Ready for the Soup?

Tips on Maintaining IFR Proficiency

BY SUSAN PARSON

Photo by James Williams

If asked to list three requirements a pilot must meet to fly in instrument meteorological conditions (IMC) or under instrument flight rules (IFR), most pilots who have earned these qualifications could easily name two. First, it's pretty obvious that the pilot must hold an instrument rating on his or her pilot certificate for the category and class of aircraft to be operated. Since instrument flying skills—like any other skill—are perishable when they aren't used, the second requirement is for the pilot to be instrument current by meeting the requirements stated in Title 14 Code of Federal Regulations (14 CFR) section 61.57.

How about the third requirement? It isn't spelled out in the rules the way that the requirements for instrument rating and instrument-flying currency are, but instrument-flying proficiency is definitely a requirement for flying safely under IFR, especially when you are also operating in IMC.

"Current" vs. "Proficient"

Some will argue that proficiency is included in the regulatory requirement for instrument-flying currency, and I would certainly agree that the goal of IFR-currency requirements is proficiency. However, I part company with those who believe that an IFR pilot who is IFR current in accordance with 14 CFR section 61.57 is automatically IFR proficient as well.

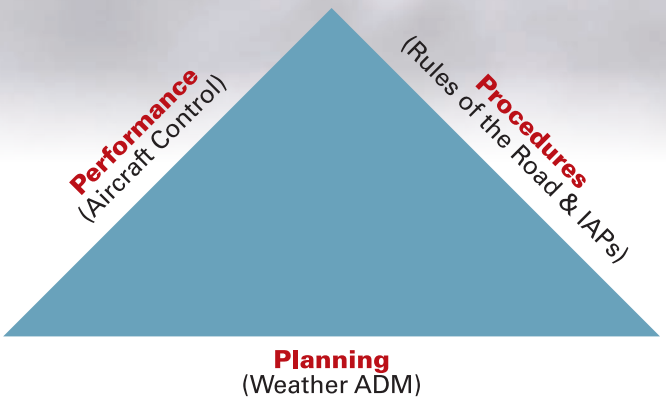
What *is* proficiency? According to one definition, proficiency is "the quality of having great facility and competence." When it comes to instrument-flying proficiency, for some pilots, e.g., those who have a wealth of IFR experience that includes many hours of flying in IMC, meeting the currency standard outlined in the regulation may be enough to ensure that they maintain "great facility and competence" in the full range of instrument-flying knowledge and skill. For others, however, and I include myself in this group, maintaining facility and competence, a.k.a. instrument proficiency, requires some extra effort.

The Proficiency Triangle

For those of us in the "needs extra work" group, I offer the three-sided "proficiency triangle" as a practical way to think about the elements involved in maintaining IFR proficiency.

If you pause for a moment to remember your initial IFR training, it was likely conducted in three basic segments. The first was learning to physically control the airplane solely by reference to instruments. Textbooks call it "basic attitude flying." For this discussion, we'll call it aircraft-control *performance*.

When you think about instrument training, currency, and practice, it's likely that your first thoughts and strongest memories involve the second element of instrument proficiency, which is the



world of instrument-flying *procedures*. These include regulations and operating principles for IFR, as well as instrument-approach procedures, standard instrument-arrival procedures, and instrument-departure procedures (standard instrument-departure procedures and obstacle-departure procedures).

Because instrument training and practice sessions normally focus on pilot performance, i.e., basic attitude flying and adherence to procedures, the third element, *planning,* does not always get the attention and respect that it deserves.

Planning —The Trip Starts Here

Weather is the reason for instrument flying. Though solid performance and procedural knowledge are essential to instrument proficiency, planning—especially as it relates to obtaining, evaluating, and applying weather information to the specific pilot/aircraft combination and intended mission—is the foundation and, indeed, the starting point of instrument flying "facility and competence."

