we let P-factor drive us way off runway centerline when we usually stay dead center?

PUT IT ON THE GROUND AT THE FIRST HINT YOU KNOW THINGS AREN'T RIGHT. Just like going around when an approach isn't right is a good thing, the same thing holds true for landing (or not taking off) as soon as you realize you aren't up to the flight, either mentally or physically. This doesn't happen often, but how often does it have to happen to be a potential problem? Once, right?

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EAA AirVenture Oshkosh 2007 IAC SCHEDULE of EVENTS

Annual Meeting & Member Reception The IAC Annual Meeting and Membership Reception will be held on **Friday, July 27, at 6 p.m. at the Nature Center Tent No. 1**. Election results for the board of directors and the bylaw and articles of incorporation vote will be announced. Thanks to our sponsor, Falcon Insurance Agency, this is a great event to socialize with fellow IAC members and enjoy plenty of complimentary food and beverages.

AEROBATIC FORUMS AT HONDA FORUMS PLAZA

MONDAY, JULY 23

11:30 a.m. – 12:45 p.m.
Forums Pavilion **Four**
Presenter: Budd Davisson
Topic: Choosing the Right Aerobatic Airplane for You

TUESDAY, JULY 24

1:00 p.m. – 2:15 p.m.
Forums Pavilion **Five**
Presenter: Vicki Cruse
Topic: Benefits of Aerobatics for General Aviation Pilots

THURSDAY, JULY 26

10:00 a.m. – 11:15 p.m.
Forums Pavilion **Nine**
Presenter: Gregory Morris
Topic: Competition Aerobatics – Can You Do It?

FRIDAY, JULY 27

1:00 p.m. – 2:15 p.m.
Forums Pavilion **Six**
Presenter: Gregory Morris
Topic: Getting Started in Aerobatics?

Aerobic Workshops at the IAC Aerobic Center IAC and aerobatic aircraft manufacturers and equipment suppliers have teamed up to present demonstrations and question-and-answer sessions at the **IAC Aerobic Center Thursday, July 26, through Saturday, July 28**. Also on hand will be several air show performers who have risen up through the IAC ranks and who will be performing in the daily air show during AirVenture.

2007 AIRVENTURE AEROBATIC WORKSHOP SCHEDULE

Location: IAC Aerobic Center, EAA AirVenture Oshkosh Grounds

	WEDNESDAY, JULY 25 10:00 a.m.	Topic: There Goes the Neighborhood: Getting along with our non-pilot neighbors and the FAA Presenters: Vicki Cruse, Mike Goulian, Bill Finagin, Doug Bartlett, and Mark Mattioli	
8:30 a.m.	THURSDAY, JULY 26	FRIDAY, JULY 27 Topic: Inverted Oil Systems Presenter: Bill Bainbridge	SATURDAY, JULY 28 Topic: Aerobatics and Electrical Systems Presenter: Bill Bainbridge
10:00 a.m.	Topic: Pitts Model 12 by J. Kimball Ent. Presenter: Kevin Kimball	Topic: Propeller Safety & Maintenance Presenter: Martin Albrecht	Topic: Meet the U.S. Unlimited Team Presenter: Norm DeWitt
11:30 a.m.	Topic: Aerobatic Engines Presenter: Monty Barrett	Topic: Preflight Inspection Presenter: Jody Bratt	Topic: IAC Aircraft Insurance Plan Presenter: Bob Mackey
1:00 p.m.	Topic: Extra's Model EA-300SR Presenter: Walter Extra	Topic: Cleveland Wheels & Brakes Presenter: TBA	Topic: Headsets, Helmets & Aerobatics Presenter: Ed Hamil

Aircraft Parking Planning on flying your aircraft to AirVenture? We've got plenty of parking for aerobatic aircraft at the IAC Aerobatic Center located just south of the control tower. Contact IAC Parking Chairman Jim Taylor at IACSNF@aol.com with your name, aircraft type, and arrival and departure dates and we'll reserve a space for you. Put a bright pink piece of paper with the letters IAC in big black letters in your window when taxiing in, and the AirVenture aircraft parking chairmen will direct you to the IAC Pavilion.

Merchandise and Member Information The IAC Aerobic Center is the place for club merchandise and information. Come join us and consider us your home during AirVenture.

For more information about AirVenture, visit www.AirVenture.org.



