

# SPINOFFS

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Regarding information from some of our readers indicating that my emergency method of spin recovery would not work in aft CG conditions for the Decathlon, Pitts S2A or S2B with 220 to 230-pound pilots plus parachutes, let me assure everyone that it indeed does work in all three aircraft mentioned above! During the course of the past two years of teaching my advanced spin course in the Pitts S2A, the Pitts S2B and the Eagle II and the 180 Decathlon, I have never seen a time in which the aircraft did not recover beautifully from any spin using the power-off, hands-off, opposite-rudder method of emergency spin recovery.

In both the S2A and S2B, I have had students in the back seat who weighed as much as 260 pounds plus parachute. In hundreds of spins under these conditions, the aircraft exhibited no change whatsoever in its spin recovery including upright and inverted flat spins, using the above mentioned emergency recovery method.

One of my graduates, who flies an S2S and weighs in at about 250 plus parachute, reports that his aircraft behaves beautifully and recovers promptly from all modes of spinning, including the inverted and upright flat spins using my method of emergency spin recovery.

I am constantly asked the following question: "Will this emergency method of recovery work in my \_\_\_\_\_?" I always answer, "I

don't know! That can only be determined by very thorough, in-flight, spin tests under the proper conditions."

I am always careful to specify by make and model those aircraft which I have personally tested, and I will assure you that my methods work only in that specific aircraft. There have been many who have misconstrued what I have said to mean that my methods will work in any aircraft. That simply isn't true. It is very dangerous to make blanket statements regarding the flight characteristics of all aircraft, particularly regarding spins and spin recoveries.

When I developed the spin training course that I am presently teaching in the Pitts S2B, my main concern was with those pilots who fly aerobatics in the various models of the Pitts Special and the Christen Eagle II. I can assure you that there will be no surprises in those aircraft. I have now graduated 103 pilots from all over the U.S., Canada, and Europe from the course. If there were going to be any surprises, we would have discovered them by now.

During the five lesson course, we will average approximately 16 individual spin entries and recoveries per lesson, which totals approximately 80 spins per student course. If you multiply that times 103 you get a total of 8,240 different spin entries and recoveries. If you were to consider the number of rotations, it would get astronomical. All of these spins include every possible combination of control input from all of the flight controls, the engine power, the trim, etc.

I would like to list for the record the aircraft in which I have thoroughly tested my methods. They are:

- 1 - Pitts Special S-1-S, S-1-T, S-2-A, S-2-B, and S-2-S.
  - 2 - Christen Eagle I and Eagle II.
  - 3 - Bellanca Decathlon (180). (Please note. I have been unable to produce an inverted flat spin in this aircraft.)
  - 4 - Swick Conversion of the Taylorcraft. (Upright only)
  - 5 - Vultee BT-13 (Upright only)
  - 6 - North American AT-6 (Upright only)
  - 7 - Piper Tomahawk (Upright only)
  - 8 - Beechcraft Skipper (Upright only)
  - 9 - Cessna 150 (1975 Model) (Upright only)
  - 10 - Bellanca Citabria 7KCAB (Upright only)
  - 11 - I have also tested the Cessna 172, the Beech T-34C, and the Great Lakes Biplane of recent manufacturer to a certain degree, but I have not tested these to the extent that I will guarantee consistent results using my methods.
- My friend, Bob Davis, who flies a Laser, reports that he has thoroughly tested the Laser that he flies, and he reports that it behaves perfectly normal and consistent with the results obtained in the Pitts. My friend, Moon Wheeler, reports that his flat wing Pitts S-1-C behaves perfectly well using my methods, although I personally have never flown that particular model of Pitts.
- During the thousands of spins that I have done in the past couple of years in all of the aircraft listed above, there have been only three spin modes in which the emergency, power-off, hands-off, opposite-rudder method of spin recovery did not work. And, in which case, I had to actually force the elevator toward the down position.

Only three occasions in all of these spins! Let me explain. They occurred in the three following aircraft: (1) The Beech T34C (Turbine powered), (2) The North American AT-6, and (3) The 1975 model Cessna 150.

The Beech T34C did not particularly like the stick free method of spin recovery. After placing the aircraft in a steady spin state and releasing the stick, opposite rudder was applied, and although the aircraft always recovered, it did not recover well enough to satisfy my own standards. It always recovered better by using the standard method of recovery of full opposite rudder followed by a brisk forward movement of the stick. I flew this aircraft on only one occasion in which approximately 16 different spins were tried, all of the upright mode. The T34C was the first aircraft that I encountered in which the "new" stick-free, opposite-rudder method of emergency spin recovery did not work better than the spin recovery procedure described in the aircraft flight manual. This just emphasizes the need to always specify by make and model of the aircraft when making statements regarding the flight characteristics of that aircraft particularly regarding spins and spin recoveries! There are exceptions to everything!

