



Northern California  
Aerobatic Club

CHAPTER 38

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# THE ACRONAUT

Volume 8 - Number 10



Photo sent in by Mike Eggen.  
The hangar at Nationals in Denison, Texas.

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He is most free from danger, who, even when safe, is on his guard.

— Publilius Syrus



**Article or Pictures?**

Send them in!

[editor@iac38.org](mailto:editor@iac38.org)

Share your aviation experiences with the rest of the club.

## President's Post

*Darren Pleasance*



Greetings IAC38ers,

I hope you all had a great September and managed to get some flying in before the weather started to turn at the end of the month. My Laser is finally back up and flying again with its new canopy so you'll start to see me up in the air again.

For those who missed last month's Chapter meeting, we had a terrific presentation of every imaginable spin type, complete with in-cockpit video, given by our very own Ben Free-love. It was great learning to see all the different spin modes, including the effects of elevator and aileron on spin speed and degree of flatness. Also, it was interesting to see examples of spins going exactly counter to what you'd think they'd do given the control inputs that Ben was using. When this happens, it's typically due to gyroscopic and momentary aerodynamic forces that caused the airplane to behave somewhat counter-intuitively. That being said, as long as the proper control inputs were used each time (power off, opposite rudder, and stick to neutral), the airplane recovered nicely every time. In the end, Ben's presentation was a great reminder of the need to practice all types of spins, with lots of altitude (6,000+ feet) to ensure a high degree of skill in recovering from any type of spin. A special thanks to Ben for taking the time out to share this with us again.

On the national IAC front, we continue to work on a number of interesting topics. Vicki has been leading the charge on the rewriting of Chapter 48 of the regulations which governs practice aerobatic boxes. The old version of this Chapter was filled with inconsistencies and confusing language, resulting in way to little guidance for local FSDOs around the requirements for issuing an aerobatic box waiver. The intent of the rewrite is to provide much more clarity on this process with the intent of speeding this up for both new and renewal applications. As part of this rewrite, we continue to work as well on the establishment of environmental guidelines that will

allow individuals to establish an aerobatic box and comply with environmental regulations, without having to conduct a full blown Environmental Impact Review every time. Although progress has been excruciatingly slow on this front, it does continue to move forward so hopefully we'll get this one over the line in the coming new year.

On the local IAC front, we're coming up on Chapter election time again. In addition to all 4 officer positions (President, VP, Secretary, and Treasurer), we'll also have 3 Director positions up for election as well. If you'd like to take on a leadership role in the Chapter, please let me know and we'll add your name to the slate of candidates. In addition to the elected positions, there are tons of other volunteer positions we always need help on, including CDing our Paso Contest (thanks Tom), writing the monthly newsletter (thanks Che), keeping the website up to date (thanks Bret), and organizing monthly Chapter meetings and outings. I believe all of these individuals will continue in their current roles this coming year, but we can always use help in keeping the Chapter running and delivering value for our members so if any of these areas sound interesting to you, please let me know and we'll get you plugged in.

As I'm writing this newsletter, the Nationals are also coming to an end with many of our Chapter members competing at all levels. We have Vicki Cruse, Norm DeWitt, Mike Eggen, and Howard Kirker competing across all categories. I'm sure we'll hear lots of great stories from them, perhaps at our upcoming Chapter meeting next weekend. Last I checked they were all flying really well so let's wish them all luck.

On other fronts, I'd like to have a flyout to someplace for breakfast before the weather turns bad in the coming months. Keep an eye out for something, perhaps to Petaluma or Half Moon Bay, in the coming weeks.

**Our next Chapter meeting is Sunday, October 14th at 4:00 p.m.** so mark your calendars now. We'll also have a Board meeting in the hour before that which anyone is welcome to attend. I look forward to seeing you all there.

Blue skies,

*- Darren*

## Control Linkage Failure in a Pitts

Michael Flynn



File Photo of a Pitts

I have written this so that we can all learn from it.

