

FAA Safety

BRIEFING

September/October 2015



All Things IFR

Keeping Your Head in the Clouds

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Maintaining IFR
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The September/October 2015 “All Things IFR” issue of *FAA Safety Briefing* focuses on general aviation instrument flight training and IFR proficiency. Articles in this issue address the importance of having both the right physical and mental flying skills required in today’s challenging IFR environment, as well as a provide a review of the regulatory landscape designed to keep pilots safe when flying in the clouds.



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A Stabilized Approach

As we say goodbye to the summer of 2015 and move into the autumn/winter flying season, it's a good time to turn to "all things IFR," as we do in this issue of *FAA Safety Briefing*. It is typical to focus instrument flight training and currency/proficiency practice on the physical skills and published procedures needed for the very challenging IFR flying world. That's obviously important. Let me suggest, though, that a focus on physical flying skills falls into that "necessary, but not sufficient" category. Just as important is to cultivate, maintain, and constantly refine the proper mindset.

Hitting the Mark

As you undoubtedly know from your training, the FAA strongly advocates mastery of the "stabilized approach" concept. As described in Advisory Circular 120-108:

A stabilized approach is a key feature to a safe approach and landing. ... [T]he stabilized approach concept is characterized by maintaining a stable approach speed, descent rate, vertical flightpath, and configuration to the landing touchdown point. Depart the FAF configured for landing and on the proper approach speed, power setting, and flightpath before descending below the minimum stabilized approach height; e.g., 1,000 feet above the airport elevation and at a rate of descent no greater than 1,000 feet per minute (fpm), unless specifically briefed.

We train hard — and often — to sharpen the physical flying skills that allow us to consistently hit the targets that define a stabilized approach. We should train no less hard to develop the right mental flying skills that guide us to safe conduct of an IFR flight, especially one flown in actual instrument meteorological conditions (IMC).

There are lots of mental flying skills needed for safe IFR, and articles in this issue of the magazine point to some of them. For example, you need to understand your instruments, and you need a mindset to trust them instead of erroneous physiological cues that will lead you into trouble. You need a very solid mastery of instrument rules and procedures

presented in publications like the newly-revised *FAA Instrument Procedures Handbook*. But I think of these things as given — another part of that necessary, but not sufficient, foundation.

The real key to IFR mastery is a stabilized mental approach, which involves integration of instrument flying knowledge, instrument flight skill proficiency, and dedicated risk management. Let's talk about that.

Risk-based Decision-making

One of FAA Administrator Huerta's strategic initiatives is "risk-based decision-making." The idea is to build on safety management principles to proactively address emerging safety risk by using consistent, data-informed approaches to make smarter, system-level, risk-based decisions.

The official description is a mouthful, but the idea is actually very simple: gather all available information, and use it to make decisions that mitigate or manage risk and ensure safe outcomes.

The concept is very much in line with what I wrote earlier this year about using interdependence to gather information and critical thinking to analyze and use it to ensure consistently positive results.

These attributes are the foundation for risk-based decision-making in IFR flying. You need to work interdependently with weather briefers, ATC, your passengers, and your co-pilot (if you have one) to gather every scrap of information about hazards to your flight. Use critical thinking — e.g., the "what if" exercise — to evaluate the risk each hazard presents. Combine interdependence and critical thinking to brainstorm effective ways to eliminate or mitigate the hazards to your intended flight. Accept the fact that consistency does not require proceeding exactly as planned. Rather, it means making whatever adjustments are needed to assure safety in each phase of your flight.

If it sounds like a lot of effort — you're right. But cultivating the proper mental flying skills along with your physical flying skills is well worth the investment.

A focus on physical flying skills falls into that "necessary, but not sufficient" category. Just as important is to cultivate, maintain, and constantly refine the proper mindset for safety.



Coming Soon: Airman Certification Standards

The FAA is now planning its transition to the new Airman Certification Standards (ACS) framework for certification of pilots, starting with the Private Pilot Airplane, Commercial Pilot Airplane, and Instrument Rating Airplane, in the next 12 months.

Since September 2011, the FAA has been working closely with a diverse group of aviation community stakeholders convened to help the agency improve the testing/training standards, guidance, and test development/test management components of the airman certification process. Participants have developed the Airman Certification Standards (ACS) framework as a way to improve airman training and testing. The ACS provides an integrated, holistic system that clearly aligns airman testing with certification standards and guidance.