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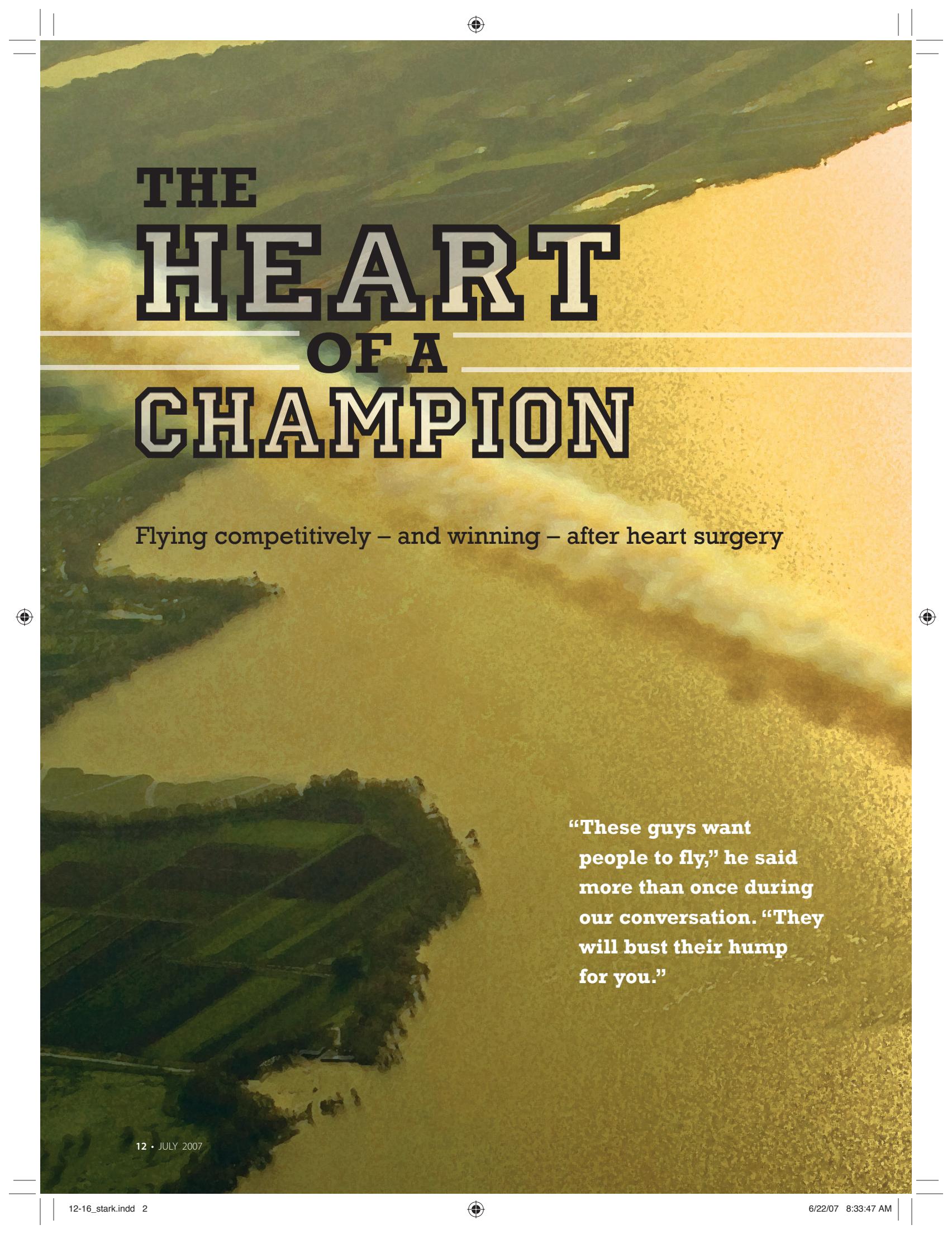
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THE **HEART** OF A **CHAMPION**

Flying competitively – and winning – after heart surgery

“These guys want people to fly,” he said more than once during our conversation. “They will bust their hump for you.”

By Scott Westover • Photos by Jim Koepnick

When you talk with Bob Stark, it's possible to think you have heard his story before. However, as is usually the case, if you listen carefully and ask a couple of questions, there is a lot more to his story than aerobatic success. Here's a pilot who, at 63 years old, has been flying longer than he has been driving a car. He found his aerobatic wings in a Skybolt before growing into a Pitts and eventually shedding the extra wing to pilot his Giles 202. His crowning achievement looked like it would be when he made his aerobatic dreams come true by earning a spot on the team to represent the United States at the Advanced World Aerobic Championship (AWAC) in 1999. However, shortly after that victory he faced a challenge that would test Bob more than all the g's he had handled during his career. It happened on the ground when a doctor delivered the news that Bob would need heart bypass surgery. That kind of news and the accompanying loss of a medical certificate has clipped the wings of a lot of great pilots. Apparently for Bob it simply raised the bar he had to clear in order to pursue his dream.





Bob Stark represented the United States at the 1999 Advanced World Aerobatic Championships just six months after heart surgery.

When you learn a little more about Bob, it does not seem so odd that he started to plan for recovering in time to fly at the AWAC shortly after his diagnosis. He first strapped into an airplane when he was 14 years old. Raising a family and building a business limited his flying for several years, but in the early 1990s he made time to pursue an instrument rating. During the instrument program, his instructor offered that he had some aerobatic experience and suggested that it was something Bob should consider as another way to increase his proficiency. Never one to hesitate, Bob decided that he would like to explore this "aerobatic thing" and soon acquired a Skybolt. Three months later he landed at the Sebring contest with the intention of watching the action and meeting other people who were involved in the sport. Before he knew it, he had been talked into participating in the Basic (today it would be Primary) category. With lots of support and eager coaching, he managed to find the box and fly the introductory sequence. He finished in fourth place. The three other Basic competitors encouraged him to keep

at it, and Bob made the decision to get some more instruction and return for the next competition.

By the next contest, Bob had mastered the Sportsman sequence and showed up at Sebring convinced he would be taking home the first-place trophy. Despite intense preparation he did poorly. "I remember thinking that this was going to be a personal challenge for me," Bob recalled during our conversation. He stuck with competition, and success began to visit him more often than not. When it was time for more performance, Bob moved into a Pitts S-1S. Over the next four years Bob honed his aerobatic skills and became a focused student. He understood that he would need to build his skills to reach his goals and that simply "buying more airplane" was no substitute for building competence. "Some people think the airplane is the solution," he said as we talked about changing cockpits. "They tend to get frustrated and quit when they realize that practice and experience are what make the difference." There is a lot to be learned from being around other pilots. One of the tidbits

that Bob credits with improving his performance is flying with two hands on the stick. He swears that, for him, the technique "adds a lot of strength when rapid control movements are required."

As Bob's aerobatic career began to accumulate trophies he moved into his current aircraft, a Giles G-202. The airplane reinforced his belief that "airplanes do what you tell them to do. Some just display it more than others." He understands why some pilots have called the Giles "twitchy," but he insists "every airplane has its idiosyncrasies." He jokes that judges could watch his heartbeat on the downline as the airplane jerked back and forth to its rhythm. Eventually he mastered the Giles and secured his spot on the U.S. Advanced Aerobatic Team in September 1998 without any idea that in October he would be in the operating room.