I was returning to Livermore from a simple, relaxing flight to a private field in the foothills of the Sierras. It was a beautiful day: fifty miles visibility, warm, and sunny.

Coming back to Livermore is always easy as there is a big mountain next to it. On my return, I knew all I had to do was point a little to the left of the mountain and I would reach my home base. The mountain was visible as soon as I took off, so the return trip was pleasant and relaxing. About half way home, things changed.

I had been using only fingertip pressure on the stick, my arm resting on my knee. Without any warning, the stick became completely slack in my hand. The plane is so well rigged, and at that moment was so well trimmed, that it continued to fly happily along, straight and level. I gingerly experimented with the stick. There was a huge amount of slack. By pushing as far forward as I could reach it was possible to get a little nose down elevator, and by pulling back as far as I could, I could get a little nose up; but it seemed very sloppy. I was very concerned that if I moved the stick much in any direction things would break more than they already were, and I would lose control of the plane.

Loss of control! Eek! I contemplated baling out. I was wearing a parachute; I was at 2000 feet, plenty of altitude to jump; nice flat, green fields were below, nice for me to land in, and the Pitts would not harm anyone on the ground when it crashed. Nevertheless, I was reluctant to jump. This was not the kind of emergency for which I had planned. A structural failure, a fire, a control failure in the middle of a sequence, or a spin I could not stop: in cases such as those I would have been out of there in a flash with no hesitation, but this was different. The airplane was flying along contentedly as though nothing were wrong, it did not seem right to abandon it. I had a lot of time to think things over.

Although I had made seven hundred skydives in my youth and I had complete faith in my emergency parachute opening almost instantly, I found the prospect of jumping out quite frightening. I also found the idea of trying to land the aircraft daunting. In making power changes, trim changes, or moving the controls in attempting to descend and land, I might lose control of the

plane and crash. Even if I got to the runway, I might not be able to flare and might only crash into the runway, or near it.

It crossed my mind that I might be killed. It was not terrifying but it was frightening. I felt very guilty that I might leave my young kids with no father.

If I had been a lot higher, I would have experimented more with the controls and even simulated a landing, then just baled out if I lost control. I did not feel high enough to experiment much and I did not like to add a lot of power to climb because I was sure that with almost no down-elevator available I would not be able to keep the nose down.

I contemplated trying to land in one of the farmers' fields below, or going to one of the many runways in the central valley.



**The missing bolt as found on floor. Also the idler, as found, out of its housing and the housing restricting its movement.**

All the time the aircraft just kept flying towards home. I decided I would take the hint and fly home. When I was a bit closer, I would call the tower and declare an emergency.

I called Livermore tower further out that I normally would during a lull in activity on the tower frequency. Despite my intention to declare an emergency, I did not at first do so. I told the tower of the nature of my problem and that I would like gentle handling. He asked quite specifically whether I wanted to declare an emergency and have the equipment deployed. It would be foolish to crash on the runway then die for want of a little first aid or firefighting. "Yes," I said.

The tower cleared other aircraft out of the way and gave me the usual right base to 25 Right approach. When I was getting

*(Continued on page 4)*



**Showing how idler fell sideways and its movement was restricted by the housing.**

closer, the tower informed me that emergency services were not there yet and asked whether I would like to circle for a while until they did. I did not like the idea of circling overhead: too many power changes and turns. "I'll just go ahead and land," I told him.

All the way in I was concerned that as I reduced power to descend or used the ailerons or rudder I might suddenly lose control, the plane diving toward the ground, or the nose coming up and my not being able to keep it down and the plane stalling, but that I would be too low to jump.