Built on the existing Practical Test Standards (PTS) which explicitly define the performance metrics for each flight proficiency element listed in Title 14 Code of Federal Regulations, the ACS approach enhances the PTS by defining the specific elements, aeronautical knowledge, and risk management skills needed to support each Area of Operation/Task. This new integrated format better serves the applicant, the instructor, and the evaluator. It will also enable the FAA to clearly align knowledge/skill performance standards, guidance, and test materials.

The FAA continues to work with the industry group to refine the ACS and plan for its implementation. Current efforts involve FAA validation of the ACS documents, review of proposed updates to H-series handbooks, intensive review/revision of knowledge test questions, and support for industry efforts to prototype the ACS approach in selected locations.

To learn more about this effort, follow this link to the “ACS FAQs” – www.faa.gov/training_testing/testing/media/questions_answers.pdf.

You can also find more ACS-related information, including sample ACS documents, on the AFS-630 web page at www.faa.gov/training_testing/testing/

New FAA Video Aims to Help Reduce Wildlife Strikes

Last July, the FAA posted a new video designed to enhance airport safety and help curb wildlife strikes. Entitled “The 2015 Wildlife Hazard Management and Strike Reporting Update,” the video out-



lines the benefits of wildlife hazard strike reporting and how airport operators use the information to reduce wildlife strikes at airports.

The video also discusses the FAA’s collaborative partnerships with other federal agencies and organizations to reduce wildlife strikes, including the U.S. Department of Agriculture, the Smithsonian Institution’s Feather Identification Lab, and Bird Strike Committee-USA. To view the video, go to: www.faa.gov/airports/safety-video-series/.

This is the second video in a series first launched last year to provide the airport community with information to help them continue to operate the nation’s airports safely and efficiently. Please visit faa.gov/airports and sign up to receive an email alert when FAA releases a new safety video.

FAA Hosts General Aviation Safety Summit

On June 30, 2015, the FAA met with several members of the general aviation community during a GA Safety Summit to discuss strategies for improving safety. “Improving GA safety is a top priority for the FAA and industry,” said FAA Deputy Administrator Michael Whitaker. “The fatal accident rate remains flat and too many lives are being lost despite the great work of our GA community.”

Whitaker acknowledged the industry leaders who attended the meeting and was encouraged by the discussions on how to reduce risk in GA operations, specifically in the area of loss of control. The recently launched #FlySafe campaign is one example of industry and government coming together to help target loss of control. The campaign started in June and is designed to provide awareness, tips, and help-

ful resources for pilots on some of the leading casual factors for loss of control accidents.

“It was clear from the meeting that there are a lot of innovations and technologies in the GA industry that can make a difference,” said Whitaker. “I look forward to working with industry as we promote safety through education, technology solutions, and improved regulatory standards.”

Flight Service: Improvements in the Air

Beginning October 1, 2015, Enroute Flight Advisory Service (EFAS), known as “Flight Watch” in air-to-ground communications, will be available on the Flight Service Common Frequency 122.2 and all Remote Communication Outlet (RCO) frequencies. Realigning EFAS to the Inflight position is part of an effort by Flight Service to streamline its service delivery and provide more benefits to the flying public. This change includes discontinuing service over Flight Service Common Frequency 122.0 and the EFAS high altitude discrete frequencies. Benefits to pilots include having access to all flight services with one call, simplifying the pilots’ ability to obtain critical safety of flight information and ability to take advantage of flight planning services. During a six-month transition period, Lockheed Martin Flight Service (LMFS) will monitor current EFAS frequencies and will provide an RCO frequency to use in

order to receive en route weather and advisories.

Pilots also have the option of taking advantage of special reporting services provided through automated position monitoring while on a Visual Flight Rules (VFR) flight plan using a variety of GPS tracking devices. GPS tracking reports are generated and forwarded to Flight Service. The system keeps track of the aircraft and if the aircraft stops moving or stops sending position reports, an alarm is sent immediately. The aircraft’s most recent GPS coordinates are now available, significantly narrowing the search radius and providing faster search and rescue (SAR) response. An SOS button can also send an instant distress message along with GPS position information to immediately initiate SAR operations. Pilots benefit by being able to leverage additional tracking and rescue services that are crucial to their flight planning.

For more information on these changes and upcoming changes, visit the Flight Service website: www.faa.gov/go/flightservice

FAA Updates Advisory Circular for Transitioning to Unfamiliar Aircraft

The FAA recognizes the need to devote resources to preventing accidents occurring because of inadequate training when transitioning between aircraft types. Specifically, accidents

Safety Enhancement Topics

September: Pilots and Medications – Learn more about the possible side effects of medications (prescribed or over the counter) and whether they may be hazardous to flight operations.