Immediately after the surgery, Bob made preliminary inquiries about regaining his medical clearance to fly in the AWAC. He chased down every rumor related to FAA medical policy and procedure and admits there was some comfort in finding the "ounce

of truth in each story." However, that ounce of truth would not get him flying. He needed to focus his energy, and there was no time to waste. That is when he met Dr. Jack Hastings, chairman of the EAA Aeromedical Advisory Council. After listening to Bob's story, Hastings offered the reassurance Bob had been looking for. With the words "I can help you get your medical back," Bob was focused like a laser.

The EAA Aeromedical Advisory Council was established in 1988. At that time, the EAA reached out to a group of FAA aviation medical examiners who were also EAA members and asked them to serve as a resource for members navigating medical issues. Today, the Aeromedical Advisory Council is composed of highly qualified doctors with a vast amount of aeromedical aviation expertise. The group keeps track of current trends within the aviation medical divisions of the Federal Aviation Administration (FAA) and determines how what they learn may affect EAA members. From

"That kind of news and the accompanying loss of a medical certificate has clipped the wings of a lot of great pilots."

there, they formulate strategies to provide assistance for members. The EAA Aeromedical Advisory Council provides oversight, guidance, and assistance to EAA's Aeromedical Advisory Program, which acts as an advocate for EAA members to resolve their specific FAA medical certification issues. This was the group who shared the commitment to help Bob get to the Czech Republic as a legally certificated pilot.

According to Bob, the entire process took six months and three days. After some medical testing, he received final clearance from the FAA and was back in the cockpit. Bob's appreciation for the work of the EAA on his behalf, and for the personal

interest the members of the council took in his case, is evident when he talks about the entire process. "These guys want people to fly," he said more than once during our conversation. "They will bust their hump for you." While getting the medical current would be enough of a happy ending to this story, it gets better. Bob went on to compete at the AWAC and finished in 16th position overall—the top finish for any U.S. pilot that year.

Heart disease is a problem that has grounded many pilots. Interestingly, it is not uncommon to hear these fliers thanking aviation for saving their life because they were forced to undergo a physical where a problem was

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Bob's Giles G202, N202RD, reinforces his firm belief that airplanes only "do what you tell them to do."

detected. In Bob's case, he thought the pain in his back and neck, along with the accompanying headache, was the result of practicing too many snaps. Once home from the AWAC, Bob had to overcome a common side effect of the surgery, which he described as being "easily distracted" and having "a bit of trouble recalling the sequence." According to the National Institutes of Health, "Some people report memory loss and loss of mental clarity" following heart bypass surgery. That means Bob would become incapable of remembering "what comes next" even though he had flown the sequence 100 times. It was simply gone. For the next several months Bob worked through the memory issue, and three years later things were completely normal. With both his mind and his heart clear, Bob returned to the practice box, and in 2004 he won the title of U.S. National Aerobatic Champion in the Advanced category.

It has been quite a journey for Bob Stark, and along the way his world has changed. He admits that, when he first started to compete seriously, he went to contests to win. Today he sees life differently. He is drawn to the community of aerobatic enthusiasts for the camaraderie and to spend time with friends. He is competing only with himself. Bob recalls meeting seasoned pilots with the same perspective he now enjoys when he was getting started. "I didn't understand it then," he says. "Now I do. It's about being with your friends and doing what you love." Not being distracted by the pursuit of a trophy seems to agree with Bob. Last May he flew his Giles to win the Unlimited category at Sebring.

It is no surprise that someone like Bob, who has made aerobatics such a large part of his life, spends considerable time thinking about the future of our sport. "We have

got to find a way to get new people involved. The price of entry has become ridiculous." His dream is that a manufacturer will develop a production airplane that is both affordable and capable of flying through Intermediate. "I have hope with the recent developments in the Sport category. Hopefully the industry will tackle the challenge." When it does, that smart manufacturer will give Bob a call to act as its demonstration pilot and spokesperson. Success would be all but guaranteed. That company couldn't find a pilot who knows more about overcoming challenges in order to reach his goal. 

Editor's Note: For more information on the EAA Aeromedical Advisory Council, contact the EAA Aviation Services Department at 888-322-4636, ext. 6112. You can also learn more at www.EAA.org.

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Airflow Performance Inlet Filter

(courtesy of Michael Davis)



In October, I had an engine failure while practicing for a contest. I was able to get the Pitts down without damaging the airplane. My Airflow Performance fuel injection malfunctioned. The engine would start and idle but die when I added power. Airflow Performance checked the FM-100 fuel controller when it received it, and the fuel controller checked out fine. Airflow disassembled the controller and found the inlet filter, which is in front of the main jet, had broken loose. It replaced the filter unit and retested it. Everything checked out okay again.

I had not checked this filter before since I have pre-filters (it has been added to my annual list now). I thought that there was a spring between the filter and jet, so I asked Airflow Performance about the spring and got the following response:

"Since that's the only thing we found I would have to 'assume' that the broken filter was the culprit. Since the filter is a non-relieving type (part of the inlet fitting), there was no need to put a spring on the filter. In your case, since the fuel control may be subject to vibration we don't know about, we installed a spring on the new filter fitting to keep the filter in place if it were to break again. We have never had a filter break in service, although we have had filters

TECHNICAL ADVISOR

By Vicki Cruse

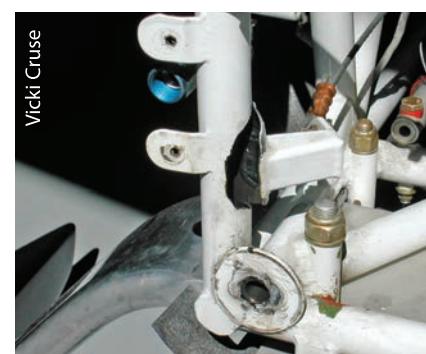
break when people try to take them out of the fitting without knowing they are a permanent part of the fitting. We do our best to design a product that is safe, cost-effective, and provides an improved level of performance."