I kept it high until quite close in. My Pitts, like most, has glide characteristics somewhere between those of a sheep and a brick (it does not so much fly as plummet), so I like to keep it quite high until I start reducing the power. I always feel as though I am far too high when turning from base to final and have to force myself to let it settle for a while, but, usually, what had seemed far too high turns out to be about right. Then I make further power reductions and try to be on short final with little or no power. This time, I wanted to be sure that I did not have to add any power because I might not be able to control the resulting pitch up. Adrenaline really does focus the mind and my approach was perfect. I made a long, curved approach, steadily reducing power until I was certain that I had made the runway. With about two hundred feet to go, I kept my head outside the aircraft. I pulled the power back as far as it would go and instead of just keeping my hand on the throttle, I made a conscious effort to keep constant back pressure on it to ensure it was developing the minimum power; I wanted to be sure that I stayed on the ground after I landed (or hit).

I was over the runway, pushing the power back as far as it would go, pulling back as hard as I could on the stick. The plane landed, not as lightly as a feather, but no harder than some of my less graceful landings. Thankfully, it wanted to

stay on the runway and not bounce, so I concentrated on keeping it straight. I try not to use the brakes much usually, but I realized, to my astonishment, that with just the smallest application of the brakes I would make the first turn off, taxiway Charlie. I stopped in the middle of the runway opposite the taxiway. I was quite amazed. The tower was saying, "Good job. Well done!" I started to feel amazingly happy but also quite confused; the change from having a lot to do to sitting in a motionless aircraft, safely on the ground, was disorienting. "Thank you. Thank you," I said. I was sort of thanking him, the plane, everyone. I started to realize that having been the focus of everyone's attention and concern that the tower would probably like its runway back. I noticed the fire trucks showing up. "What do you want to do?" asked the tower. "I am pretty sure I can taxi; I'd like to taxi to the South hangars," I said. He cleared me to taxi to the South hangars.

Back at my hangar, it was strange to be on my own. I called a pilot friend and talked a thousand words a minute, evidence that I had been more frightened than I thought.

I pulled out the seat back and found the source of the problem: the bolt that locates the elevator control idler in its housing had come all the way out and was lying on the bottom of the aircraft; the idler had moved sideways and was wedged up against its housing preventing it moving forward (up-elevator). After a lot of searching the castellated nut that

*(Continued on page 5)*

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**The drilled bolt**

should have held the bolt in place was found, with its washer, under the seat. The cotter pin was nowhere to be found.

At some point, the cotter pin must have come out, then the nut must

have worked its way off, then the bolt came out. Any aerobatics makes loose items drift to the tail; the nut and washer must have come off on that very flight, hit the floor and rolled forward; even a takeoff would have made them slide back a bit. The cotter pin could have come out a few flights ago. I do look behind the seat when I preflight, but I had not usually looked specifically at the cotter pin; it could have been gone for a while. Although we could not find it in the aircraft, there are several little holes it could have gone through. In addition, in my Pitts S1S, there is a large gap at the back of the canopy. In negative-G flight the pieces of the cotter pin could have gone up past my head and left the plane.

Cotter pins are sometimes installed in a way that allows them to vibrate; perhaps over time this one vibrated and rubbed on the nut and eventually broke. Alternatively, perhaps when working on something else in the cramped confines of the S1, with the seat back out, my mechanic or I might have sat or leaned on the assembly and broken the cotter pin. We'll never know.

The effect of the idler coming loose meant that there was a lot of slack in the linkage and, the idler being wedged against its housing, the housing prevented forward movement (up-elevator) of the linkage.

## Lessons

Having decided that I would definitely not attempt a go-around, reasoning that adding power to go-around I would have been unable to prevent the nose from coming up and probably would have lost control, on short final I should have switched the engine off. In mitigation, landings happen quickly in a Pitts and I think it is best to keep one's head outside but I should have been able to spend a fraction of a second turning off the mags and pulling the mixture or switching the fuel off.

Do declare an emergency. Talking to a controller is very calming. It is also encouraging to feel that someone else is helping out. One of the reasons I did not like the idea of landing at some strip in the valley was that it seemed like it would be kind of lonely. Once one has declared an emergency there is a feeling that one is not alone and although the landing would be up to me, the controller's calm professionalism probably helped me stay calm and make thoughtful rather than panicked decisions. Back in my hangar, I called the tower to thank them and give them my name and contact info. I have never heard anything about it, so do not avoid declaring an emergency because you do not want the attention of the authorities. It is also worth declaring an emergency so that rescue services can meet you at the runway. I have read of several incidents in which people have died after a crash landing who could have been saved by prompt firefighting or first aid.