October: General Aviation Survival – Explore the scope and safety benefits of survival training and equipage.



Please visit www.faa.gov/news/safety_briefing for more information on these and other topics.



U.S. Department
of Transportation

Federal Aviation Administration

ISSN: 1057-9648
FAA Safety Briefing
September/October 2015
Volume 54/Number 5

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Published six times a year, *FAA Safety Briefing*, formerly *FAA Aviation News*, promotes aviation safety by discussing current technical, regulatory, and procedural aspects affecting the safe operation and maintenance of aircraft. Although based on current FAA policy and rule interpretations, all material is advisory or informational in nature and should not be construed to have regulatory effect. Certain details of accidents described herein may have been altered to protect the privacy of those involved.

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The Office of Management and Budget has approved the use of public funds for printing *FAA Safety Briefing*.

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The magazine is available on the Internet at:
http://www.faa.gov/news/safety_briefing

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resulting from loss of aircraft control or situational awareness frequently result from pilot unpreparedness for challenges presented by the aircraft. Pilots transitioning to unfamiliar aircraft require specific training in the new aircraft's systems and operating characteristics to include normal, abnormal, and emergency procedures.

To help address this, the FAA last June released an update to an Advisory Circular (AC) on transitioning to unfamiliar aircraft. AC 90-109A is intended to help plan the transition to any unfamiliar fixed-wing airplanes, including type-certificated and/or experimental airplanes. It provides information and guidance to owners and pilots of experimental, simple, complex, high-performance, and/or unfamiliar airplanes. It also provides information to flight instructors who teach in these airplanes.

In order for the recreational, educational, and experimental benefits of airplanes to flourish, both the FAA and the GA industry agree on the need for improvements in safety. Through collaboration between the FAA, GA, and amateur-built community, the recommendations developed in this AC mitigate some of the risks found in transitioning to unfamiliar airplanes. The recommendations are also applicable to pilots transitioning into an unfamiliar TC'd aircraft. To view the AC, click on the Advisory Circulars tab on faa.gov.

Pilots and Meds: Proceed with Caution

Last year the NTSB conducted a safety study that looked into the potential for pilot impairment from medications and drugs. Aviation was singled out not because the NTSB believes pilots to be the highest potential for drug abuse, but rather due to the fact that we have very good data that the other modes of transportation lack. In aviation, we have carefully annotated random drug and post-accident screening data, plus extremely detailed toxicology testing conducted by the Office of Aerospace Medicine's Civil Aerospace Medical Institute (CAMI) for all pilots involved in fatal accidents.

Over the study period (1990-2012), the NTSB found an increase in positive toxicology results — from less than 10 percent in 1990, to 40 percent in 2011. Some of this is likely due to the fact that CAMI has significantly increased the number of drugs they test for during the study period. It's also important to remember that a positive result on a toxicology test does not mean the pilot was impaired. Many drugs that create a positive result would not be considered a problem in aviation, but it does show that pilots, like the general population, are taking more medications than in the past. For these reasons, among others, the NTSB chose to focus on what kinds of drugs were found and how those frequencies changed.

The Old Nemesis

One of the most troubling and the most common result was for sedating antihistamines. While there are a few varieties of sedating antihistamines out there, the key offender in these cases was diphenhydramine (trade name is *Benadryl*), which can also be found in many sleep aids. We discussed this issue in the July/August 2014 edition of *FAA Safety Briefing* (https://www.faa.gov/news/safety_briefing/2014/media/JulAug2014.pdf) in the context of allergies and flying. A concerning trend, though, was the growth of this category throughout the study period. In the early years of the study sedating antihistamine use was detected in 5.6 percent of cases, while in the latter years it was detected in nearly 10 percent of cases. The near doubling of positive findings along with the obvious impairment potential of these drugs is what makes them a particularly troubling concern for us.

What's New?

One fairly dramatic change during the study period was in cardiovascular drug use. By the NTSB's

classification, these include drugs used to treat hypertension (high blood pressure), control heart rate, or treat heart failure. These drugs more than quintupled during the study period, moving from 2.4 percent positive results in the early years to 12.4 percent in the most recent years. While this is troubling, it doesn't meet our level of concern over diphenhydramine because not all of the drugs in this category would be disqualifying or impairing. That's why it's important for you to work with your Aviation Medical Examiner (AME) when selecting treatment options.

