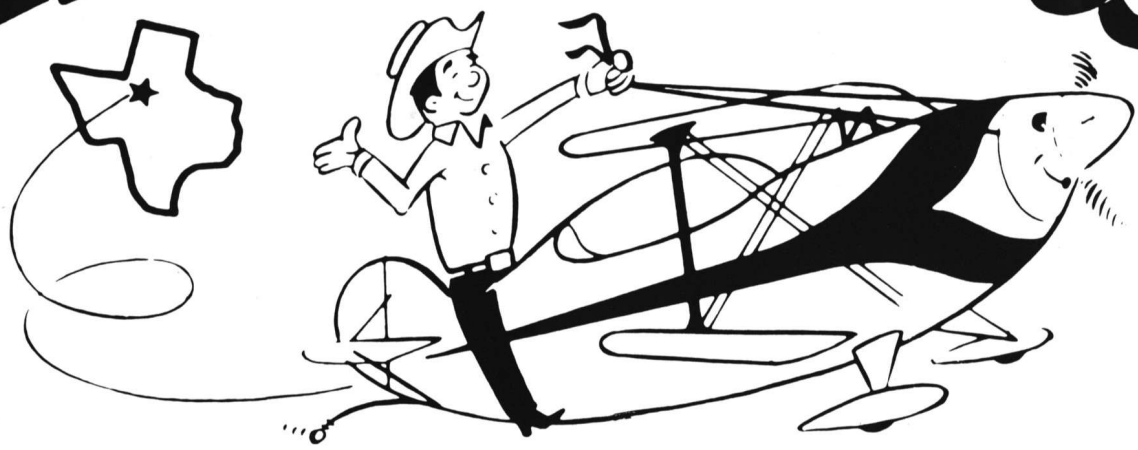
AEROBATICS WITH BEGGS!



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In last month's issue of SPORT AEROBATICS, I promised I would next share with you a method of "Spin Prevention" that I have used to good advantage in the past few years. This little "trick" has kept me out of trouble on numerous occasions. I think you will find it to be very helpful.

In your Pitts or Eagle or other aerobatic aircraft have you ever pushed or pulled up from too low of an entry speed to do a vertical snap, vertical roll, etc., only to have it just mush out and quit flying? You are sitting there thinking, "Oh *@#!!!@#* ! If I even so much as move the controls, this little turkey is going to spin!" Ever had that happen? If you are like most of us, you have.

At a fairly low altitude, you just wouldn't want that airplane to accidentally spin on you, would you? Here is how you can prevent it!

1. **Cut the power.**
2. **Look down into the cockpit and visually center all the controls and hold them tightly and don't move them at all until the nose of the aircraft has fallen down thru the horizon.**
3. **When the nose of the aircraft falls thru, you can again add power and recover from the dive with smooth, coordinated use of the controls in the usual manner.**

OK, I can just imagine what you are thinking. So before you attack me, let me clarify a couple of points.

First, I want to be quick to point out that although this little method will always prevent a spin from developing, it will not always recover from a spin once it has developed, especially if the spin is a flat or accelerated spin such as was described in my previous two articles. This method of "Spin Prevention," that we are talking about here, should in no way be confused with the method of "Emergency Spin Recovery" referred to in my two previous articles. What we are talking about here is a method of preventing an accidental spin from developing in the first place.

We must realize that in order to place all of the controls in the true, neutral position, we must do so **visually**. When a pilot is a little panic stricken, tensed up, hanging on the belts and clutching the stick very tight, and bracing himself against the rudder pedals, he may **think** that he has the controls in the neutral position. But in reality he has about a third throttle, a little right rudder, and the stick halfway toward the upper right-hand corner! Now, what do you think that would produce?

In order for us to be able to **visually** center the controls, we must first have a mental picture of just what the true, neutral position of the controls is, relative to the cockpit. You can easily determine the true, neutral position of the controls as you are flying along in straight and level flight by looking down into the cockpit and making a mental note of where the controls are relative to the instrument panel, gas tank, floor board, or other prominent feature on your aircraft. You will just have to use your own good judgment, based on your aircraft, and your own seating position to determine how best to see, by visual reference, what is the true, neutral position of the controls.