**The castellated nut and its washer on the wing having been found forward of the idler under the seat. The cotter pin was never found.**

Do not fail to take the precautions on a non-aerobatic flight that you would if performing aerobatics; the hard life aerobatic aircraft endure has cumulative effects.

The part that breaks may do so on any flight. A friend of mine was delivering a Spitfire. He flew straight and level. Within a few miles of the destination, the aircraft burst into flames. Had he not been wearing a parachute he would have died. In my case too, the flight on which the incident occurred was a gentle one which placed little stress on the aircraft.

Therefore, if you normally wear a

helmet, fireproof gloves or clothing, and a parachute when performing aerobatics, then do so when flying on non-aerobatic flights in aerobatic aircraft. Fate will not arrange for failures to occur when it is convenient for you.

I was wearing a helmet. I wear it in case I crash on landing, have an off-field landing, or have to land a parachute. It would have helped in this case if the landing had not turned out so well. It has a tinted visor, which I never use; once I had the runway made, I should have pulled the visor down as it would have provided some protection to my face and eyes if there had been a fire.

I do not wear fireproof clothes with the exception of flame retardant gloves. In fact, I was wearing shorts and a t-shirt, which would have been of little protection in the event of a fire. I will not be changing my practice, but it is something to think about.

Although I said that I did not want to add power to climb higher to jump or experiment more with the controls because

of lack of nose down elevator, I did in fact climb, slowly, another thousand feet to gain clearance over the hills around Livermore. I could have climbed to seven thousand then experimented and jumped if necessary. I think that, having decided to go to Livermore, I stopped considering other options. I ought to have made a conscious effort to review the plan frequently and modify it if necessary.

Bailing out would have been a good choice. At two thousand feet MSL, about 1,900 above the ground, I had more than enough altitude to jump from a level-flying aircraft. I am surprised at my reluctance. As I said above, I made over 700 jumps, including the successful use of an emergency chute that is almost identical to the one I use for flying. If things had been happening quickly, if I had lost control then I would have jumped without hesitation, but when it was one of several alternatives, it was not very appealing. I will not be critical of those who fail to jump in the future; it is a tough decision to make if there is a chance of landing the plane.

Do look at the cotter pins (split pins) on any bolts that you can see when you do your pre-flight. I always look behind the seat and would have noticed if the bolt were out, but I did not look closely at the cotter pin: I always will now. I have been told that castellated nuts with a nylon lock insert are available; it might be an option to consider.

Practice flying with just the trim. In Europe, for a plane to be certified, it must be possible to land it with trim alone. When I was getting my commercial license they made us practice landing with the trim. Of course, its years since I practiced anything like that. Now I will practice landing with just the trim and rudder. Be sure you think about how the trim works, though. If the elevator is trailing freely, then you can fly the aircraft with the trim, and nose-up trim will make the aircraft pitch up; but if the elevator is jammed or has very limited travel then, when the elevator is as far as it will go in that direction, the trim will act the other way because the trim tab will act like a little elevator, so nose-down trim will act as up-elevator. Furthermore, the elevator is most effective when the trim tab is in a neutral position, so if you have some elevator control available, then your best option might be to keep the trim at neutral.

I did not have a good picture in my head of the construction of the control column and its linkage to the elevators and ailerons. I had visions of a rod end having come loose but still providing some connectivity (that probably makes no sense to a mechanic). I also had visions of the problem affecting the ailerons so was reluctant to make more than tiny roll inputs.



**When in doubt, declare an emergency. ATC is there to help.**

A better picture in my mind's eye of the linkages and how they work would have helped me deal with the emergency; well-informed decisions are likely to be better ones. Since the flight, I have familiarized myself far better with the control systems so that I can make better choices in the event of an emergency.