I have flown the Pitts for about five hours since reinstallation of the servo and performed aerobatics without any problems. I also checked the fuel pumps, magnetos, timing, and plugs with all checking out fine. I have two suggestions from this experience: (1) Make sure checking the fuel injection filter is on the annual list, and (2) always have an emergency landing site in range when performing aerobatics. There was no warning before the engine stopped producing power. I am very happy with the Airflow Performance system and the help I received from the company. I would recommend it to anyone!

it was noted the right forward rudder cable attachment at the firewall had broken and bent aft. The weld-on fitting was likely cracked for a period of time before failure. It should be noted that this type of rudder cable attach method is specific to E-540s that currently have electric rudder pedals fitted as an option. Total airframe time on S/N 0026 at the time of failure was 1,250 hours.

For inspection, remove the top and bottom engine cowls. Remove both forward access covers on the bottom boot cowl. Inspect the cable attach fitting closely with a flashlight and mirror if needed. Particular attention should be paid immediately behind the firewall and forward of the vertical tube. This area should be cleaned thoroughly and checked with a dye-penetrant. If a crack is detected, please contact ZAI. www.Zivko.com

Zivko Edge: Rudder Cable Attach for Electric Rudder Pedals



On May 1, 2007, Zivko Aeronautics issued Service Letter SB E54011 that affects all Edge 540s serial numbers 12 to 51 with electric rudder pedals. Compliance time is within five hours and at all subsequent annuals. During inspection of E-540 S/N 0026,

Final Ruling on Sean Tucker's Accident: Incorrect Rod-End Bearings

On April 4, 2006, approximately 1030 Central Daylight Time, a single-engine Aviation Specialties Unlimited Challenger II experimental airplane, N260HP, was destroyed when it impacted terrain during an uncontrolled descent after the pilot parachuted from the airplane near Coushatta, Louisiana. The commercial pilot, sole occupant of the airplane, was not injured.

The unattended airplane was destroyed upon impact with the ground. The wreckage of the airplane was recovered and transported to a secure location for further examination. The elevator's push-pull tube was located in the wreckage and found with a broken

rod-end bearing. The failed tube was retained for further examination and evaluation.

The elevator push-pull tube, which measured about 28 inches long, is fitted with two rod-end bearings, one in each end of the tube. The first rod-end bearing was not fractured, but slightly bent to one side. The bent rod-end bearing had the markings of FAFNIR on the side of the bearing retainer, and 2P on the side of the shank, at the base of the outer race or banjo. The second rod-end bearing's outer race was broken in two places, leaving just the threaded shank and approximately the bottom one-

third of the outer race. The top section of the failed bearing and associated parts were not located and, therefore, no identification marks could be associated with the outer race. Nor were there any identification markings on the shank. The threaded shaft was later identified as being hollow.

The push-pull tube, along with several exemplar rod-end bearings supplied by the operator, were shipped to a private metallurgical lab for analysis. Four rod-bearings were load tested. The rod-end bearing similar in appearance to the fractured bearing in the push-pull tube failed

at 870 pounds. This bearing had the markings of FEDERAL RE3ML6-2N, MADE IN THE USA, on the side of the bearing retainer. The other three bearings used in the test all failed above 3,500 pounds.

Subsequent tests on six other bearings revealed the same results: Load testing of the bearings revealed that two of the four FEDERAL bearings failed at approximately 850 pounds, with the fracturing at the banjo head. The two remaining FEDERAL bearings failed at about 2,800 and 3,100 pounds. The two FAFNIR bearings failed above 3,200 and 4,500 pounds. 



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Compiled by Bruce Johnson

MISHAPS BY MONTH

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	0/0	1/2	1/1	1/0	1/1	1/0	0/0	1/0	0/0	1/1	1/1	1/2
2007	0/0	0/0	1/1	0/0								

MISHAPS BY YEAR

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Mishaps	20	26	21	24	20	18	12	9	15	9	10	16

Numbers depict accidents/fatalities of total accidents in the U.S. by aerobatic aircraft. Accidents included are only those which occurred during aerobatic maneuvering (including air shows) or during an IAC-sanctioned competition.

Below you will find a recently released final National Transportation Safety Board (NTSB) report. The report is of a formation aerobatic mishap where the two aircraft made contact during a formation hammerhead turn. As you may remember, this is the same maneuver in which the French Connection team members were fatally injured.

FINAL

Accident occurred Saturday, August 28, 2004, in Prescott, Arizona.

Probable Cause Approval Date: April 25, 2007

Aircraft: American Champion (ACAC) 8KCAB,

Registration: N561ER

Injuries: 2 Fatal

HISTORY OF FLIGHT

On August 28, 2004, at 0831 Mountain Standard Time, two American Champion aircraft 8KCABs, N561ER (Riddle 61) and N562ER (Riddle 62), collided in midair while performing formation aerobatics 7 miles east of Ernest A. Love Field (PRC), Prescott, Arizona. Both airplanes were owned and operated by Embry-Riddle Aeronautical University (ERAU) under the provisions of 14 CFR Part 91. The commercial certificated pilot of Riddle 61, the sole occupant, and the airline transport certificated pilot of Riddle 62, the sole occupant, were both fatally injured.

The personal flights departed PRC at 0818. Day visual meteorological conditions prevailed, and no flight plans had been filed for the local area flight. The pilots were practicing an aerobatic routine at the time of the accident.

The NTSB investigator-in-charge (IIC) interviewed several witnesses who were hunting in the area at the time of the accident. They had observed the accident airplanes perform several times in the past months, were accustomed to the airplanes, and were familiar with the routine.

The airplanes had completed the routine once and were set up for the second pass. The witnesses reported that the airplanes completed one maneuver and pulled out low to the ground. While in formation, they maneuvered into a nose-up vertical attitude. They saw one airplane overtake the other, and a collision ensued. Both airplanes appeared as if they were out of control as they fell to the ground. Immediately after the collision several pieces of both airplanes began to fall to the ground, though the witnesses could not distinguish what parts they were.