Another concerning trend was the steady rise in the percentage of study pilots who tested positive for at least one of the potentially impairing drugs. The amount rose from just over 10 percent of pilots who tested positive, to well over 20 percent. Also, positive results for a drug that is typically taken for a potentially impairing condition (disclosed or undisclosed) more than doubled to over 10 percent. The take-home lesson for the aerospace medicine world is that we need to do a better job of helping pilots understand how medication can affect their fitness to fly.

Did You Know?

Did you know that some antidiarrheal medications could be disqualifying? That's because some of them contain opioids, which are a disqualifying ingredient. Did you know that *Chantix* is also disqualifying? Despite its smoking cessation benefits, *Chantix* has been linked with psychosis and suicidal thoughts in rare cases. And last, did you know that some of the medications used to treat migraines can be disqualifying? This is a great example in which the underlying condition is generally far more worrisome than the medication used to control that condition.

All of this is why providing a good history and a good list of any medications you are taking is so important. Please help us help you so that you might never become a tragic player in one of our future case studies.

James Fraser received a B.A., M.D., and M.P.H. from the University of Oklahoma. He completed a thirty year Navy career and retired as a Captain (O6) in January 2004. He is certified in the specialties of Preventive Medicine (Aerospace Medicine) and Family Practice. He is a Fellow of the Aerospace Medical Association and the American Academy of Family Practice.

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Next**GEN**



Ask Medical Certification

COURTNEY SCOTT, D.O.
MANAGER, AEROSPACE MEDICAL
CERTIFICATION DIVISION

Q1. At 55 years of age, I had two seizures in my sleep, about two months apart, and was put on anti-seizure medication. I believe that aspartame caused my seizures and I have been seizure free and off of medication for four months after eliminating aspartame from my diet. Does the FAA recognize aspartame as an etiology for seizures, and if not, what actions need to be taken to get a special issuance medical?

A1. The FAA has strict guidelines and policy for airmen with seizures. There is a provision that, in the event of a known, recognized provocateur that can be eliminated, the guidelines for special issuance may vary. The question you pose is, “will the FAA consider aspartame as a pharmacologic provocateur for seizures?” About 25 years ago there was a good deal of research that proposed in some animal models, aspartame might provoke or facilitate seizures. This research never was well correlated with human studies.

Today, the preponderance of the medical literature, and our neurology consultants, would not accept aspartame as the responsible agent. With that background, if a person has a SINGLE seizure without a known provoked cause, it is possible to regain certification after four years of being completely seizure free, the last two of which must be off anticonvulsants. With two seizures, it is more likely that you will have a diagnosis of epilepsy. In this case it is possible to be certified after 10 years of being seizure-free, the last three of which you must be off all anticonvulsants.

Q2. June, 2012, I was diagnosed with melanoma and underwent a modified radical neck dissection surgery to remove all evidence of cancer. I participated in immunotherapy for six months as a prophylactic measure. After completion, I applied for a Special Issuance third class medical and was granted one in June 2013. In September 2013, I had a very minor recurrence, at which time I self-grounded and reported it to the FAA. In February I received a letter from the FAA informing me that I did not meet the standards for an airman certifi-

cate at that time and was requested to surrender my certificate. To be clear, my certificate has been surrendered and expired March 31, 2014. In July 2014, I had another recurrence which resulted in surgery. I am currently cancer free again.

At the request of my AME I forwarded all of my updated medical records, scans and medical status reports to the FAA this past October. Early November I received a denial letter from the FAA. My question is: How can a denial letter be issued when my certificate has expired, been surrendered and I have not filed an application for a certificate?

I am somewhat apprehensive to even ask this question for fear of upsetting the wrong person and jeopardizing my chance of being issued a certificate in the future. I certainly understand not being issued a certificate

at this time, and I do know the key to being issued a certificate is to stay healthy and let some time elapse since

my recurrence. It may be a moot point at this time but it did not make sense to receive a denial without an application pending.

A2. If the special issuance has expired but the examination would still be valid, then the FAA must issue a denial letter for that medical certificate. For example, if your exam was done in June, 2013, then the exam is still valid for 3rd class up until June 30, 2015, if you are 40 or over, and valid until June 30, 2018, if you are under age 40. If the examination would no longer be valid for any class of medical certificate, then the FAA should not have sent you a denial letter. Please contact us with further specifics if you need that letter rescinded.