I decided to call the NTSB. It would be foolish to get in trouble for failing to report an incident that required reporting. In fact, having described the incident to the NTSB, they said that, because I landed successfully with no further damage and nobody was hurt, they were not interested, but to call the local FSDO.

The FSDO said that for the same reasons, they were not interested either, but to file a Service Difficulty Report. The database of SDs is examined by people in Oklahoma for trends. We always do a very thorough annual (condition inspection) on my aircraft and all the documentation is legal, so I am not worried about official scrutiny.

## Conclusion

Jumping out might very well have been the best and safest option – if you are not sure then do not hesitate to jump, the parachute will work. Understand very well how the aircraft works; don't just leave the nuts and bolts to a mechanic. Perform very thorough pre-flights; look at every cotter pin that is accessible. Take the same precautions on non-aerobatic flights as on aerobatic ones: if you wear a parachute and helmet on aerobatic flights then do so on other flights. Do declare an emergency; the controller can not fly the plane for you, but articulating the issues to another helps you think about them.

If the loss of elevator had occurred soon after takeoff, I might very well not be here. It would have taken an instant recognition of the problem and a power reduction to keep the nose down and not stall, roll-over, and crash. As I said above, I had expected an engine failure, a fire, or something breaking during an aerobatic maneuver, but not such a slowly developing emergency that gave me so many options. Be prepared for any emergency you can think of but also be prepared for an emergency you have never imagined.

- Mike

## New Members

*Che Barnes*

### Peter Ballard



**Priorities:** There were tons of jets, but Peter wanted his picture with the Pitts.

Peter was born and raised in San Jose right under the flight path to SJC. He is currently the Communication Coordinator at ACM Aviation (an FBO at KSJC), and also an Analyst Assistant at NASA's ASRS program. He is also going to school at San Jose State University and majoring in Communication Studies with a minor in Aviation Operations. He also plans on applying to medical school, with the goal of becoming a Flight Surgeon in the USAF. He figures that should set him up to pursue aerobatics on the side.

Peter is just getting started in his quest to become a pilot, and is just about to begin my flight training at Amelia Reid's (at RHV). However, he is no stranger to aerobatics. "I've competed in aerobatics on flight simulators and have spent ungodly numbers of hours studying aresti and non-aresti maneuvers," Peter say. At one point I flew with the Virtual Thunderbirds ([www.virtualthunderbirds.com](http://www.virtualthunderbirds.com)). "I'm pretty sure it

doesn't get any nerdier than that!" he quips.

About a year ago Peter met Sean Tucker on the ramp at SJC while working as a line technician. Peter was giving Sean and friend a van ride. Instead of a tip, Sean gave him his first flight lesson ever... in a Pitts S-2B! "For an aspiring aerobatic pilot, this was a dream come true," says Peter. His very first logbook entry is by Sean Tucker with a note of the tumbling maneuvers flown as well as the G's pulled - nice!



**First Lesson!**

Peter says that after that experience, he decided he was tired of simulating, and was ready for the real thing. Peter joined Chapter 38 in hopes of gleaning what he can from meetings, making some connections, and planes to start preparing for competitions once he gets his private.

Welcome to IAC 38!