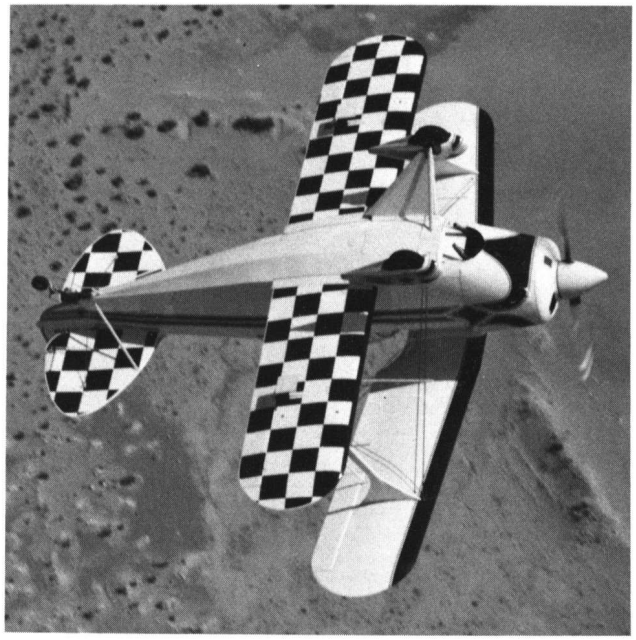
SPIN PREVENTION: LITTLE 'TRICK' TO KEEP ONE OUT OF TROUBLE WHEN THAT 'TURKEY' WANTS TO GO WILD!

I encourage you to go out and try this little method of "Spin Prevention" on your own. Go up to a safe altitude, 20,000 to 25,000 feet. (Yeah, I'm just kidding.) Now pull the aircraft up from a slightly lower than normal entry speed as if to do a hammerhead, vertical roll, etc., and just about the time you hit the vertical, abruptly cut the power.

Unless you are very quick in getting the nose down with the elevator, the speed will dissipate very quickly and you won't be able to get the nose of the aircraft down before it falls off into some sort of tailslide. **(Don't perform this little demonstration in an aircraft not approved for tailslides.)** If you will simply **visually** center the controls and hold them tightly, the aircraft will just simply flop nose down and will not spin. After the nose of the aircraft falls thru, you can add power and recover to straight and level flight.

If under similar circumstances, the pilot had left the power on and tried to make the aircraft fly by fighting the controls, he would very likely wind up in a spin. Remember, that if you do goof up and find yourself in an accidental spin, you can **always** revert to your emergency spin recovery method, which is:

1. **Cut the power.**
2. **Let go completely of the stick.**
3. **Push full opposite rudder until the spin stops.**
4. **Neutralize the rudders and smoothly pull out of the dive.**



(Photo by Mahan & Associates, Inc.)
Upside down and loving every minute of it is Gene Beggs of Midland, Texas. Beggs, a member of the 1984 U.S. World Aerobatic Team and an aerobatic instructor, believes in sharing his aerobatic flying experiences and knowledge. Like all IAC members who subscribe to the philosophy and code of safety, safety and more safety, he has embarked on a quest to contribute to helping all who fly achieve it.

Now I'm sure that someone is sitting there wondering to himself, "Hey, just what if I find myself down to two or three hundred feet and I think I'm about to spin, or find myself in a spin? Are you telling me that I should do this even then?"

Hey guys, if you find yourself in that much trouble, that low, there isn't much hope of you getting out of trouble by using **any** method! The answer to that problem is just don't get yourself in such a predicament in the first place. Remember, there are some impossible situations from which **there is no recovery**!

When you fly low-level airshows, you are accepting all of the risks involved and are entirely on your own. Never exceed your own limitations or those of your aircraft! Everything that you do in your airshow routine should be practiced many times at a safe altitude so that there will be no surprises when you bring it down to airshow altitudes.

Consider the consequences of a sudden engine failure at all critical points in your routine. The most critical point for an engine to fail is at the point where you have just pulled or pushed up to the vertical from very near the ground. The more abruptly you make this transition from level flight to the vertical attitude, the less altitude you will have when you reach the vertical, because the radius of the quarter loop will be smaller.

Make the transitions smooth and carefully, being alert for any change in power output that might affect your decision of whether or not to continue the pull or push to the vertical attitude where a sudden engine failure would make it much more difficult to recover. Without the propeller blast over the tail surfaces, it is very difficult to get the nose of the aircraft back down before it tailslides. If it completely runs out of momentum and slides, it is going to take a lot of altitude to get enough airspeed to pull out of the dive with no power!