Send your questions to SafetyBriefing@faa.gov. We'll forward them to the Aerospace Medical Certification Division without your name and publish the answer in an upcoming issue.

Courtney Scott, D.O., M.P.H., is the Manager of Aerospace Medical Certification Division in Oklahoma City, Okla. He is board certified in aerospace medicine and has extensive practice experience in civilian and both military and non-military government settings.

CLOUD-BASED EXERCISE



KEEPING YOUR INSTRUMENT FORM IN SHAPE

Photo by Tom Hoffmann

There you are, fresh from your checkride with a newly issued instrument rating. After completing all of that training and passing the practical test, now what?

New Privileges, New Responsibilities

Now that you have that new rating on your pilot certificate, you've gained an array of new privileges. But with that new rating comes a new set of responsibilities. First is a change to your preflight duties. A new level of thoroughness is required for both the aircraft and its documents. Some questions to ask are have the VORs been checked lately and are there any squawks that might compromise your flight?

Another item to consider is the need to maintain instrument currency and, more importantly, instrument proficiency. You can think of the relationship between currency and proficiency as the difference between the letter and the spirit of the law. There's a clear metric for currency, explained in Title 14 Code of Federal Regulations (14 CFR) section 61.57(c): Six approaches, holding, and intercepting and tracking courses, all within the previous six months. Profi-

ciency, however, is not so easily defined. What it really means is: Are you really prepared to take this flight?

How Do I Keep My Skills Up to Speed?

I decided to ask a few experienced instrument pilots here at the FAA what they recommend to help keep a new IFR pilot up to speed. This is their advice.

Jim Viola — Flight Standards General Aviation Division Manager and Aircraft Owner

"I rehearse my IFR procedures on a BATD (basic aviation training device) for the airport I'm flying to when I expect to have to fly an IMC approach on arrival. It gives me good familiarization of waypoints and altitudes to expect.

"Also a recent Bonanza accident showed the importance of en route ceilings. The accident aircraft appeared to have an engine issue while IFR at 5000 feet. The pilot established a nice stabilized decent, but ceilings were under 800 feet. That means there was not enough time to maneuver once out of the clouds. As a result, the aircraft hit

a house, killing all on board. Choosing an IFR/IMC route that has weather and ceilings for emergencies is something to consider. I fly as high as I can (weather and airspace considered) to be as best prepared as I can be for an engine issue.”

Mike Schwartz — Aviation Safety Inspector and Active CFI

“The best advice I can give pilots is to know the automation in their aircraft and practice with it regularly. The worst thing that can happen is to be flying in the system and have something occur which leads to the inevitable question: ‘Why did it do that?’ The second piece of advice is to establish and maintain high minimums. A typical GA pilot might use 500 foot minimums

when deciding whether or not to fly. New pilots might maintain 1,000 foot minimums until they get some practical operational experience in the system. The published minimums are for pilots who routinely operate under IFR and maintain proficiency to the level required to safely descend to minimums. Most GA pilots do not fly enough to maintain that level of proficiency.”

Tom McKnight — Aviation Safety Inspector and Aircraft Owner

“First, just because your checkride is over doesn’t mean you’re through learning. Ask your instructor about getting some ‘advanced’ instrument training in actual conditions. Try to file every chance you get so you can get comfortable with the system. Try to find a good safety pilot so you can practice regularly. Volunteer to be a safety pilot for other instrument pilots — it helps them stay current and you might learn a thing or two as well. Find the nearest ATD (aviation training device) so you can stay proficient if renting is too expensive or inconvenient. Finally, get a yearly Instrument Proficiency Check (IPC). It is not required if you meet your currency requirements, but it’s a good check of your skills.”

Just because your check ride is over doesn’t mean you’re through learning.

Let us know if you have any tips to maintain instrument proficiency to add to our suggestions here. The more you exercise those instrument skills, the better shape you’ll be in when it comes time to use them. ✈️

James Williams is FAA Safety Briefing’s associate editor and photo editor. He is also a pilot and ground instructor.

Photo by James Williams



EAA partners with other aviation organizations to provide visitors to AirVenture with an opportunity to sharpen their instrument flying skills.