The NTSB IIC, along with an ERAU representative, ascertained from witness interviews that Riddle 61 was in the high and to the right position relative to Riddle 62 during the vertical climb. At the apex of the maneuver one or both of the airplanes traveled out of position in the formation flight and became stacked one on top of the other: Riddle 61 on top and Riddle 62 on the bottom. The airplanes contacted each other, with numerous additional contacts made during the descent, until the airplanes separated prior to ground impact.

TESTS AND RESEARCH

The NTSB IIC examined the wreckage of both airplanes at Air Transport, Phoenix, Arizona, on November 6, 2004. There were no mechanical anomalies noted with either airplane that would have precluded normal operation.

On Riddle 61, red markings consistent with the paint stripe on the tips of both airplanes' propellers were found on the leading edge of the right wing. The wing had separated along the rivet line, and red paint transfers consistent with the propeller tip color was found inside the leading edge wing skin. The vertical stabilizer displayed impact damage that was similar in dimension to the left lift strut of Riddle 62. There was a crush impression at the top of the leading edge of the vertical stabilizer. The right main landing gear exhibited signs of lateral blue paint transfer.

On Riddle 62, the top of the right wing root displayed rubber transfer and damage consistent with a tire impression. The headliner, intercom box, and windscreens displayed damage patterns and red paint transfer consistent with propeller contact. The rear of the left wing struts displayed multiple blue paint transfer marks. The left main landing gear strut displayed multiple scuffing and paint transfer that was matched to the right horizontal stabilizer of Riddle 61.

The National Transportation Safety Board determines the probable cause of this accident as the failure of both pilots to maintain adequate clearance from each other while performing formation aerobatic maneuvers.



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IAC Achievement Awards

Program Enters the 21st Century

... A great program with a new look



Photos by Bonnie Kratz

By Vicki Cruse

While many people have heard of the IAC Aerobatic Achievement Awards program, often referred to as the "Patch" program, many new IAC pilots may not know what the program is about. The Achievement Awards program was conceived in 1970 by Verne Jobst, then IAC president with many years as a glider pilot, who wanted an equivalent to the popular soaring badges. He, Bob Davis, and Mike Heuer completed the inaugural set of rules in May 1971.

The program was formulated to promote and advance sport aerobatics. The IAC sanctions many regional contests all across the country every year; however, it realizes that all pilots who fly aerobatics may or may not wish to enter competition, yet they deserve recognition of their abilities. The IAC Aerobatic Achievement Awards program furnishes the mechanism in which a competition and non-competition pilot can work in reaching various levels of proficiency. Aerobatic competitions will benefit as more people will be encouraged to enter, and the IAC has a means by which to provide aerobatic education.

There are five categories of achievement awards that can be earned: Primary, Sportsman, Intermediate, Advanced (power only), and Unlimited. There is a gradual step up in proficiency and skill required to successfully complete the maneuvers in each respective category. The required maneuvers can be completed in one flight or individually on different

days. Chapters are encouraged to hold "Achievement Award Days" as a way to get people together for reasons other than competition.

The first pilot to qualify for an award was 16-year-old Debbie Forshee, from Louisiana, who flew for the Basic Patch (now called Primary) in 1971. To date, a total of 6,312 Achievement Awards have been earned. Only one glider pilot has earned all of the smooth and star awards (called an All-Seven), and 60 power pilots have completed all 10 awards. A complete list of pilots earning each award may be found on the IAC website.

Smooth awards are earned by flying a designated set of figures in front of a judge listed on the current IAC-approved judges list (which can be found on the IAC members-only site at <http://Members.IAC.org>). The judge must sign the application for the award, and a grade of 5 on a scale of 1 to 10 is the minimum score for each maneuver. Star awards must be earned while flying competition aerobatics at an IAC-sanctioned contest. Smooth and star awards are available for both powered aircraft and gliders, though gliders do not have the Advanced category.

In the fall of 2006, the IAC board approved the redesign of the Achievement Awards, including a series of pins and accompanying decals. Each category is represented by a different color. Smooth awards and stars awards, with stars in the concentric circle, were redesigned. A commemorative plaque has been commissioned to display the pins

and is available for order. Members wishing to purchase pins or decals to accompany the patches they have earned in the past may do so using the application forms.

For more information on the Achievement Awards program and for application forms, please visit www.IAC.org/programs/achievement.html.

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By Bill Finagin

Wow! Recently *Sport Aerobatics* contacted me and explained that several readers had asked for advice on landings. Sure enough, over the past year there have been technique articles on everything from stalls and spin recovery to rolls and hammerheads. All of these maneuvers are optional. However, every time we take off, a landing is in our future. It makes sense that this topic should get some attention.

As I thought about this article I asked myself a simple question: What would I write to help people understand some generic things about landings? It soon became clear that I would also need to address takeoffs. I searched my mind for those tips that have been provided to me over the years and

those tidbits that I try to pass along to my students. Take a moment and ask yourself the same question. What advice that you received from your instructors over the years has stayed with you? How much has fallen by the wayside? I decided to write how I introduce concepts to my students.

I should warn you that what follows may, at first, seem like unrelated topics. Stay with me, and they will hopefully become incorporated into techniques that will bring about successful landing procedures regardless of the airplane type you are using. Admittedly they will be geared toward aerobatic aircraft as that is our forum with this publication. Remember most of the aerobatic planes we will be talking about are taildraggers. Let's get started.

As with providing direction in how to travel from New York to Dallas by car, there are different routes that will deliver you to the same destination. More than one method is possible (and several are "right"), so please don't think there is only one way of teaching landings. For example, many aerobatic pilots have learned landing using the "slipping" method. It's a good technique, but for now we will restrict the discussion to the conventional "straight-in approach" style landing, which is preferred at most airports and a must at virtually all towered airports.

First Things First—Fly the Airplane
First, and this might sound a little trivial, you have to learn how to fly the aircraft you want to take off and



Robert Bismuth

flying a clockwise-turning engine, as viewed from the cockpit). If this is news to you, consider scheduling some time to discuss gyroscopic effect with your instructor.

