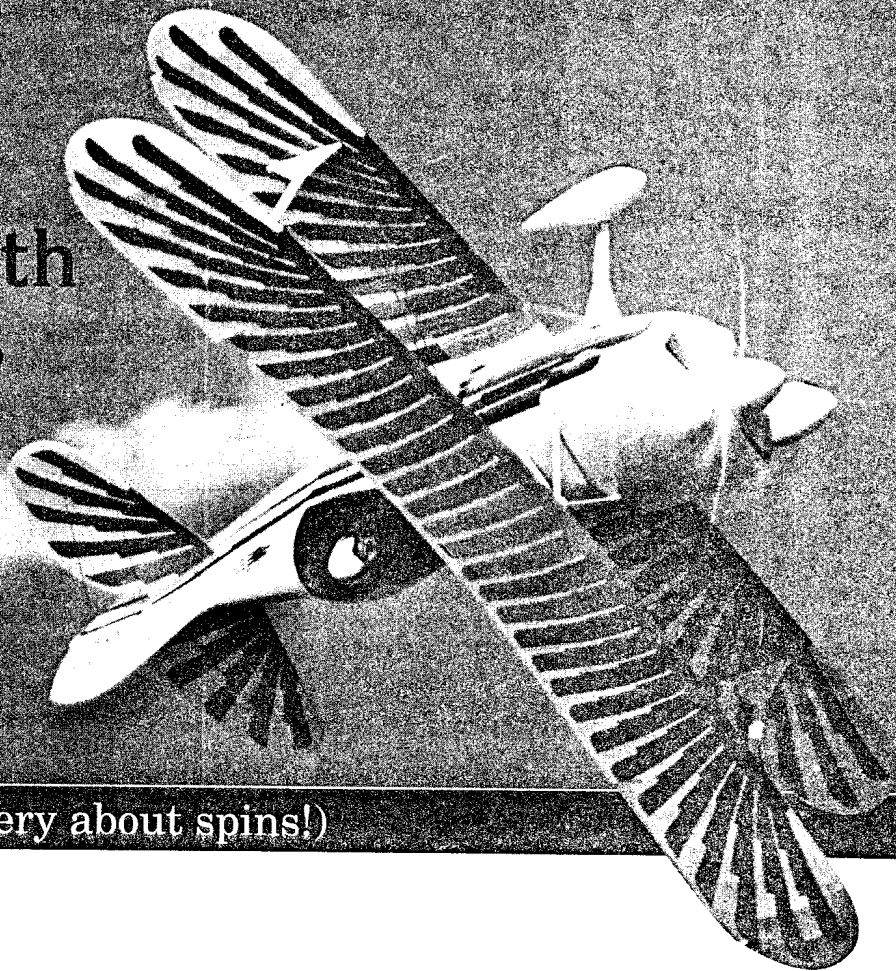


# Spinning With Gene Beggs

## The End...

(of confusion and mystery about spins!)



by Gene Beggs

What? That's no way to begin an article! Yes, I believe it is appropriate in this case, because if you don't read another word of this, I want you to read the most important part and memorize the following method of emergency spin recovery. It could save your life!

### FOR EMERGENCY SPIN RECOVERY

1. Cut the throttle!
2. Take your hand off the stick!
3. Kick full opposite rudder until the spin stops!
4. Neutralize rudder and pull out of the dive!

No matter who you are or what your level of experience is, please go back and read it again! If you fly aerobatics, or if you fly an airplane that is capable of spinning, you should know this life saving method of spin recovery. This method of recovery will enable you to quickly and easily recover from any spin that can be encountered in any of the airplanes that I have used in the

spin tests conducted during the past two years. This method has many advantages over those shown in most aircraft flight manuals. It is as simple as one, two, three, and can be relied on in an emergency situation where a pilot may not be thinking clearly. It has the added advantage of it being unnecessary for the pilot to know what kind of spin he is in, the recovery procedures are the same whether the spin is upright or inverted, flat or normal, power on or off or otherwise.

Now that we have the most important part of this article behind us, you can stop right there if you wish, but I hope you will stay with me because I would like to tell you in more detail of my experiences during the past two years of research and flight testing regarding spins and spin recoveries in aerobatic airplanes. I promise not to bore you with a long, technical article filled with formulas, graphs, and advanced aeronautical theories. I am certainly not an aeronautical engineer, but I am a pretty fair stick and rudder man and have been able to pick up a few bits and pieces of information worth passing

along to others during my years of instructing and flying aerobatics.

