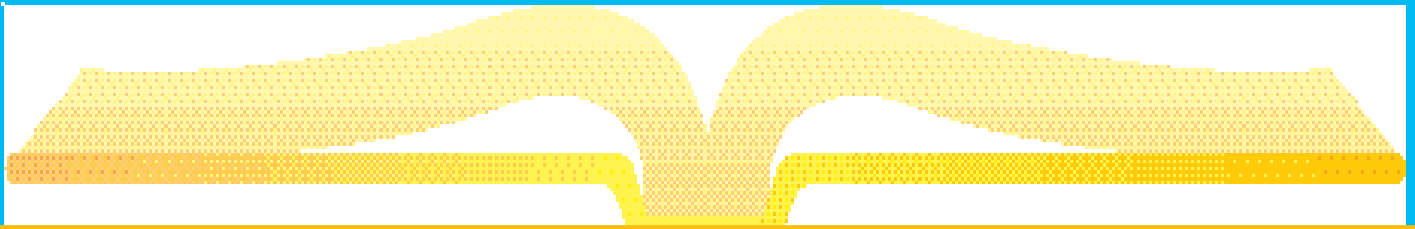


THE NEW AIR SHOW



GOLD
BOOK

BY MICHAEL GOULIAN

DOCUMENTING
SAFETY TIPS FOR ALL
PERFORMERS

In late 1998, the ICAS Board of Directors asked me to become Chairman of the ACE Committee. I accepted the invitation because I expected it would give me an opportunity to help increase the safety level of air shows for air show pilots. To give back to an industry that has been very good to me has always been a goal of mine and I thought that chairing the ACE Committee was a good way to do that.

Since that time, the ACE Committee's main agenda has been the development and implementation of Practical Evaluation Standards (PES) for low-level waiver applicants. We have also spent a great deal of energy processing waiver exemption requests. Needless to say, these two topics are worthy of concern and important to the overall administration of the ACE program, but the committee's activities in these areas were not allowing me to meet my goal of having an immediate impact on safety.

Now that the Practical Evaluation Standards are nearing implementation, it is my intention to begin focusing on our original goal: SAFETY!

A few years ago, a presentation was made at the ICAS Convention that illustrated accident statistics for air show pilots. The graph demonstrated that new air show pilots were at the greatest risk of an accident early in their air show careers. The same graph also clearly illustrated that — once they gained a little experience — they were well on their way to a safe career as an air show pilot.

It immediately struck me that we needed an effective method to efficiently educate new air show pilots so they didn't have to suffer through the learning process of their predecessors. You may have heard many of the industry's more

experienced pilots say, "Live through the first few years and you'll probably be OK." Well, that's really not OK.

So how do we fix that problem?

Flight Safety distributes a guide to new Lear Jet pilots that they call the "Gold Book." This book contains a ton of tips from experienced Lear pilots that help shallow out the learning curve for "newbie" Lear pilots. I can tell you that I learned as much about flying a Lear Jet from the "Gold Book" as I did from sitting in class for two weeks studying systems.

So why doesn't the air show industry have its own "Gold Book" of tips written

Your first obligation is to fly a safe show.

by experienced air show pilots? That's a good question and a question that I was asking myself about the same time that I became chairman of the ICAS ACE Committee. The air show industry has some of the greatest pilots in the world as a resource and we don't use them. An air show "Gold Book," it seemed to me, could be a great way to pass along knowledge from our industry's more experienced pilots to our less experienced pilots.

After explaining the idea to the ACE committee, they agreed to commit some of the Committee's resources to develop an air show "Gold Book." The ICAS headquarters staff sent out an informal e-mail request to solicit some tips from experienced pilots to get the process started and provide some substance for this initial introduction of the idea. We've

included a few a few of the responses below.



Competition style loops and "air show loops" are not the same thing. Start your air show loop very fast. Then, as you begin the second quarter of the loop, release some of the back pressure so that you gain altitude and carve a nice even second half to your semi-circle in the air. As you hit the 180 degree mark (top) in your loop and begin the third quarter of your loop, your initially high airspeed as you entered the maneuver and your proper management of the second quarter of the loop will put you higher than a normal "competition style" loop which should allow you to recover with very little G and high energy at the bottom. The goal of the "air show loop" is to "drive" the aircraft back to the starting point. You should never have to "pull to miss the ground" in a loop.



