



The High Ground

A Newsletter From Wyoming Wing
Standards/Evaluation
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Hot Topics



Pilot Proficiency Profiles... The New Reality! With the implementation of CAPR 70-1 Flight Management, the Air Force came out with new requirements for documentation of training sorties. The AF now requires us to document what is planned, and what we actually accomplished during that sortie, per the Pilot Proficiency Profile. We are required to accomplish all of the REQUIRED items listed in the PPP Checklist. We have to document each item and upload/note supporting documentation, or document why we did not accomplish the required item. Please review the preamble of the Pilot Proficiency Profiles (first page) and the specific Profile which you are planning on flying. Unfortunately, we can't "just wing it" anymore. (Sigh) This ain't my idea, this is from "On High".

Pilot Proficiency Profiles

To review, the Pilot Proficiency Profiles, dated 01 January 2018, have changes. Best to print out a copy and keep it handy while operating under any one of these Profiles. And the Profiles are now to be documented in the "Profile Used" in WMIRS as P#, i.e. Profile number 1 would be entered as "P1".

Note that each Profile has a header which dictates the PIC qualifications to operate under that Profile. Read these before you attempt to fly the Profile. Now the BIG CHANGE is in the details of each Profile, what we are expected to do, and what we have to document for each Pilot Proficiency Profile sortie.

Each PPP has in its description "Routine" and "Required" Items. As the preamble states, "Routine flight procedures listed in the "ROUTINE ITEM" section on the proficiency sheets may be practiced, but the majority of a proficiency flight must be focused on the items outlined in the "REQUIRED ITEMS" section." Okay, that's new. But here is the kicker... **"If items in the "REQUIRED ITEMS" section are not accomplished, a detailed explanation MUST be included in the Results/Deliverables section of the CAPF 104."** (their emphasis, not mine).

Now, you do have the option of either trying to "detail" your explanations and activities in the debrief section of WMIRS. Or, you may note in the "Remarks" section that you have uploaded the Pilot Proficiency Profile sheet into the sortie files. So, to make things easier, you might want to print out the appropriate PPP sheet and use it as a checklist during the sortie. Then just scan/photograph and upload the completed worksheet into the sortie files (found right under the "fuel" portion of the sortie Debrief).

Each PPP has specific "REQUIRED ITEMS". You will need to read each carefully. Take the time to review and plan your training sorties. Some of these sorties' "Required Items" are rather extensive and will require some pre-planning to get them accomplished in a timely fashion. Post-flight requires documentation. You must detail what you accomplished, or not. You need to upload any supporting info (like photos, LAT/LON of the ELT. Etcetera). I'd strongly recommend that you use the PPP worksheet as a checklist and just upload that. It will make your post-flight documentation much easier. *And, as everyone knows, I'm all in favor of "easy"!*

Turn to Final Stall/Spins

One of the leading Loss of Control accidents is “The Turn to Final Stall”, or “The Tuck Under Stall”. This usually occurs when a pilot overshoots final. Then, instead of correcting gently or going around, he tries to cheat with a little inside rudder. As this rudder application is towards the inside of the turn, the nose will lower. Next our hapless hero applies a bit of back pressure. The airspeed begins to decay and the aircraft is in a cross-control condition. Next, the inside wing will begin to drop. But rather than apply counter-rudder, roll is applied to counter the wing-drop. The aircraft suddenly rolls rapidly inverted and recovery is virtually impossible.

The aerodynamics of this type of stall involve the ailerons, and how they affect Angle of Attack. Remember from your initial training that the Angle of Attack is the angle between the relative wind and the cordline, which is the line between the leading and trailing edges. An aileron functions by changing the lift generated by each wing. As you move the aileron, the trailing edge raises or lowers. As the trailing edge moves, the cordline changes for that portion of that wing. Applying left roll raises the left aileron, reducing the AoA for the left wing and thus that wing produces less lift. At the same time the right aileron lowers, increasing the AoA of the right wing with an associated increase in lift. Recall that when you increase lift, you increase drag. This is why the aircraft wants to yaw into the wing with the lowered aileron, thus Adverse Yaw. Each airfoil has a critical AoA, usually around 17 degrees, beyond which the airflow will separate sufficiently to result in a stall.

Why is this important? While operating near maximum Angle of Attack, deflecting an aileron downward may cause the AoA to exceed the Critical Angle of Attack and a stall result. But only on that wing!

Now, let’s return to our hapless hero. He’s overshoot final but remembers his instructor’s admonishment to never bank beyond 30 degrees in the pattern. But he’s still not correcting quite fast enough so he sneaks a bit of inside rudder to “help” the turn, which increases the bank, so a bit of outside roll is added. Now that he is in a skid, the total lift coefficient has been reduced due to the wingspan not being square to the relative wind, and the nose drops slightly. Now a touch of up elevator. With the reduced airflow, the lift on that wing is reduced, resulting in an increased roll into the turn. Instead of removing the inside rudder (or going around) our hero applies more outside aileron to stop the increased roll into the turn. The application of roll to the outside of the turn has deflected the inside aileron further, increasing the lift, in an attempt to raise the inside wing. This increased deflection not only increases lift, but increases induced drag, further pulling the nose into the turn. As this vicious circle continues, the inside wing approaches the Critical AoA. And when it is exceeded, the aircraft will suddenly and violently roll towards the inside wing, and into a low altitude Tuck Under Stall/Spin. A spin from these altitudes is irrecoverable.

How do we avoid the Tuck Under Stall/Spin? Fly the appropriate pattern. Maintain correct approach speeds (Per the POH about 70kts, which leaves lots of margin above stall). And when you realize that you are getting into this situation, center the ball, roll wings level, add power and, **GO AROUND!!!**

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