Now, if I have gotten your attention, or aroused your curiosity, or maybe even raised your ire a little bit, read on! At this point, you may be a little bit skeptical about the reliability of this method of spin recovery. It just sounds too simple and too good to be true doesn't it? But it is! Believe me, it is the answer to one of the greatest dangers in our sport, inadvertent spins! Spins that occur when falling out of a botched maneuver, a torque roll, lomcevak etc. These are the ones that get us into trouble, not the normal, competition type spin.

When the subject of spins and spin recovery comes up, you immediately begin to get all sorts of comments and opinions and theories regarding this or that and everyone begins to run off in his own direction and in many cases refuses to listen to anything else that is said that differs from his own opinions. This is so sad because many of these pilots are so misinformed by well intentioned but unknowledgeable friends

and associates. Pilots tend to cling to their theories and opinions sometimes out of stubborn pride and refuse to admit to themselves or any one else that they don't know everything there is to know about spins.

You may recall reading an article in the November 1981 issue of *Sport Aerobatics* by Eric Muller entitled, **The Spin-Myth & Reality**. In this article Eric explained this method of spin recovery which he had discovered. I must admit that when I first read the article, I too was very skeptical. I remember thinking to myself, "Hey, I don't think this man ever tried that in a Pitts!" "We better either prove that it will work, or get the word to him quick before he kills himself!" Then I read the article over and over again. Eric went on to say how he had conducted many hours of spin tests, taking in the widest variety of aircraft that came into the class of "conventional" design (i.e., excluding canards, T-tails, etc.) He also went on to say that he had studied every existing text on the subject and had stopped the spin over 4000 times with this method. By this time I was thinking to myself, "Well, maybe there is something to this, after all, this man is a very experienced, world class aerobatic pilot." "Maybe I better investigate this a little further." "I suppose that it is possible that even I, in all my wisdom, don't know it all!" (You see, you have to realize that most aerobatic pilots think like this. That is why most tend to skip over another boring article on spins because they think that they already know all there is to know on the subject.) For this reason, I hope everyone who flies aerobatics reads this one. There are a lot of pilots out there who need to know about this life saving method of spin recovery.

Since my earliest days of involvement in this sport, I was very much aware of the dangers of flat spins, inadvertent spins, etc. How many pilots do you know who have spun in accidentally during the past few years? Some of them were very experienced and competent pilots, some were new comers to the sport. What happened? Were they confused and disoriented, applying the wrong control inputs, trying desperately to recover from what they thought was an upright spin when in fact they were in an inverted spin, or were they simply not allowing enough time for recovery to take place. Maybe they were holding opposite aileron or forgot to pull the power, either of which will prevent recovery in many airplanes.

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We have all heard tales of how an airplane just "Went into a flat spin" or "It just wouldn't come out no matter what I did!" We have also read articles where the pilot, after trying everything he knew to do to recover, finally decided to bail out and while trying to unfasten his seat belts or unlatch the canopy, the aircraft recovered on it's own. Now what does this tell you? It tells me that the pilot was confused and applying the wrong control inputs simply holding the airplane in the spin! It also tells me that the pilot was not properly trained in spins and spin recovery procedures in that particular aircraft! I will readily admit that I at one time, was one of these pilots. We all know that a properly certificated aerobatic airplane loaded within the manufacturer's weight and balance limitations, will recover from any spin if the pilot only knows the correct recovery procedures. Then why do pilots continue to get into trouble with spins? The lack of not being properly checked out are many, but the most common are:

1. **The lack of really qualified, knowledgeable and competent instructors.**

2. **The pilot's refusal to admit that he needs training.** (Most experienced pilots tend to underestimate these aircraft and tend to believe that they already know all that is necessary for them to know to fly these "little 'ol bitty airplanes!")

3. **Economic reasons** for which the pilot just does not want to spend the time and money to go where he can get good quality aerobatic training. He thinks he can just go out and learn it on his own. (The cost of a good check-out by a really qualified instructor is small when you compare this with the initial investment in a good aerobatic airplane and consider the risks involved in experimenting on your own.)