Next, climb up to 7,500 feet and do what is sometimes called a “rudder walk.” This skill-building maneuver is designed to teach you how to use the rudder to keep the nose of the aircraft straight. The important thing to remember is that the nose *always* moves toward too much rudder. If the nose is turning toward the left, then opposite rudder is required to keep the nose straight. Look over the nose and slow the aircraft down while maintaining altitude until the stall warning (if the aircraft is so equipped) lets you know a stall is imminent. Now pull the stick full back and hold it full aft. Maintain wings-level flight and keep the nose straight by use only of the rudder. If a wing dips or “falls” toward the earth, you have simply held the rudder too long. “Dance” a little faster on the rudder! Remember, planes fly straight when rudder is neutral. After successfully mastering this skill you will have no trouble whatsoever when touching down on the runway during your landing. The fear of veering off to the right or left will disappear. You will completely understand the proper amount of rudder required due to the rudder walk maneuver at altitude.

After mastering the rudder walk, fly straight and level. Gradually slow the aircraft to the speed you will use on downwind for the landing. Notice

how the nose rises on the horizon as you maintain your altitude. This rise in the nose on the horizon in front of you illustrates something you already know. When you slow the airplane down and hold the same altitude the angle of attack will increase. As the angle of attack increases you will need more right rudder to compensate for the added P-factor effect. Not understanding this fundamental concept is what causes many people early on in their first landings to veer off to the left as they approach the runway after the flare. Developing skills in the fundamentals will pay dividends when it comes to greasing your landings.

Discipline in the Pattern

Now that we are armed with strong fundamentals, let's go fly in the pattern. First off we must approach the pattern in a disciplined way. Normal entry is on a 45-degree approach to the downwind or a crosswind to downwind entry. Whichever entry you choose, the important thing is to set up your speed and altitude *before* you get to the downwind leg. Having to fuss about changing altitude and speed simply complicates the approach, so get your altitude and airspeed right before starting downwind. Now you have to worry only about keeping the altitude and the airspeed stable. Of the two, the primary one is to hold altitude. Do this with the stick (or yoke). Small changes are all that are necessary. Keep your hand away from the throttle.

land. The best investment one could make is to secure some dual time with a quality instructor. Let the instructor take off and land the aircraft on the first flight. Just observe what is happening. Next, your objective will be to climb to at least 3,000 feet above any obstacle and simply fly the airplane. First fly straight and level. Pay attention to how the airplane feels. Then try some turns to both the left and right. Attempt to nail the altitudes while in the turns. Progress from shallow turns to progressively steeper ones. Note how the feel of the controls changes, and pay attention to what you are doing to control the airplane with precision. Turning right in a 60-degree bank will require more left rudder to hold the altitude compared to when you are in a left turn (assuming you are



Kate DeBaun

Holding the nose slightly higher than what you see when taxiing and being extra patient help to smooth the landing.



Courtesy Bill Finagin

Learning how your airplane handles at altitude and understanding control inputs will take the guesswork out of landings.

Practice a few patterns at altitude. If the airspeed changes by a few knots, this is no big deal. Concentrate on holding the altitude with minimum pitch changes. Once you have nailed how to hold altitude, then modest throttle changes can be made to maintain proper airspeed. However, these changes should be minor. If you find yourself working the throttle to reduce power and then adding power shortly thereafter, you made too much of a power change in the first place. Next time make fewer and more minor power changes.

The next key to a successful setup for landing is to figure out how far out from the runway you want to fly the downwind. In a Pitts it is easy: Just fly downwind so you are looking at the runway off the lower wingtip.

Having to fuss about changing altitude and speed simply complicates the approach, so get your altitude and airspeed right before starting downwind.

This ensures the same distance out each time. In other aircraft you may have to resort to tracking over the same objects on the ground below you each time. The important thing is to know where you want to be every time you are on the downwind.

It's as Easy as 1, 2, 3...

As we get opposite the approach end of the runway, we will do three things spaced one second apart. First, we will reduce the power (we will soon learn how much!). One second later we will pitch down. Once again, in the Pitts gauging the pitch is easy. Just reference the horizon about two-thirds of the way up the cabanes. The pitch angle is about 5 to 7 degrees down. At the third second you begin your turn to base. This is not a meandering cross-country turn, but one with a fair amount of gusto! As you bank, remember you will have less lift. Therefore you must be lightly adding a little back-pressure to maintain a constant pitch on this downward path. Keeping the pitch constant is the key. If the power is reduced the right amount, you won't have to touch the throttle. If you begin to build airspeed, reduce power a bit. Likewise, if you are slowing down, you need to add a touch of power to maintain the correct airspeed for your aircraft.

The next step is to turn final. You should always have in mind the altitude above the ground at the turn from base to final. We use 450

feet AGL in the Pitts so the profile on final looks the same every time. The altitudes of other aircraft may be lower, but the point is to establish an altitude that you use as a minimum every time you are turning final. If you find yourself setting up to be too low at that point, there is an easy correction on base. Simply level off at 450 feet (or whatever you have chosen for your minimum altitude) and hold that altitude until turning final. Then continue your descent.

On final approach, aim at a spot on the runway that is just beyond the "numbers" or the displaced threshold. This method forces you to track the centerline of the runway. In a crosswind this technique will require you to "crab" into the wind. Maintain the track to fly the centerline of the runway. Thus when you flare and lose the runway view under the nose, you will know you are still tracking the centerline of the runway. Once you know you are over the end of the runway and have it "made," smoothly reduce all remaining power. Immediately begin your flare (sometimes called the "round-out").

Be patient. Do not be in a rush to touch down. With reduced power or no power continue the flare and keep the aircraft from touching the runway. Refuse the runway! This means you will be continually, albeit slowly, pulling the stick back and watching the nose rise slightly as you slow the plane. Take care not to lift the nose too high! Only about 10 degrees above the angle you see when you are taxiing the aircraft will be enough. Now is when your patience is tested. Simply wait until the airspeed diminishes. Then the aircraft will touch down tail wheel first and the mains will drop about 3 to 5 inches and "stick."