In the July/August 2010 issue of *FAA Safety Briefing*, we focused intensely on these issues. To recap briefly, a proficient IFR pilot should understand that there are really just three ways that weather affects an aviator. Weather can:

- Create wind
- Reduce ceiling and visibility
- Affect aircraft performance

Reduced ceiling and visibility are the issues most relevant to a discussion of instrument-flying proficiency. Proficiency requires good planning. For any trip under IFR, especially if it takes place in IMC, good planning, in turn, requires a careful evaluation of issues such as:

Personal minimums. Your IFR ticket gives you the legal right to "take a look" or shoot approaches to minimums, but don't fly to the edge without being truly up to snuff in the performance and procedures sides of the IFR proficiency triangle. If you don't have personal minimums, your IFR proficiency plan should include taking the time to develop a basic list of what you will and will not attempt. Think of personal minimums as the human factors equivalent of a fuel reserve: The idea is to establish a safety buffer, or "reserve," between the pilot skill and aircraft capability required for a given operation, and the pilot skill and aircraft capability available through factors such as training, experience, currency, and equipment.

Options. The planning part of the IFR proficiency triangle also means taking the pilot's "always-have-an-out" mantra very seriously. Internet planning tools with graphical weather have dramatically simplified tasks such as identifying the direction of VFR weather and selecting alternates that are not only legal and in range, but also viable in terms of the flying mission you are trying to accomplish.

Performance — Practicing Aircraft Control

This side of the IFR proficiency triangle addresses your ability to keep the blue side up, even when the all-white view outside makes you wonder if you're flying through a milk bottle. Being truly proficient in performing the basic task of airplane control by reference to instruments is a critical, but extremely perishable, set of skills:

Instrument scan (cross-check). The basic IFR scan involves constant cross-checking of the instruments. Is your scan sharp? Could you honestly say that it is sufficiently ingrained through training, habit, and practice to be "automatic?" If you move between "steam gauge" round dials and glass-cockpit instruments, are you comfortable in both systems? Do you practice partial panel on a regular basis?

Instrument interpretation. How proficient are you in interpreting the results of your instrument cross-check scan? Even in an aircraft with glass-cockpit instrumentation, partial panel can offer challenges for interpretation. Having experienced a vacuum-system failure, I can personally attest to the confusion it can generate for instrument interpretation purposes. IFR proficiency requires keeping your interpretation skills sharp and practicing abnormal and emergency situations on a regular basis. Today's simulation technology offers a wide range of opportunities to practice these skills.

Photo by Susan Parson

Aircraft control. This skill involves using the information you obtained through cross-check and interpreted to make the airplane do what you want it to do. A pilot who is proficient in performing the aircraft-control task is one who has mastered two important skills. Attitude plus power equals performance, so a proficient IFR pilot knows the numbers—the pitch, bank, and power settings—necessary for the various phases of IFR flight. The second skill is using constant small corrections to maintain desired altitudes, headings, and airspeeds.

Procedures: Putting It All Together

The third side of the IFR proficiency triangle is the part you probably practice most: procedures. Proficiency with procedures involves both knowledge and skill. First, you need to have a rock-solid understanding of not just instrument-approach procedures (IAP), but also the range of IFR "rules of the road." One of the most important and, unfortunately, most overlooked rules of the road involves use of obstacle-departure procedures, or ODP. If you are operating in IMC from a non-towered airport located in mountainous terrain, understanding this subject is critical not only to proficiency, but more fundamentally, to staying alive.

The skill part is, of course, related to aircraft control. Can you consistently fly the required procedures—departure procedures, course intercepts, holds, standard instrument-arrival procedures, instrument-approach procedures, and missed approaches—to the standard you met when you passed your instrument check ride?

The proficient IFR pilot is always working for precision; that skill is even more important in the era of RNAV GPS navigation. The greater precision offered by modern navigation allows for narrower approach courses. That allows designers to create instrument-approach procedures for locations that would not previously have qualified, but it means that you have to fly the procedures more precisely, too.

Whether VFR or IFR, practice makes a proficient pilot and a proficient pilot is a safer pilot.

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For More Information

Instrument Flying Handbook (FAA-H-8083-15A)
www.faa.gov/library/manuals/aviation/instrument_flying_handbook/

Instrument Proficiency Check Guidance
www.faa.gov/pilots/training/media/IPC_Guidance.pdf

Instrument Procedures Handbook (FAA-H-8261-1A)
www.faa.gov/library/manuals/aviation/instrument_procedures_handbook/

Best Practices for Mentoring in Aviation Education
www.faa.gov/training_testing/training/media/mentoring_best_practices.pdf