GA SAFETY ON THE GO



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Keeping Your Head in the Clouds



The Essentials of Maintaining IFR Currency

JEFFREY SMITH

For a few weeks you have been planning to take a couple of friends on a cross-country flight to introduce them to flying in a general aviation aircraft and grab some lunch at a nearby airport. The night before you realize there will be some low ceilings at your departure airport the next morning, with an overcast layer at 1,000 feet above ground level. The forecast calls for improving weather at the destination, and by the time you return in the late afternoon the entire flight should be blessed with clear skies and unrestricted visibilities. You are not overly concerned about the forecast clouds at your departure airport, which should be smooth with no expected turbulence. You also know that your friends will enjoy experiencing flight in both visual meteorological conditions (VMC) and instrument meteorological conditions (IMC), and you look forward to sharing that with them. Then you recall that one word that makes you scramble for the regulations and your logbook: *currency*. Will you be able to file and fly the morning flight, or will the lunch plans have to wait?

It may be difficult to keep IFR experience as your top flying priority, or even keep all of the requirements straight in your head. Therefore, we will use the scenario above to navigate through some of the

key regulations that pertain to the instrument rating and keeping your privileges current.

First, although you know you need to have an instrument rating, current privileges, and file an IFR flight plan, let us review the regulations that codify these requirements:

- Section 61.3(e) provides the foundation for holding an instrument rating, stating that “[n]o person may act as pilot in command of a civil aircraft under IFR ... unless that person holds ... [an] instrument rating on that person’s pilot certificate for any airplane, helicopter, or powered-lift being flown.” This regulation also accounts for ATP certificate holders, and offers glider and airship instrument requirements.
- Section 61.2(b) explains the general meaning of currency by stating that “no person may ... exercise privilege of an airman certificate or rating ... unless that person meets the appropriate ... recency requirements of this part.”
- Section 61.57(c) offers, in part, the ‘recency requirements of this part’ referenced by 61.2(b). With limited exception for those that fly for an air carrier (under parts 121 or

135), this regulation provides the instrument rating currency requirements of a person acting as pilot in command (PIC) of a flight conducted under IFR (or in weather conditions less than VFR).

- Section 91.173 requires any person operating in controlled airspace under IFR to have filed an IFR flight plan and have received an IFR clearance.

Section 61.57(c) compels you as the PIC to review the preceding six calendar months of your instrument activity prior to a flight under IFR. This means looking back six months, and then to the beginning of that month, from the date of the intended flight. For example, if you planned the lunch sortie for October 21, 2015, you would look back at your activity starting on April 1, 2015. There is an exception to this six calendar month time period. If you are solely using an authorized Aviation Training Device (ATD) for currency, the time frame is two calendar months preceding the month of the flight.

Section 61.57(c) also describes the maneuvers and procedures that you must have completed. For example, if you performed your recent experience requirements in an aircraft (other than a glider), section 61.57(c)(1) applies and requires “six instrument approaches ... holding tasks and procedures ... and intercepting and tracking courses through the use of navigational electronic systems” within the preceding six calendar months. Procedures and maneuvers that are necessary when using a full flight simulator or flight training device (collectively referred to as Flight Simulation Training Devices, or FSTD), ATD, or combination of aircraft and devices, are described in 61.57(c)(2), (3), (4) and (5). Maintaining instrument recent experience in a glider is covered by section 61.57(c)(6).

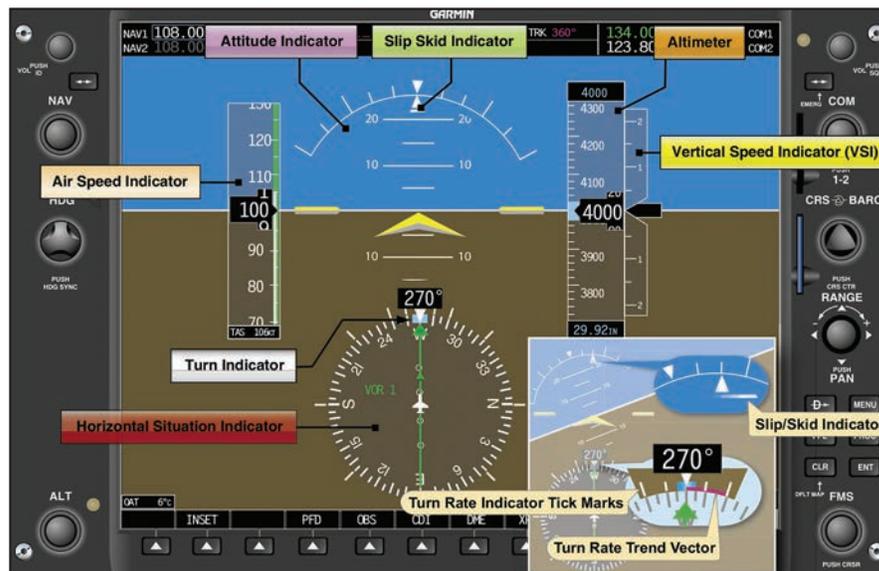
On the subject of maneuvers and procedures, recall that they must be recorded in order to count. A quick read of section 61.51, in particular 61.51(g), will help make certain that you are complet-