The second aircraft in which I encountered a problem with my emergency, stick-free, opposite-rudder method of spin recovery was the North American AT-6. After a thorough checkout in the aircraft, I agreed to perform a series of spins in the T-6 to determine if my methods would apply to that aircraft. I had previously completed the spin tests for the Vultee BT-13 for the local wing of the CAF and found that all of my theories and methods worked perfectly in that aircraft. I did, however, encounter a problem with one particular mode of spin in the T-6, and in this particular spin, the aircraft would not recover with rudder only and required the use of brisk forward movement of the stick after full opposite rudder was applied. This occurred only with the spin to the right after approximately two turns of development and with the use of "in-spin" aileron.

I spun the T-6 one afternoon 'til the world looked flat, and in every spin that I could produce, to the left, it would always recover beautifully using the power-off, hands-off, opposite-rudder method. It would usually recover perfectly in all the spins to the right also using the same method, except when "in-spin" aileron was used, and the aircraft was allowed to turn more than two turns — after

which a brisk forward movement of the stick after full opposite rudder would be required to break the aircraft out of the spin. I performed as many as 10-turn spins in the T-6 in both directions, experimenting with opposite aileron, in-spin aileron, accelerating the spin with nose-down elevator, power application, full-up trim, full-down trim, etc., and the only spin that would not recover using my emergency method was the aforementioned spin to the right with "in-spin" aileron. So much for the T-6!

Now for the third aircraft in which I encountered a problem! You won't believe it but this aircraft was a plain old 1975 Cessna 150 Commuter that I have been instructing in for years! After a lengthy telephone conversation with Bill Kershner, I decided that I needed to go do some spins in the Cessna 150! Well, my school owns a little 1975 C-150 Commuter, bright yellow in color and affectionately known as "Daisy." So, after rounding up a parachute out of the Pitts, and preflighting "Daisy," I took off and began the painfully slow climb to 8000 MSL, which would put me about 5000 feet above the mesquite and oil

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### *I spun 'Daisy' ... 'til the world looked level*

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fields. The aircraft was full of fuel and I was in the aircraft by myself with no baggage.

In my telephone conversation with Bill Kershner, he told me of a spin mode in his Cessna Aerobat from which he was unable to recover using my power-off, hands-off, opposite-rudder method of emergency spin recovery. He went on to describe how the aircraft behaved when spinning to the left with the power on, and after completing two or more revolutions, to the left with the power left on, then cutting the power, releasing the yoke, and applying full opposite rudder, the aircraft would show no signs of recovery even after six additional turns with the right rudder held full in. Hey, you know what? He's absolutely right! It won't!

I spun "Daisy" one afternoon 'til the world looked level, and I have some interesting things to report. I found that there were two things that I could do which would develop a spin from which I could not recover using my hands-off, opposite-rudder recovery technique. In every spin performed to the right, no matter what I did to aggravate it and no matter how

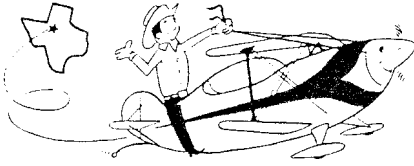
many turns the aircraft was allowed to do, the aircraft would always recover almost immediately using the power-off, hands-off, opposite-rudder method of recovery. Not so to the left!

If I placed the aircraft in a spin to the left with the power on as might happen with a student who did not correct for the "P" factor properly, and let it spin with the power on for two turns or more, and then cut the power off, released the yoke completely, and then applied full right rudder and held it, the aircraft would continue to spin and showed no sign of recovery even after as many as 10 turns! I would then place the heel of my hand on the padded center portion of the yoke and briskly push it full forward, and the aircraft would always recover promptly in one additional turn with the pitch attitude almost perfectly vertical down.

There was one more thing that I found would produce a spin from which I could not recover using my stick-free, opposite-rudder method of recovery and again this was only in a spin to the left. I found that if I placed the aircraft into a power-off spin to the left, and then applied "in-spin" aileron and allowed the aircraft to turn two or more revolutions, the aircraft would not recover using the stick-free, opposite-rudder method of recovery. In this mode of spinning, the aircraft always required a brisk forward movement of the elevator, after first applying full opposite rudder, in which case, the aircraft always recovered in one additional turn.

I also discovered another interesting phenomenon regarding the use of ailerons in the Cessna 150. I found that in spins both to the right and left, the use of full opposite aileron (out-spin aileron), would always produce a recovery from the spin! This is completely backwards to the results obtained in all other aircraft that I have spun. So far, in all but the Cessna 150, the use of "out-spin" aileron always tended to flatten the wing and increase the rate of rotation of the spin, while the use of "in-spin" aileron simply created a more nose-down attitude and increased the rate of rotation slightly. In the Cessna 150, the use of "in-spin" aileron always increased the rate of rotation and steepened the pitch attitude and the use of full "out-spin" aileron would always simply roll the aircraft out of the spin resulting in spin recovery within one to one and a half turns regardless of the direction of rotation or the number of turns. I performed spins of as many as 18 turns in the aircraft with no problems other than those mentioned above.