Then the fun begins! The drill is to keep the nose going down the runway in a straight line. Look only over the nose! Rely on your peripheral vision to check that you are over the runway and to confirm that portions of the runway are both on your right and your left side. If you bring your primary focus away from the front of the aircraft, you will lose your perspective immediately. If there is a crosswind, you will have been crabbing with the nose into the wind. Consider a crosswind coming from

the right. You have been maintaining the centerline and crabbing with the nose toward the right. As you touch down with the tail wheel first, the plane will instantly realign to the track you have been following. However, a tail-wheel aircraft will want to "weathervane" into the wind. You correct for this by using "downwind" rudder, which in this example would be the left rudder. Once again, a good instructor will help you with this phase of the landing.

Finally, never turn off a runway without first coming to a complete stop. After experiencing several landings you should entertain the idea of making the turn-off at no faster than a brisk walking pace. Faster turns make you a candidate for the ground loop award.

Cleared for Takeoff

Now that we have mastered the landing, let's get ready to take off. For the sake of discussing the takeoff we will begin after the preflight and after the run-up that took place just short of the "do not cross" line.

We add sufficient throttle to taxi

onto the runway and align the nose with the runway heading. Determine where the wind is coming from—right, left, or straight ahead. Advance the throttle as fast as you can while still being able to control the forward direction of the aircraft and hold the centerline of the runway. Glance in at the airspeed indicator only briefly. Keep your eyes out over the nose of the aircraft. Keep the nose straight with only the rudder. Never try to steer with the stick or the yoke.

Glance quickly at the airspeed indicator, like a digital camera snapping a photograph. With taildraggers I like to push the stick forward and get the tail up and off the ground early. This minimizes the P-factor and provides a good visual picture over the nose. Again, be patient! The airplane will accelerate and fly when it is ready. When it feels light on its feet, smartly lift off with a gentle yet positive movement of the stick rearward. A constant rate of climb is what we are looking for. Full power until obstructions are cleared or 500 feet AGL is a good rule of thumb. Monitor airspeed and keep it con-

stant. If you are finding that you are accelerating, then increase your pitch upward so your climb speed stays constant. If you find yourself slower than the advertised optimal airspeed for the airplane you are flying, get the nose down before you stall. This is why it is important to monitor the airspeed. About 100 feet below your target pattern altitude begin to level the aircraft. This will require a slight but measured power reduction. If power is reduced too much, then you will not be able to maintain your pattern altitude on crosswind and downwind.

As you can see, smooth takeoffs and landings result from developing a disciplined routine and reducing the number of variables you need to manage. Armed with this new information, go flying and see what tidbits work for you. Enjoy yourself, be safe, and gain skills by flying with an instructor. Knowledge trumps blindly experimenting, and good instruction uses less gasoline to get to the point of flying aerobatic maneuvers—which definitely includes takeoffs and landings—safely. **SA**

Courtesy Bill Finagin



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NEWSBRIEFS

IAC 34 Acro Camp a Huge Success

Courtesy Lorrie Penner



IAC 34 Acro Camp opens the door to non-competitors.

The Acro Camp concept is intended to attract IAC members who do not fly competition aerobatics. In May, IAC 34 used the Achievement Award program to provide gratification to the participants who demonstrated their aerobatic proficiency in a non-competitive environment. The event took place in Marysville, Ohio. Pilots were judged by Boyd Birchler and Randy Reinhardt and coached by aerobic CFIs Brett Hunter, Emerson Stewart, and Gordon Penner.

The event featured a box master and flight sheet as in a contest, but the typical contest craziness was missing according to IAC 34 Secretary Lorrie Penner. "In addition to giving more recreational aerobatic pilots a platform to fly in, we have discovered the Acro Camp to be a very good warm-up to the competition season for the members of our club that do fly in competition. The critique is free. Members in our club who are judges just donate their time. There are no charges from the club to the participants except chipping in for pizza."

During the day, eight pilots earned Primary, Sportsman, Intermediate, and Advanced Achievement Awards, including IAC 34 member Chris Keegan, who flew in his newly purchased DR109 Rhino for an Intermediate Smooth patch.

The event attracted guests and possible new members, and there will be more Acro Camps later this season. For more information, watch the IAC 34 website at www.IAC34.com.

NAFI Announces Two Master Instructor-Aerobatics Accreditations

Lowell Hinchee recently earned his Master Instructor-Aerobatics accreditation, and William E Cornick had his Master Instructor and Master Instructor-Aerobatics accreditations renewed by NAFI and the IAC. Mr. Cornick has held these professional accreditations continuously since 1999.

Mr. Lowell is an independent aerobatic flight instructor specializing in unusual attitude recovery training at Winter Haven's Gilbert Airport (GIF). He also serves as president of Foundation Flyers and resides in Umatilla, Florida. Mr. Cornick is an independent aerobatic flight instructor and a resident of Thousand Oaks, California.

To help put this achievement in its proper perspective, there are approximately 90,000 certificated flight instructors (CFIs) in the United States. Fewer than 600 of them have achieved the Master Instructor distinction thus far. The last 12 national Flight Instructors of the Year were Master Instructors. Mr. Lowell is one of only 54 Florida aviation educators and Mr. Cornick is one of 43 California fliers to earn this prestigious "Master" title. In the words of FAA Administrator Marion Blakey, "The flight instructor is where the rubber meets the runway. The Master Instructor accreditation singles out the best that the right seat has to offer."

NAFI is dedicated to providing support and recognition for America's aviation educators while helping them raise and maintain their level of professionalism. For more information, visit www.NAFIMasters.org.