4. **Fear!** Many pilots are simply afraid of spins and are afraid that the instructor will take them up and "wring them out". (This simply will not happen if the instructor is truly a professional. His main concern will be that you receive the training you need to enable you to operate your airplane safely and to enjoy it fully without making you uncomfortable.)

Having been involved in the flight training business for several years, I have always been vitally concerned with flight safety. I have always been an advocate of spin training for all pilots, but it was after the loss of a very dear friend in the summer of 1981, that I became so terribly concerned about getting to the bottom of

this spin thing once and for all I began to search for the answers, and when I read Eric Muller's article in the November issue of *Sport Aerobatics*, I realized that if this would indeed work as he said it would, I had found the final piece of the puzzle and the answer to my prayers! Here was a simple and foolproof method that a pilot could use to recover from **any** spin he might find himself in without it even being necessary for him to know what type of spin he was in!

I was still a little skeptical at this point! It just sounded too simple and foolproof, nothing could be that easy, could it? (But it is!)

Before I continue, I would like to point out what my experience level was at the time I read Eric's article. I was an ATP rated pilot with single and multi engine ratings, a flight instructor and pilot examiner with over 12,000 hours, much of which had been spent in flight training on a daily basis in small airplanes. I was an experienced aerobatic competitor who had just completed his seventh year of IAC competition, of which two were in the unlimited category. I had over 500 hours in Citabrias and Decathlons and about 600 hours in the Pitts S-1-S. I thought I had a good understanding of aerobatics and pretty well knew it all about spins. (I didn't!) I point this out not to boast of my ratings or experience, but to try to convince you that no matter what our level of experience is, we still need to keep an open mind and realize that we all still have a lot to learn.

I realized that there were several occasions where my Pitts had surprised me and I just wasn't real sure what it had done or how I had got it out! I also realized that there had been many very experienced aerobatic pilots who had spun in under mysterious circumstances that defied explanation. I knew, whether I wanted to admit it or not, that there were still some things I did not understand about spins.

After deciding to investigate Eric's method further, I began by calling upon some of the most experienced and respected pilots in the sport and I asked them if they had any knowledge or experience with this method. Not one of them had even heard of it! Not one of them had even read the article! I don't mean to criticize or be disrespectful in any way to any of these fine gentlemen, as they are certainly among the best that's ever been. I simply want to point out how we tend to overlook things like this article by Eric Muller. Once in a

while, a real "jewel" of an article or a priceless bit of information comes along and it goes by largely unnoticed and unappreciated for what it really is. This was the case with Eric Muller's article on spins.

After calling on the most experienced and respected pilots and instructors in the business and finding that none of them had done any experimenting with this method of spin recovery, I realized that if I was going to get anywhere with it I was going to have to do so on my own. I set out to flight test this method very carefully to see if it would work in every conceivable type of spin in the airplanes that were available to me. I began very cautiously and worked up to the more difficult situations very slowly. As I progressed I found that it did indeed work very well in every case. At this time, I was using my Pitts S-1-S, N16GB which is a stock airplane with no modifications. After taking delivery of my new Pitts S-1-T in October 1981, I continued with my spin tests in the "I" model. I went on to test the method in the Christen Eagle II, the Pitts S2A loaded in every possible way as long as it was within weight and balance limitations. I also tested the Cessna

150, Cessna 172, and the Beechcraft Skipper trainer in order to take in a wider variety of aircraft. I found that in every case, in every spin I could put these airplanes into including inverted and upright flat spins in the Pitts and Eagles, the aircraft always recovered promptly and smoothly by using the method of spin recovery that I outlined at the beginning of this article. I know of only one case where a pilot has reported that his aircraft would not recover from a spin using this method and that was an original, stock, DeHavilland Chipmunk with the small rudder and no spin strakes. I have conducted some spin tests in an original, stock, Chipmunk which had the spin strakes installed at the leading edges of the horizontal stabilizers and the larger rudder, and this aircraft would always recover nicely from any spin I was able to put it into, using this method.