ing your logbook entries with the required information. A safety pilot is required when operating in simulated conditions and the name of the safety pilot must be included in the logbook entry. The safety pilot must hold at least a private pilot certificate with the category and class rating applicable to the aircraft being flown. You can find other requirements for using a safety pilot in section 91.109(c).

If you are using an FSTD or authorized ATD to acquire recent experience, an authorized instructor must be present to observe the use of the device. The instructor must also sign your logbook, noting the time and the content of the training session (i.e., the maneuvers and procedures that you performed).

Getting back to our example flight, what happens if you have not logged the items required by 61.57(c) within the preceding six (or two) calendar months? The answer depends on the last date that you were able to act as PIC of an aircraft under IFR. If it has been less than 12 calendar months from when your currency lapsed, you may still get yourself current again. Using the October 21, 2015 date, if you were current sometime between October 1, 2014 and September 30, 2015 then you may regain your currency using one of the options listed in section 61.57(c). Review the items you have done within the preceding six calendar months (or two months if you plan to only use an ATD), and then, at a minimum,

If you have completed your instrument checkride or an IPC within the preceding six calendar months [before flight] you can consider yourself current.



When determining your instrument proficiency, ask yourself if you have experience with the installed avionics and/or your electronic flight bag equipment.

complete any additional items needed.

What if the last time you were current was greater than 12 calendar months ago? This means, with limited exception, you will need an Instrument Proficiency Check (IPC). For an October 21, 2015,

Responsible pilots understand there is a difference between being current and being proficient.

flight, if you were last current September 30, 2014, or prior, an IPC will be needed to regain instrument currency. Although examiners and other individuals can provide IPCs, most pilots elect to receive the check from an authorized instructor. Note that at the election of the authorized instructor conducting the IPC, you can combine the check with the requirements in section 61.56 for a flight review.

While section 61.57(d) provides the regulatory basis for the IPC, the Instrument-Rating Practical Test Standards (PTS) specify additional information. For example, the minimum areas of operation that you must perform during an IPC are part of the "Rating Task Table." You can complete certain tasks in an FSTD or authorized Advanced ATD; these tasks are listed as part of the appendices in PTS.

The FAA has previously clarified that an IPC, as well as a practical test for an instrument rating, "resets" the clock on instrument currency. Therefore, if you have completed your instrument checkride or an IPC within the preceding six calendar months you can consider yourself current with respect to 61.57(c). Also, keep in mind that the instrument currency requirements must be maintained separately

for each instrument rating, so completing maneuvers and procedures in an airplane will not grant you currency for your instrument-helicopter rating.

This article has thus far focused on the regulatory minimums necessary to exercise one's instrument rating privileges. However, responsible pilots understand there is a difference between being current and being *proficient*. You should always make an assessment of your knowledge and skills to determine if you are able to competently conduct the flight. For example, ask yourself if you were performing to instrument rating standards when you last flew an aircraft without outside visual references (or operated a training device using only the instruments). Do you have experience with the installed avionics and/or your electronic flight bag equipment? Are you comfortable with the departures, arrivals, and approaches you may be cleared for during the flight?

Consider the flight not only in terms of everything going right but also in terms of the unexpected happening. What if a primary flight instrument fails, your GPS or multi-function display screen goes blank, or you lose radio communications while in the clouds? Would you be comfortable in handling those scenarios? These questions are only examples and while you cannot anticipate every possibility that may occur, you should be sure in your ability to handle abnormal and emergency situations.

For additional information, check out the Instrument Proficiency Check Review Guide (ALC-38) found at www.FAASafety.gov. This course provides a structured guide to reviewing IFR rules and procedures, in addition to containing information on establishing personal minimums and weather related decision-making.