## WingNuts

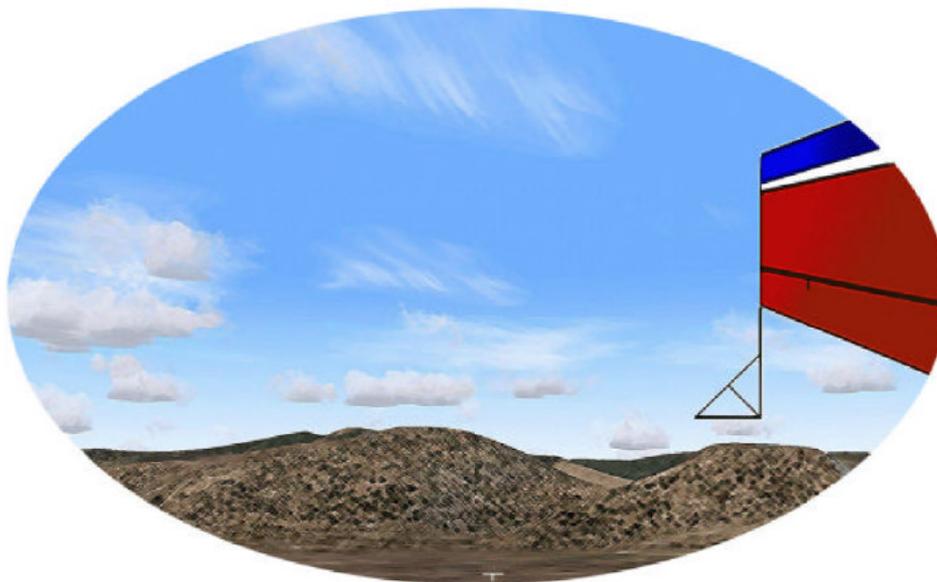
*Darrin Silver*



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# BORREGO SPRINGS ACROFEST



This year's AcroFest promises to be a highlight of the 2007 competition season!

- The IAC 36 grill will be providing complimentary hot dogs, hamburgers, and drinks during contest registration on Thursday
- Friday afternoon tent party featuring free food, a classic car display, DJ, and the Four Minute Freestyle
- Prime-rib awards banquet on Saturday evening for only \$10.00 (underwritten by Merrill Lynch)
- The airport's new Italian restaurant, Asaigos, will be open for business ~ including breakfast on Friday and Saturday
- Silent auction for sunglasses, parachute repacks, Hooker harness, fuel, etc.
- Back by popular demand, IAC 36 photographer extraordinaire Kate DeBaun will be providing framed photos of competitors with their airplanes

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## SCHEDULE

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Thursday, October 18 <sup>th</sup> :	registration, tech inspection; box practice for registered contestants complimentary food and drinks available during registration
Friday, October 19 <sup>th</sup> :	breakfast available at Asaigos at 6:30 a.m. pilot briefing at 7:00 a.m. contest flights start at 8:00 a.m. four minute freestyle - 5:00 p.m. Sundowners party at 5:00 p.m. w/ food, classic cars, music, and more
Saturday, October 20 <sup>th</sup> :	breakfast available at Asaigos at 6:30 a.m. pilot briefing at 7:00 a.m. contest flights start at 8:00 a.m. awards banquet at Borrego Springs Resort, ~ 7:00 p.m.
Sunday, October 21 <sup>st</sup> :	make-up flights (if necessary due to weather)



Four top photos were sent in by Mike Eggen who took them at Nationals. Clockwise starting from top left: Todd Whitmer and his preferred mode of travel, Mike Eggen's Decathlon, Howard Kirker and Mike, and the hangar at Nationals. Mike came in 8th overall in Sportsman, Howard 8th overall at Intermediate, and Todd got 2nd place overall in Advanced. Great job especially considering the stiff competition.

Full results at [www.usnationalaerobatics.org](http://www.usnationalaerobatics.org)

Below: Cory Lovell sent this in right before he left to do a pre-buy for it. Nice airplane. "I'm pumped!" writes Cory.



## IAC Chapter 38 Membership Application/Renewal Form

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EAA Expiration Date: \_\_\_\_\_

Judge:  Regional  National

Competition:  None  Basic  Sportsman  Intermediate  Advanced  Unlimited

Aircraft: \_\_\_\_\_

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Dues:  Single Membership (\$25/year)  Family Membership (\$30/year)

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Howard Kirker, IAC38 Treasurer - 2279 Ocaso Camino - Fremont, CA 94539

### Next Meeting

Sunday, October 14th, 2007  
4 PM  
Attitude Aviation  
Livermore Airport, CA.



**Che Barnes**  
Editor, IAC 38  
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