While conducting the spin tests, I decided I would talk to as many pilots as possible while traveling around the country regarding their spin recovery techniques. I was absolutely amazed. I noticed that experienced pilots and neophytes alike tended to believe that they

knew all that was necessary for them to know about spins. In some cases, the pilots were very indignant and seemed to be insulted that I had the nerve to even suggest that their aircraft could get into any spin that they couldn't get out of. I now believe that some pilots tend to cling to their theories and beliefs about spins and spin recoveries, which in many cases are entirely wrong and dangerous, out of stubborn pride, and as a matter of principle. No one likes to be told that he is wrong. After all he "read it in a book didn't he?"

Many of the pilots that I spoke with took me seriously and agreed that there was indeed a problem in this area. Many related their own experiences with spins that had gotten out of hand. The following are some comments from some of them that I think you will find interesting. Some are amusing, some are not so amusing.

How about this one? "It just went into a spin and wouldn't come out! I tried everything, full power, opposite rudder, opposite aileron, stick back, stick forward, nothing seemed to have any effect. I finally got it out but I don't know how!"

Or how about this one? "Son of a

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#%\*!!! I tried everything! Why, you could put that stick anywhere you wanted to and nothing would happen, it kept right on spinning. Just when I thought I was going to get it out, it would start spinning again. I finally decided to bail out and cut the mags and while I was trying to unfasten my seat belts, the damm thing came out."

Or this! "Why, I must have reversed that spin five times. Just when I thought I was going to get it out, it would start spinning in the opposite direction. Just when I thought it was all over, she recovered when I turned the stick loose and started trying to unlatch the canopy to bail out."

I also heard this one: "I fell out of the torque roll at about 5000 feet. It started spinning and I did not recover and pull out till I was down to about 900 feet! I fought it all the way down trying everything I knew to do and somehow I got it out in time. It must have been out of rig or something."

I have also been told: "Yeah son, you need to slam that stick full forward and give her a burst of power. You need that power to make your elevator more effective."

Or this one: "We tried everything. Nothing worked. We finally turned the stick loose and started experimenting with the trim lever and she came out. The trim must have been out of adjustment or something."

These comments just show you how many pilots there are out there who do not know how to recover from an inadvertent spin, and bear in mind that these are just the ones who would talk about it and the ones that had lived to talk about it. It is interesting to note that in many cases the aircraft recovered on it's own after the pilot cut the power and let go of the controls and turned his

attention to trying to unfasten his seat belts or unlatch the canopy. This just proves that the pilot was simply holding the airplane in the spin with wrong control inputs trying in many cases, to recover from what they thought was an upright spin, when in fact they were in an inverted spin or vice versa.

After more than two years of flight testing and a lot of research, I bought a new Pitts S2A and started my aerobatic training program in May of 1983. Since that time, I have taught the course to dozens and dozens of pilots from all over the country and as far away as Canada, and Austria. I have yet to have a student who could not recover quickly and easily from any spin I could put them in including inverted and upright flat spins using the method of spin recovery shown here. My students have included pilots with varying levels of experience from complete beginners to advanced aerobatic competitors. The following is an outline of the spin training program that I use in checking a pilot out in a Pitts type aircraft.

(I) **Textbook Spins or Normal Spins.** (Upright and inverted, left and right.) (Power off, ailerons neutral, stick full back or full forward.)

(II) **Cross Controlled or Flat Spins.** (Upright and inverted, left and right, power off, stick either full forward or full back, full opposite aileron.)

(III) **Accelerated Spins.** (Upright and inverted, left and right, power off.) (I'll go into more detail on this one later.)

The student will also be familiar with the following:

1. Spin reversal by overcontrolling.
2. The effects of throttle, ailerons, elevator, rudder and elevator trim.
3. Visual cues relative to spin axis.
4. Psychological and physiological

considerations.

In item (III) above, I am referring to the type of spin that develops when the pilot begins to move the stick slowly toward the neutral position from either the full back or full forward position after the spin has developed, or the type of spin that will result when the aircraft falls out of a maneuver and begins to spin with the stick not fully against the forward or back stop. I have never heard this type of spin mentioned in any aircraft flight manual and I use the term "Accelerated Spin" for want of something better to call them. The rate of rotation that can be developed in this type of spin can only be described as awesome! If it is encountered for the first time on your own, it can be very disorienting and frightening. I don't have the time or space here to go into detail on each item listed in the outline above, but I would like to take a moment to explain a little bit further about these "accelerated" spins.