You can pull the airplane over the top with up elevator, much easier than you can push it over, or hammerhead it with the rudder, because the elevators are roughly twice the size of the rudder. A Pitts type aircraft just naturally wants to fall over on its back from the vertical, easier than it wants to fall forward, toward its wheels.

When you fly airshows, be conservative! Remember that the average person at an airshow doesn't really appreciate your daredevilry anyway, and the only way you could really impress them is by running into the ground! **(Heaven forbid!)** A good airshow pilot is one who can entertain the crowd by making easy, safe maneuvers look spectacular without exceeding his own limitations or those of his aircraft.

A pilot will be much more likely to gain the confidence, respect, and admiration of his peers by keeping it safe, with well designed and safely executed routines that confine themselves well within the capabilities and limitations of both the pilot and his aircraft.

In last month's issue, I promised to share with you not only this little method of "spin prevention," but also, the complete training course outline of the advanced spin training course which I am presently teaching. Time and space does not permit me to cover all of that in this issue, but I promise to include it in a later one.

The response to my two previous articles has been overwhelming to say the least. Last month I attempted to answer all of the questions that have come up during the past few months of teaching the course. I will continue to keep you updated on the progress of my campaign against fatal spin accidents.

"WHEN YOU FLY AIRSHOWS, BE CONSERVATIVE! REMEMBER THAT THE AVERAGE PERSON AT AN AIRSHOW DOESN'T REALLY APPRECIATE YOUR DAREDEVILRY ANYWAY!"

I have received many, many letters and phone calls since the printing of the first article in the February issue of SPORT AEROBATICS, outlining this "new" method of emergency spin recovery which I am presently teaching. There have been many glowing accounts of how this method has already saved lives.

I am proud to say that most pilots are accepting this method very well and are busy helping me spread the word to others. I am sorry to have to report that some are still very skeptical about it. I can only say that anyone who is questioning the reliability and efficiency of this method of emergency spin recovery can only be one who has not tried it! Those who have tried it, or who have had it demonstrated to them, are quickly convinced of how well it works.

During regular practice sessions, a pilot should review and practice this method of spin recovery with all types of

spins so that he or she will have the confidence necessary to use it and trust it to work at some later date when it **may really be needed**!

If any of you have any more questions or any feedback, I'm always happy to hear from other pilots. Let's all share our knowledge and experiences with others in the interests of safety. If you have anything to add to this spin controversy, let's hear about it. I sincerely believe that all of the myths and mysteries have at last been laid to rest, but, maybe not! Who knows? We all need to keep an open mind and realize that we all have a lot to learn.

Let's don't be so quick to dismiss a new idea just because it differs from what we have been told in the past. If we all subscribed to that philosophy, we would still be living in caves, believing that the world was flat!

I believe we are witnessing the beginning of a new era in the sport of aerobatics. Many new and exciting things are happening. I believe that the next few years are going to be the best ever! Let's all have the best, most successful and safest year ever in 1984!

MAULE TAILWHEEL

As most IAC members are aware, there have been quite a few reports from IAC members who have encountered tailwheel problems. The latest report received by the IAC Technical Safety Committee is the following:

"The tailwheel fork casting broke on landing and gave me a moment of 'stark terror'.

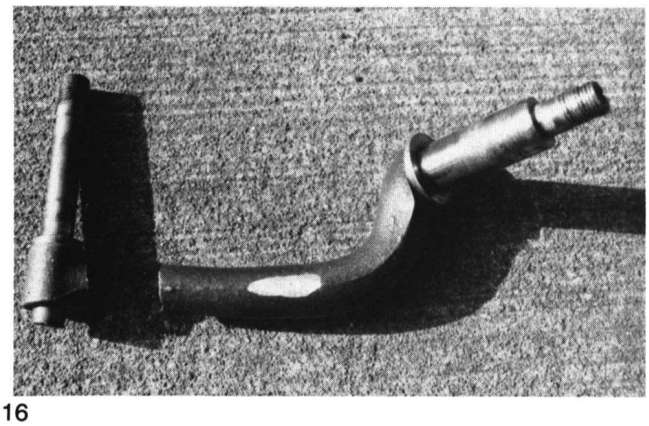
"Right after touchdown on a smooth landing I felt it go. It was controllable until I slowed down then had to use brakes to keep it straight.