William Cornick

Photos courtesy NAFI



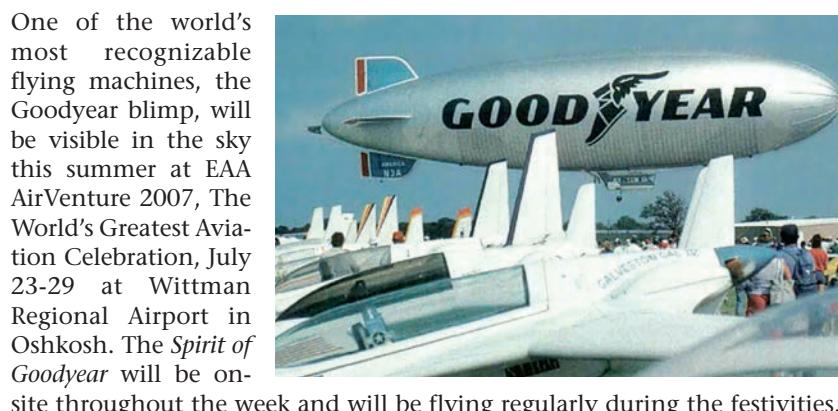
Lowell Hinchee

Enterprise: Not Just for Contests

IAC member discounts are available from Enterprise Rent-A-Car anytime and anywhere, not just at contests. Enterprise is rapidly expanding into fixed-base operators and in-airport locations at major airports with competitive rates. IAC members receive a 5 percent discount off Enterprise's low Internet rates, and IAC receives a small commission. This special rate is available through the Enterprise link on the IAC website or by going to www.Enterprise.com and using Corporate Number 32AIAC and PIN IAC. Reservations must be made through the website and are not available on-site or by calling locations.

Goodyear Blimp at EAA AirVenture 2007

First appearance at Oshkosh by legendary airship in nearly 20 years



Courtesy Goodyear

One of the world's most recognizable flying machines, the Goodyear blimp, will be visible in the sky this summer at EAA AirVenture 2007, The World's Greatest Aviation Celebration, July 23-29 at Wittman Regional Airport in Oshkosh. The *Spirit of Goodyear* will be on-site throughout the week and will be flying regularly during the festivities.

The Goodyear blimp's visit to EAA AirVenture marks the first time one of the company's airships has stopped at Oshkosh since visits in 1986 and 1988. Additional information is available at www.GoodyearBlimp.com.

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CALENDAR OF EVENTS

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9th Annual Okie Dust Devil (South Central)

Friday, July 13 - Saturday, July 14, 2007

Practice/Registration: Thursday, July 12 - Friday, July 13

Power: Primary through Unlimited

Location: Thomas P. Stafford Airport (OJA): Weatherford, Oklahoma

Director: John Creswell

Phone: 580-774-1971 or 580-774-9176, E-Mail: creswell@classicnet.net

Salem Regional (Mid-America)

Saturday, July 14 - Sunday, July 15, 2007

Practice/Registration: Thursday, July 12 - Friday, July 13

Power: Primary through Unlimited

Location: Salem Leckrone Airport (SLO): Salem, Illinois

Director: William Perman

Phone: 636-236-8691, E-Mail: perman@slu.edu

Canadian Open Aerobatic Contest (Northwest)

Friday, July 20 - Saturday, July 21, 2007

Practice/Registration: Thursday, July 19

Power: Primary through Unlimited

Location: Abbotsford International Airport (YXX): Abbotsford, British Columbia

Director: Royden Heays

Phone: 604-646-4860, E-Mail: heaysr@telus.net

Hill Country Hammerfest (South Central)

Friday, August 3 - Saturday, August 4, 2007

Practice/Registration: Thursday, August 2

Power: Primary through Unlimited

Location: Llano Municipal Airport (AQQ): Llano, Texas

Director: Jeffery Poehlmann

Phone: 512-423-5333, E-Mail: jeffery@texas.net

Doug Yost Challenge (Mid-America)

Saturday, August 4 - Sunday, August 5, 2007

Practice/Registration: Friday, August 3

Power: Primary through Unlimited

Location: Cumberland Municipal Airport (UBE): Cumberland, Wisconsin

Director: Mike Niccum

Phone: 952-652-2245, E-Mail: PGNic@AOL.com

Beaver State Championship (Northwest)

Friday, August 10 - Saturday, August 11, 2007

Practice/Registration: Thursday, August 9

Power: Primary through Unlimited

Location: Eastern Oregon Regional Airport at Pendleton (PDT)

Director: Robert Toppel and Bob Harris

Phone: 503-292-6630, E-Mail: rboydt@comcast.net Website: www.IAC77.org

Aspen Leaf Acro Challenge (South Central)

Saturday, August 25 - Sunday, August 26, 2007

Practice/Registration: Friday, August 24

Power: Primary through Unlimited

Location: Sterling Municipal Airport (STK): Sterling, CO

Director: W. Earl Allen

Phone: 303-410-9812, E-Mail: wae@allmax.com

Website: www.iac12.org

Kathy Jaffe Challenge (Northeast)

Friday, August 24 - Sunday, August 26, 2007

Practice/Registration: Thursday, August 23

Power: Primary through Unlimited

Location: Flying W Airport (N14): Lumberton, New Jersey

Director: Ron Chadwick

Phone: 732-671-6089, E-Mail: bubbaron@comcast.net

Website: www.IAC52.org

Gulf Coast Regional (South Central)

Saturday, September 1 - Sunday, September 2, 2007

Practice/Registration: Thursday, August 30 - Friday, August 31

Rain/Weather: Monday, September 3 - Monday, September 3

Power: Primary through Unlimited

Location: Houston Executive Airport (78T): Katy, Texas USA

Director: Dan Clark

Phone: 713-932-8400, E-Mail: d.clark@asepusa.com

Website: www.IAC25.com

Happiness is Delano (Southwest)

Saturday, September 1 - Sunday, September 2, 2007

Practice/Registration: Friday, August 31

Power: Primary through Unlimited

Location: Delano (DLO): Delano, California

Director: Bob Meyer

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