Let's take for example a normal upright spin to the right. Power off, and stick full back, ailerons neutral, and full right rudder. After the spin develops, we will begin to slowly go forward with the stick and as we do, you will notice a dramatic increase in the rate of rotation. We now let go completely of the stick, and you will notice that the stick stays in the aft position and the ailerons will lay slightly "in spin". The stick will not be full back, it will be about half way between the true neutral position and the full aft position but it will feel like it is in neutral to you. If you now take the stick & try to push it forward, you will find a lot of resistance and it will take an unbelievable amount of force to push that stick forward and you will also notice that the harder you push, the faster the airplane will spin and

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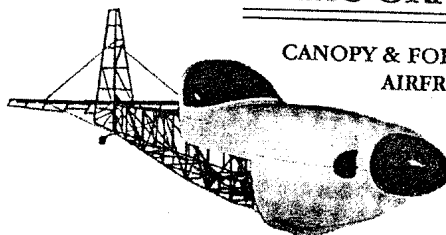
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even with full forward stick, the airplane will not recover! If you let go of the stick at this time, you will notice that the elevator will snap right back into that same position mentioned above. After the airplane gets into this type of spin, pushing the stick forward increases the rate of rotation and pulling it back, slows the rate of rotation, in the case of an upright spin. Of course the same is true of an inverted spin except that pulling the stick back will increase the rate of rotation and pushing it full forward will slow it down. With this type of spin, the pilot can become very confused and disoriented, not knowing whether the spin is inverted or upright, left or right. Combine this with a dangerously low altitude, and the panic that sets in when a pilot finds himself out of control, and you have a potential disaster in the making. Many pilots still believe that the elevator gets the airplane out of the spin, and when they have cycled the stick from full forward to full back and the spin rotation increases in one direction and slows in the other, this leads them to believe that the airplane will not recover. Let me emphasize at this point that the elevator does not get the airplane out of the spin! In most

cases, if used by itself, it will only aggravate the spin. The rudder is the most effective control for spin recovery. If this all sounds complicated, confusing and frustrating, don't despair. It doesn't matter if you understand all the aerodynamics involved or not, the recovery from any spin is the same even if you don't even know what type of spin you are in. Simply, cut the power to idle, let go completely of the stick, look straight down the engine cowling so you won't become confused as to the direction of yaw, and push full opposite rudder. (The one that is hardest to push.) The airplane will recover! Please understand that this type of recovery procedure is used when you are not sure just what the airplane is doing. It is emergency spin recovery procedure. We do not use this procedure for a precision, competition type spin where we want to recover precisely on a point. A precision type spin recovery is one in which we first apply full opposite rudder with the stick either full forward or full back depending on the type of spin and then apply nose down elevator at the point where we want the spin to stop, neutralize the rudders and then project a perfectly vertical down line.

The commonly accepted methods of spin recovery shown in most aircraft flight manuals are certainly correct and will work if used exactly as described. Also, the method of recovery from flat spins taught by many instructors will certainly work, however they are very complicated and time consuming and they also require that the pilot know exactly what type of spin he is in before he can apply the proper control movements. This all just asks too much of the panic stricken pilot who finds himself in trouble at a dangerously low altitude. With the method of spin recovery that I teach in my aerobatic course, the pilot can quickly and easily recover, with a minimum loss of altitude, from **any** spin even if he is confused and doesn't know what type of spin it is.

While teaching basic aerobatics during the past few months, I have found that the following maneuvers are the ones most likely to result in an inadvertent spin during the student's first few attempts:

1. Hammerheads, 2. Immelmans,
3. Vertical rolls, 4. Vertical snaps.

In my own case, the maneuvers that got me in trouble before I thoroughly understood what was happening, were the torque rolls and

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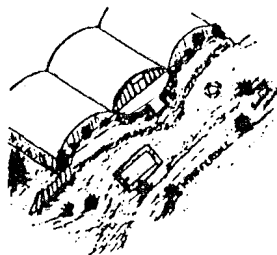
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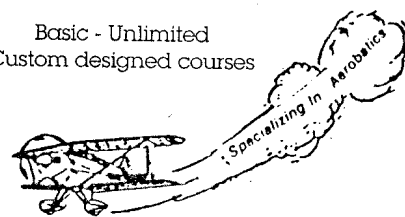


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lomcevak. Please treat these two with the greatest respect and don't practice them at low altitudes. I would also like to make one more suggestion to you regarding flying in airshows. Do not, under any circumstances, do spins in airshows! They are just too unpredictable to be done safely at low altitudes. The altitude loss during recovery can be affected by too many variables such as, density altitude, miscalculating the number of turns, the hypnotic effect of multi-turn spins etc. Keep it flying. The average person at an airshow doesn't know the difference between a five turn inverted flat spin and a whifferdill anyway, and your friends that do would appreciate it if you wouldn't scare the hell out of them with a recovery in ground effect.

