Stall/Spin Upset On Final

Are WE Instructors Partly to Blame? – YES, We Are!

We all know that stall/spin "upset" incidents on final (some of which become accidents) – close to the ground – are a major hazard and a killer of pilots and, unfortunately, also passengers. We know that the onset of this situation seems to be a complex one with many implications for aircraft control, but really it is a simple one. The pilot yawed and stalled the airplane. Also, when this type of upset occurs, even the very best pilot will initially have a period of "startle" while trying to understand what is happening and what is needed to correct it, this despite the fact that they created the situation. So, there would seem to be a disconnect between what the pilot wanted the airplane to do and what they "told" it to do by their control inputs. The problem is, of course, that this often occurs close enough to the ground that the time needed for that analysis and reaction takes more time than is available – or should we say more altitude than is available. While we train in power off turning stalls (formerly called approach to landing stalls) at altitude, that is a planned exercise and the student/pilot is prepared for them. On short final, or turning to final – not so much! It is also surprising how many pilots have never done a turning stall – only the wings level variety!

A key question needs to be asked here. Why do pilots find themselves in this position in the first place? There are numerous answers – the pilot got slow, the pilot got slow and cross controlled, the pilot overbanked, and the list goes on. While these are all valid points, and there are many others, it still doesn't get to one of the real "causal" factors that got them there. HOW did the pilot get low, slow, cross controlled, and overbanked in the first place?

I know that there are probably many potential primary causal factors that could be listed, but I would like to suggest that there is one fairly prominent one – and we instructors are partially to blame for its occurrence. I know that sounds like a strong statement, but I hope to provide, in the information that follows, two things – a rationale for that statement and a potential solution for it as well.

Again, there are many ways that a student/pilot can get into the situation, but if we instructors think about the times that we have seen the potential, many of those are the result of a common incident – flying through the final approach course during the turn to final. Distractions undoubtedly played a role in a number of those. I have seen it many times with students, and also with pilots on flight reviews and proficiency flights, and after we got on the ground I asked a question. "Why did you do that steep, pulling bank on your final turn?" And, almost universally they will say, "Because my instructor told me **I (had to/needed to) roll out on final lined up with the runway**." And when they didn't? Their instructor further stressed the importance of doing so.

We must remember that while lining up with the runway is the "end game", we also do a disservice to students/pilots when we imply that lining up means "NEVER" going beyond the extended centerline. There is not a wall there (though there are issues if there are parallel runways). Overshooting the centerline may, in some cases, have some worth, such as initiating an s-turn process to bleed off excess altitude rather than skidding or slipping (cross control).

Put yourself in the place of the pilot or student that slightly misjudges the wind or the turn (or is distracted) and winds up going slightly through the runway centerline as they are turning – or even more than slightly, which increases the problem. More often than not, what is their response? Steepen the bank and pull, which increases the g-loading and angle of attack, to try and "get back over to the centerline". And, here comes the stall/spin on final.

Sometimes I don't think that we instructors, myself included in the past, have realized the impact of some of the things we say, like - "You really should roll out lined up with the runway." Granted that IS the desired result, and our training should be to teach them how to do that – judging the wind effect, etc. so that they can safely compensate and roll out on final lined up. But, I am reminded of some cartoons I have seen, notably Charles Schultz in Peanuts, where an owner is talking to their pet to try and train them and what they hear is – "/// ////// **Line up with the runway** /// ///// /////". You get the drift (pun intended). They hear only part of the message and it is strongly heard and remembered. The Law of Primacy applies here, and it will stick with them, with the strong emphasis, as we know from our study of the Fundamentals of Instruction!

I certainly agree that what we should teach is the analysis that gets the student to see in advance what the air mass movement is doing to them so that they can anticipate what is needed in the turn to final. But, I also know that even the best "air gods" will occasionally misjudge the flow and either undershoot or overshoot the centerline. Undershoot is NOT a problem and much easier to resolve – but overshoot IS a problem as our stall/spin statistics will tell us – and they don't really go down. It is a problem because of the way we instructors treat it – as a big deal, instead of a teachable moment.

While it will not eliminate the stall/spin situation on final, I would suggest that we need to spend quite a bit more time teaching how to recover/fly out of the overshoot with our students to significantly reduce the problem. They need to understand that it is not an "offense" to fly through, and that the solution is to either continue the normally banked turn to fly back to the centerline or, if they are way off, to go around and do it again. In most cases, the former is the ideal solution – just continue the NORMAL turn to a heading that is a good re-intercept angle to the final course, then make a normal turn back to the final approach course at the intercept. At that point, make a decision as to whether a normal approach to landing is possible. If so, continue, and if not, go around.

WE, as instructors, must understand the import given to what we say to our students and the weight that it carries, whether intentional or not. The next time you are with a student or pilot, listen to what you say and consider modifying it to start teaching this way to resolve it. It is a lot harder to "unteach" something than it is to teach it right in the first place. We need to work on the initial teaching part with students, and spend a LOT of time working on the unteach/reteach part with our fellow pilots.

Will this eliminate the stall/spin on final? No, but it can go a long way to preventing some future ones that might otherwise occur! In fact, it might even be a good idea to practice some intentional overshoots with the corrections so that the students/pilots understand and are comfortable with them.

(with grateful acknowledgement to Rich Stowell for review and input!)

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