

SAFETY

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A couple of things happened recently which caused me to give some more thought to aerobatic flight in RVs.

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One was a letter received from a German RV-4 builder, Rolf Hankers.

The letter related Rolf's experience in winning first place in the Intermediate Class of an aerobatic competition. Rolf's RV-4 has a 160 HP Lyc. with an Ellison TBI, Christen Inverted System, and a fixed pitch MT prop. With an empty weight of 940 lbs., it is well configured for aerobatics. Rolf was competing against pilots in ships like the Extra 200, Pitts S2B, Pitts S1T, and Zlin 526 AFS, so his win is worthy of our congratulations.

The other was an experience I had (well, it was more of a non-experience) while flying with a builder in his RV-6A. We were on a short general purpose flight in his RV-6A, and upon completion of our flight objective, he suggested that I "do a loop". I declined on the basis that I was short of time and didn't like to do aerobatics without more experience in a specific airplane (or something like that). Later, I thought about it and realized how foolish I would have been had I conceded to demonstrate the loop, or any other form of aerobatics. First, neither of us were wearing parachutes as required by FARs. Second, that particular RV-6A was fairly heavy and was certainly well over aerobatic gross weight with the two of us on board. Quite possibly it would be over aerobatic gross with only one person on board. We had not checked to see if aerobatics were permissible in the airspace in which we were flying. I had no more than 10 minutes at the controls of that specific RV-6A; definitely not enough to have become familiar with its "feel" or any peculiarities it may have possessed. I really don't believe that, considering my experience and the quality of this airplane, a simple loop would have involved any great risk. But it would be an example of the lack of planning and spontaneous action that can, and has, lead to tragedy.

The last three RV-4 fatal accidents (all within a 12 month period) involved aerobatics to some degree, and were presumed to have either been the primary contributing factor, or a possible contributing factor. So, should we all stop doing aerobatics on the basis of this accident record? If we flew our RV-4s in the same manner (non-aerobatic) as we do Cessna 172s and Piper Cherokees, would these accidents have been avoided? Probably! Is it more important that we save lives, or that we enjoy the freedom to expand our limits of flight beyond those of the Cessnas and Pipers?

You answer that. Now justify your answer.

According to FAR 91.301, "Aerobatic flight" means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight."

FAR 91.307^c states that "Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crew member) may execute any intentional maneuver that exceeds—

- (1) a bank of 60 degrees relative to the horizon; or
- (2) a nose-up or nose-down attitude of 30 degrees relative to the horizon.

We often hear the pitch and bank angles referred to as the defining limits for aerobatic flight, but that's not the way the regs read. In most instances, flight in excess of these pitch and bank limits would be considered abnormal, and thus would be aerobatic, so maybe the exact verbiage is a moot point. The definition of aerobatic requires an interpretation of the word NORMAL. For instance, if an airplane has enough power to sustain a climb angle in excess of 30 degrees, that climb might be considered normal and thus, not qualify as aerobatic flight. However, if a non-crew member passenger were on board, parachutes would be required during that NORMAL climb. That's what the regulations say!

Are aerobatics inherently dangerous? Based on statistics, both for the RV-4 and for any other airplanes ever used in aerobatics, the answer would be yes. If we based our answer on the assumption that all aerobatics were performed by well trained pilots, within the published flight limits for the airplane, and above the FAA minimum aerobatic altitude, the answer would be NO-- aerobatics don't have to be dangerous. However, I think that we all agree that aerobatics have a much greater potential for being dangerous than non-aerobatic flight. The difference then becomes HOW the aerobatics are performed rather than the simple fact that they are. There is a vast difference between PERFORMING aerobatics, and ATTEMPTING aerobatics. Pilot training, planning, and judgment make the crucial difference.

Rather than debate the exact demarcation point between aerobatic and non-aerobatic flight, let's just apply good judgment. If there is any doubt, measure your judgment against the probability of that maneuver or flight attitude leading to a loss of control. That is what we are really trying to do—maintain control. Now, please don't ask me to define "loss of control". While this is a vital point, one which we have often discussed before, I trust that you are smart enough to provide your own answer to this—you can tell whether or not you are in control. And, in the final analysis, you must supply your own answers.