Establish energy windows (minimum altitudes, minimum and maximum speeds) for all of your maneuvers and stick to them religiously.



Rolls on vertical downlines waste a lot of altitude and energy. If you are low on energy or altitude, DO NOT perform the roll on the vertical downline, even if it is on your sequence card. Utilize the straight vertical line to re-gain your target energy numbers.



Approach high density altitude conditions with the respect they deserve. Expect higher closure rates. Expect lower engine per-

formance. Adjust your minimum altitudes up to accommodate these different conditions. Allow yourself plenty of time to practice in the high density altitude conditions before the actual air show. Recognize that high density altitude conditions may significantly increase the time it takes to safely fly your full show.

★ When flying in high density altitude conditions, remember that indicated airspeed is indicated airspeed. You need your indicated numbers even in high density altitude conditions. Never settle for less than the required indicated speed to start a maneuver.

★ Your performance ability varies each day and within each day. Be truthful with yourself about your ability before each performance.

★ Take time to watch a performer or two before you fly to help gauge wind and show conditions. If time permits, try to get a short brief from that pilot.

★ Know your numbers "on top." Flight test your aircraft with various "over the top speeds" and commencing maximum performance recoveries. Then give yourself 20-30 percent extra altitude on top of that and make that altitude your minimum pull-through altitude.

★ Knife-edge spins and tumbles use a lot of altitude. Practice them up high first and then make them a "by the numbers" maneuver. Do not use your seat of the pants feel to complete these maneuvers.

★ Pre-cool your parachute for at least an hour prior to your act by putting the chute in an air-conditioned vehicle.

★ Don't ever add a maneuver to a sequence, but be quick to remove one if your energy or altitude are too low. Poor weather, density altitude problems, small changes in your flying on a particular day or simple miscalculations are all possible reasons for eliminating maneuvers as a tool for staying safe.

★ Don't over-estimate your ability to respond properly when you're in an inverted aircraft close to the ground...particularly in the event of "complications." If a problem occurs when you're inverted and close to the ground, until you've trained extensively or been in the situation many times, your instincts will tell you to pull when what you really must do is push.

★ Mentally, fly your air show routine several days before your show and again when you arrive on-site. If you have flown the show site before, apply the specifics of the site to the mental routine. During this mental routine apply the "what ifs." What if the engine quits on the vertical up line during the loop, what will you do? What if the wind changes dramatically during the course of your performance, how will you adjust?

★ Take your time. The biggest pitfall for new and experienced performers is allowing yourself to be rushed, either during or prior to your performance. Never let a show producer or air boss rush you to "get on stage." Your first obligation is to fly a safe show.

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Drink plenty of water/electrolytes. If you don't need to go to the bathroom every now and then, you're dehydrated.



Understand that prolonged negative G maneuvers followed abruptly by positive G maneuvers can be very dangerous...causing you to lose consciousness without warning.



Learn to say no. It's important to be as accommodating and "user friendly" as possible when working with an air show, but don't allow ground commitments to interfere with safety.

ICAS and the ACE Committee are eager to integrate other common sense-type tips, observations and "pearls of wisdom" into this new air show "gold book." We plan to finalize the first draft of the document and distribute it in conjunction with the ICAS Convention, this December in Orlando.

But this publication and its content will only be as pertinent, useful and valuable as you help us make it.

Please take a few minutes to provide us with a lesson that you've learned or a rule by which you always fly your air show routine. Collectively, we can take a big step toward eliminating the requirement that air show pilots learn all of the really important lessons by trial and error. We can begin the process of collecting an air show body of knowledge that will grow from one month to the next and provide guidance and direction to every air show pilot who takes the time to read these tips.

You can send your contribution to me at mike@mikegoulian.com or to ICAS at icas@airshows.org. You can send them by fax to: 703-779-8511. Or you can also mail them to: Gold Book, ICAS, 751 Miller Drive, Suite F-4, Leesburg, Virginia 20175. 1

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