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I also discovered one more interesting thing regarding the use of elevator in spins in the 150. Regardless of the type of spin, or the number of turns it was allowed to do, the use of full forward elevator always resulted in a prompt recovery within one to one and a half turns. This is contrary to what I have found about the majority of the aircraft that I have tested. In most aircraft, particularly the Pitts and the Eagle and other highly maneuverable, aerobatic aircraft, the use of down-elevator alone will aggravate the spin, producing what I call an accelerated spin. And, in spite of full nose-down elevator, the aircraft will continue to spin at an alarming rate as long as in-spin rudder is present.

I found that the Cessna 150 would spin very docile, as long as the ailerons were held neutral and the power completely off in either direction. Regardless of the number of turns, it would always recover promptly after releasing the yoke completely and applying full opposite-rudder. Trouble developed only in the spin to the left, either when the power was left on or when "in-spin" aileron was applied and the aircraft permitted to turn two turns or more — in which case, the use of full opposite-rudder, followed by a brisk application of full nose-down elevator, would result in recovery within one additional turn.

All of this just emphasizes how very important it is to be specific as to the make and model of aircraft you are referring to when making statements regarding flight characteristics of various aircraft, particularly in regards to spins. Again let me emphasize that when I developed the spin course that I am presently teaching and when I first went public with my findings and published my first spin article in the February 1984 issue of the IAC magazine, SPORT AEROBATICS, my primary goal was to produce a method of spin recovery and a method of teaching it that would provide those pilots who were flying aerobatics in those aircraft with the knowledge and skills necessary for them to recover from the inevitable, accidental spins that they would encounter during their aerobatic sessions. I am proud to say that we have now accomplished that goal for the Pitts and Eagle aircraft!

# SPINOFFS

The other "spinoffs" and feedback and experimentation with other aircraft as a result of my writings and teachings have been only incidental. This was not my primary goal when I started this campaign over two years ago. Please don't misunderstand me. I am not saying that it isn't important to continue experimenting with other aircraft and to continue the campaign against fatal spin accidents in all aircraft, I am simply saying that before you can guarantee that anything will work in another aircraft, you must first conduct a very thorough series of tests in that aircraft under every conceivable set of circumstances and configurations.

I knew that I was going to receive a lot of flak from some pilots over my writings, and sure enough, I got it! But I am proud to say that for every derogatory remark regarding my work, I have received dozens of words

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*saved . . . as a  
result of having  
read my . . . article*

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of praise from graduates from my course and from those who have read my articles.

You wouldn't believe the stack of letters that I have received from pilots from all over the world who are so grateful for what they have learned from reading my articles. Many of these pilots have reported that they believe that they are alive today because of knowing the simple little "emergency spin recovery procedure" described in my articles which appeared in SPORT AEROBATICS and SPORT AVIATION magazines. Believe me, when I received the first phone call from a pilot in Connecticut one evening at my home telling me of how he had saved himself from what looked like a potentially fatal spin in his new Pitts as a result of having read my first spin article in SPORT AEROBATICS, that was reward enough for all of the time, effort and money that I have poured into this program.

Since that time, there have been several other pilots who have called or written to me or come up to me in

person and told me of similar situations where they have recovered from some potentially disastrous, accidental spins as a result of the knowledge gained from reading my articles and credit those writings with saving their lives. That is proof positive that what I originally set out to do is being accomplished. We are re-educating the aerobatic community in spins! The myths and mysteries are being dispelled!

I have received a lot of really good feedback and constructive criticism from many of our readers and from other instructors and noted aviation authorities such as the previously discussed situation concerning the Cessna 150 from Bill Kershner. This information is vital in order to keep our membership informed on the latest findings regarding spins in various makes and models of aircraft.

Please! When you have any questions or comments or bits of information that you think might be useful, call me at my office or home or write to me in care of this magazine or at my business mailing address in Midland, Texas, which is shown in the IAC magazine, SPORT AEROBATICS. If I don't have the answer, we'll go to somebody that does. If no one seems to know, we'll search until we find the answer some way. If you have something positive to add to all of this, by all means let it be known, and we will get the word out to the troops immediately.

The thing that we want to avoid is muddying up the water with false rumors and hearsay and negative comments regarding this or that which are based on speculation and not backed up with hard facts obtained from careful, in-flight tests by a competent pilot. We are making tremendous progress toward eliminating fatal spin accidents in the aerobatic sport and the record recently bears this out. How many spin accidents have you heard of in our sport since the first spin article appeared in the IAC magazine in February of 1984?

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**EDITOR'S NOTE:** See important sequel to this "SPINOFFS" in upcoming issue soon.