

MEMORY AIDS

Simple Strategies for Aerobatic Safety

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This article was originally published in *Sport Aerobatics* magazine; however, much of the information applies whether you're a seasoned aerobatic competitor or a pilot contemplating basic spin, emergency maneuver, or aerobatic training. The PARE, Power--Push--Roll, Speed--Spot--Set-up, and other emergency strategies are developed more thoroughly in my book, *Emergency Maneuver Training*, now available on-line from the Learning Center Pilot Shop.

The secret behind the success of top aerobatic pilots can be summed up in three words: practice, practice, practice! Defining a goal, outlining a plan, repeating maneuvers over and over again until they become instinctive, until sequences flow seamlessly, precisely--such is the commitment of many involved in competitive aerobatics. But instinctive responses--tailored to the situation, honed by practice--are also important for those unusual events that occasionally sneak into otherwise flawless performances.

Proficiency in aerobatics should not only include practicing sequences of maneuvers, but also should include routinely reviewing emergency procedures. This is true especially at the beginning of the aerobatic season and any time you're adding new maneuvers to your repertoire. Here are a few memory aids that might come in handy during your aerobatic training:

Emergency Egress Considerations

THREE H's - Handle, Headset, Harness: Grab the emergency Handle (it's often red, or should be) and jettison the door or canopy (Note: Decathlons and Citabrias have a retaining pin that must be removed first to unlock the handle. Although you generally pull the handle, in some Citabrias it must be pushed). Remove your Headset and drop it to the side (If you're wearing a helmet, disconnect the headset cord from the airplane). Undo your Harness and move

the loose ends away from your body. Exit the airplane head first. As soon as you're clear of the airplane, LOOK at the rip cord handle (the D-shaped ring), GRAB it with both hands, and PULL!

In-Flight Pre-Aerobatic Checks

FOUR A's - Altitude, Articles, Aircraft, Airspace: Be sure you have enough Altitude to begin. Factor in the maneuvers to be flown, your current level of proficiency and physical conditioning, and an adequate safety factor. Verify that all loose Articles are secure--this includes windows, doors, canopies, and occupants! Verify that the Aircraft is configured properly--mixture, switches, engine instruments, carburetor heat/alternate air, flaps. Clear the Airspace for other traffic and make sure you're complying either with the provisions of FAR 91.303 or a waiver for the area.

Unusual Attitudes

RELAX: Most unusual attitudes in the aerobatic environment are pilot-induced. Trying to force the airplane to fly without enough energy, or with misapplied controls, or both can quickly lead to an inadvertent stall/spin or inverted attitude. The airplane will usually return to a more normal flight mode by simply relaxing your grip on the controls--even letting go--when a maneuver first goes sour.

Even experienced pilots would be hard pressed to save a botched maneuver. If it's that bad, it probably would be scored a zero anyway. Why compound matters by transitioning into an unusual attitude? Abort those errant maneuvers early instead. You'll regain control faster and you'll have more options available afterwards.

Inadvertent Spin

PARE® (pronounced "pair"): So, you just couldn't find it within yourself to abort that botched maneuver, or to relax your grip on the controls and let the airplane sort it out for you. You're suddenly spinning when you shouldn't be. What now? Power--Off; Ailerons--Neutral; Rudder--Full Opposite to the direction of Yaw; Elevator--Move toward Neutral. Closing the throttle as soon as the airplane starts rotating significantly reduces the speed and fury with which

some high performance aerobatic airplanes can depart into an aggravated spin.

If you're flying a Pitts- or Eagle-type mount and you're implementing the Beggs "hands-off" method, you must still remove the power and apply rudder fully opposite to the direction of yaw. These two actions definitely require "hands-on" action by the pilot. Observe the stick to make sure that it does, indeed, then move to neutral (ailerons and elevator)--usually within 1/2- to 3/4-turn after full opposite rudder. If not, be prepared to manually position the stick neutral.

Whether you perform the four basic recovery actions yourself, or divide the actions a-la the Beggs method, the PARE acronym allows you to follow a systematic check of anti-spin control positions.

Inverted Attitudes

Power--Push--Roll: In the aerobatic environment, if you find yourself upside down when you shouldn't be, reduce the Power (especially if you're descending). Apply a slight Push on the elevator to reduce the positive g-load and to retard the rate at which the nose may be falling through the horizon. Apply full aileron, followed by coordinated rudder, to Roll the airplane upright. Avoid pulling while you're rolling--roll upright first, in a low-g environment, then recover the pitch attitude.

In-Flight Engine Failure

Speed--Spot--Set-up: Establish best glide Speed without delay. Select and head toward a suitable landing Spot. If time and altitude permit, Set-up for the landing by configuring the airplane according to the operating handbook. If you're landing off-airport, don't forget to prepare the airplane so you can get out of it once it's on the ground. Consider opening or even jettisoning the door or canopy prior to landing.

When preparing for an aerobatic flight, tuck these or similar strategies away in the back of your mind just in case. Better yet, why not make it a habit to practice emergency procedures once in a while? A couple of hours of dual instruction might be a wise investment if you're feeling a bit rusty, too. Be safe!