I certainly don't claim to know it all about spins, but I have learned a lot about the subject in the past few years and I am convinced that this method is the best, most reliable and easiest method of emergency spin recovery that has ever been devised. It's widely known and accepted, it could save a lot of lives.

In conclusion, I would like to emphasize that I have not discovered or developed anything new on my own and I cannot take credit for developing the spin recovery technique that I teach. I have simply taken the best of what I have learned from others and from my own experiences and put it together to form a comprehensive and easy to understand spin training program that can be taught to any pilot in a relatively short period of time. I sincerely believe, that if I could give the average pilot thirty minutes of ground briefing, and thirty minutes of flight training, he would be able to recover from **any** spin that can be encountered in any of the air-

planes I have tested so far. There is no need for any pilot to continue being afraid of flat spins, inverted spins etc. I am happy to provide training for individuals at my base in Midland, Texas and I would also be happy to provide training for instructors that are involved in aerobatic training for the benefit of the pilots in their area. They would then be able to go back to their home bases and teach this method to the pilots in that area.

When choosing an instructor, ask a lot of questions. Ask for the names and phone numbers of their last three students and call them and find out if they were happy with the training they received. Find out if the instructor has flown the model of aircraft that you will be using in your flying. If so, how many hours does he have in make and model. Many instructors will profess to be "aerobatic instructors" when in fact, they are no more than beginners themselves.

There can be no substitute for good dual instruction by a competent, professional instructor who has the patience and understanding to pass his knowledge and skills on to other pilots. Why stumble through it on your own, when with the proper training, you can remove all the mystery and fear from your mind about spins. Confidence in anything comes with knowledge and proficiency. This can come easily from proper training.

I hope you all will overlook my shortcomings as a writer and realize that this is completely out of my element. At least my intentions were good. I hope I have chosen words that get the message across that I intended. If not, call me at my office at AC 915-563-1441 or home in the evenings at 915-367-0329 and I'll do my best to explain it or we will find

someone who can! Please discuss this with your friends and fellow aerobatic types and if you have any comments or feedback, I'm always eager to hear about it. Let's all have the best and safest year ever in 1994!

### Video Tape

With the advent of the Video Tape Players and the many educational tapes available to the public, we knew it would be only a matter of time until a company would begin producing video tapes to help educate the aviator.

One such company, namely "AIR CAPITOL AEROBATIC", has developed a Video Tape entitled "Aerobatic Ground School". The program is 1 hour in length and, of course, it can be stopped and replayed as much as desired.

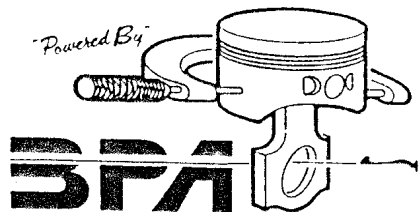
The course is divided into individual maneuvers. Preceding each video presentation is a Ground School session in which the instructor discusses the aerodynamics of the maneuver and proceeds to describe how it is performed. Then follows the video presentation which includes views looking over the nose, at either the left or right wing and/or from the ground showing the aircraft performing the maneuver.

The final portion of the ground school is a section on the most common errors made in executing the maneuvers.

This would be a good aid in teaching beginning aerobatic pilots. It would also serve as a promotional tool for flight schools and/or IAC Chapters.

It is our understanding that AIR CAPITOL AEROBATICS has other video tapes available and plans future Video Productions for other flight ratings as well. Tapes presently available are either VHS or Beta.

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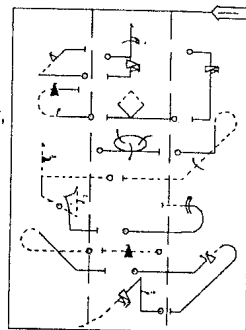
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