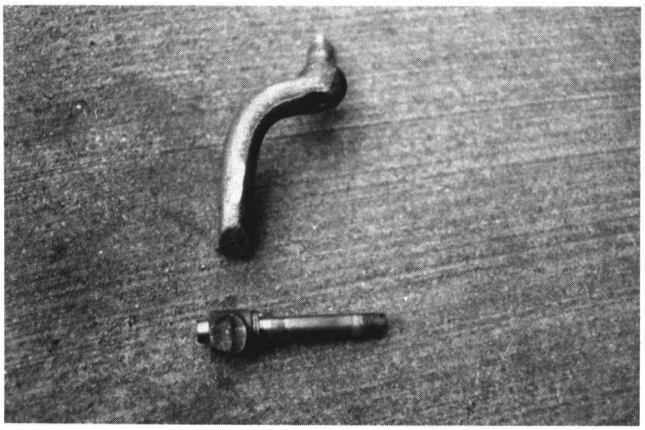
"I had a time locating the wheel as it went off into some tall grass. The fork wore down to the point that you could not tell if it had crystallized, but the tailwheel axle shows this on the inside half. Looks like the outer half just broke.

"Even though this fork had over 3,000 landings (a/c built in 1968), I see no reason for it to break like it did.

"You could not see the crack on preflight as it was on the inside; however, it would be a good recommendation that on each 100 hr, the wheel be removed and the casting checked at this point of break. It was a Maule tailwheel."

Besides submitting the above report, this IACer also forwarded the broken tailwheel casting. The IAC Tech Safety Committee asked a couple of metallurgists if they could take a quick look at the failed component and give us their opinions. They advised that the casting was a low carbon steel and that it has quite a bit of porosity. It checked approximately 100 on the Rockwell "B" scale — or about 0 on the Rockwell "C" scale. The initial fracture started on the inside (the "wheel side") side of the casting and progressed about one-third of the way across the piece — and because of the large step at this point, they believe the fracture stopped here for some time. The final stages of the failure most probably began when the initial fracture again started to grow and a new fracture started on the "outside" side of the casting opposite the initial fracture. These two fractures grew toward each other until the final break occurred. It was suggested that the initial fracture (on the "inside" side of the casting) only progressed to a certain point (approximately one-third of the way across the casting) and then stopped because of some defect in the castin — perhaps the high porosity. Considering that most materials are stronger in compression than in tension, one might guess that the initial fracture would have started on the "outside" side of the casting which probably would be in tension as opposed to the "inside" side which most probably would be subject to the highest compression. The fact that the initial fracture started on the "inside" side makes the "possible casting





defect" idea a little more believable. From a geometrical consideration, the tailwheel casting failed right where one might guess it would fail — at the point which looks like it would have the highest loads and which also has the smallest cross-sectional area. It is also interesting to note that the component failed in a bending mode — not a torsional mode.

While the breakage "analysis" is technically interesting, perhaps the most important thing for IACers to learn is **where to look** during their inspections. As the member who made this report noted, the initial fracture on this tailwheel fork started on the "inside" side of the casting — the area behind the wheel — and would require that the tailwheel be removed to inspect this area.

One again, an IAC thank you to all the persons involved in this Tech Safety report — especially the IAC member who took the time and made the effort to submit the initial report (plus the broken part).

WIRE TENSIONING

The following tip is from IAC member Barry Beausoleil.

"Having trouble finding a 50 pound fishscale? Many aircraft and most all biplanes have flying-landing wire tensioning requirements. Commercial tensiometers can cost as much as $350, and finding a fishscale which will handle 50 lbs. can be difficult, impossible in states like Colorado.

"After playing with a box of springs for several minutes, I came up with an inexpensive approach. My particular requirement called for a 50 lbs. pull at 1¼" deflection. The deflection is measured with a tape or ruler while the pull is registered on a fishscale. For the 50 lbs. range, I selected a ¾" OD X 5" long extension spring made of 3/32" diameter wire. Such a spring can be purchased from a local hardware or salvaged from a trampoline. This spring fits into a sleeve of ⅞" OD X