In consideration of the opening scenario, you may conclude that you are current with respect to the regulation, in addition to being proficient. If so, great, and you can enjoy the IFR flight with your friends and hopefully a tasty lunch. However, if decide you are not instrument current or proficient, do the responsible thing and cancel the flight until you can correct the situation. You can always reschedule the lunch mission for another day, or postpone until VFR conditions prevail and grab an early dinner instead. ✈️

Jeffrey Smith is the manager of the FAA's Airman Training and Certification Branch. He holds an ATP certificate, is a flight and ground instructor, and is certificated as an A&P mechanic.



Photo by H. Dean Chamberlain

Student pilots review their plan for an Instrument Proficiency Check.

Blurred Lines

Recognizing the Causes of Spatial Disorientation

SABRINA WOODS

When I was a young second lieutenant in the Air Force, one of my fellow lieutenants, social buddies, and a fighter pilot, died in a horrific jet crash 30 miles outside our base. Prior to impact he had stopped communicating with his flight lead, begun making several sudden and erratic control stick inputs, and accelerated. The subsequent investigation determined that the human factors concepts of channelized attention and incapacitation due to spatial disorientation contributed significantly to the mishap. That accident was a galvanizing point in my career as an aviation safety professional.

Now, over 14 years later, a quick National Transportation Safety Board (NTSB) general aviation accident database search will show you that what felled my fellow Airman has happened to many other aviators. Approximately 243 mishaps are attributed to spatial disorientation from that time to May of last year. And that covers just the fatal ones. Almost 500 people have died — an average of about 36 pilots and passengers a year. Spatial disorientation is attributed to between 5 and 10 percent of general aviation mishaps, but from those numbers almost *90 percent* of them are fatal. That number is astronomical — and all because the lines between up and down, left and right got blurred.

Disorient Express

Our brains are amazing machines. Each neuron (we have about 100 billion) can process incoming information about 200 times a second; sending out messages at the rate of 268 mph to do what we will.

If you break that down, that is 100 billion little nerve cells each firing at around 200 times a second with over 1,000 connections between each which makes for roughly 20,000,000,000,000 snippets of information bouncing around your brain *every second*. This includes the billions of neurons it takes to process and form a picture of what is going on around you.

Remember the old saying that “seeing is believing?” This is particularly true for us humans. Canines rely on their keen sense of smell; bats on their exceptional hearing; but we are completely visual creatures who rely heavily on that particular sense to inform us the best. So when there is a disconnect between what we think we see and feel, and what is reality, that conflict can quickly launch us into what I call the disorient express.

This happens when we are in motion, such as at the helm of a Cessna 172, and find ourselves unable to rely on visual cues to determine true position in relation to the Earth. That situation can occur in IMC, in the early evening or night, or over water. On a picture perfect postcard flight, maintaining orientation is as simple as looking out of the cockpit. When you can see the landscape, the horizon, rising terrain and the skyline, your brain, in conjunction with your vestibular (balance) system, builds a picture of where you are in relation to those things. But take away that horizon, the ability to see the ground or even ten feet off your nose for that matter, and you lose all of that precious reassuring data. Once that

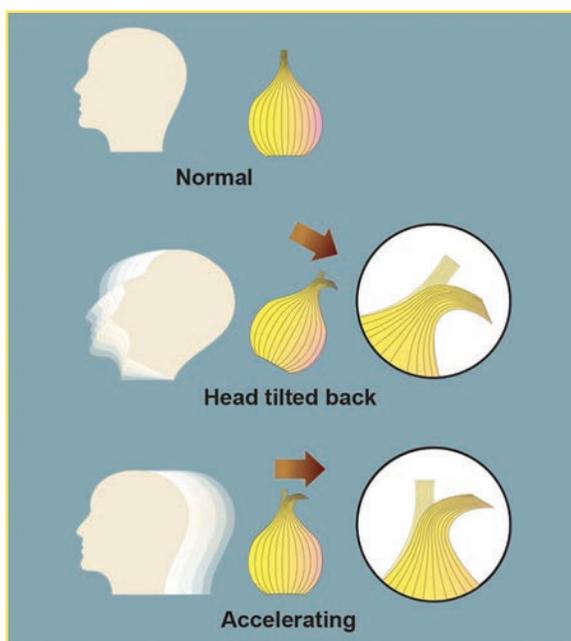
data is gone, you are far more susceptible to optical and physiological illusions.

These Are *Not* the Cues You Are Looking For

In the first category, visual deception (or misinterpretation) can happen regardless of aircraft movement or your equilibrium. Three major instances of this include the false horizon deception, the autokinetic phenomenon, and ground light misinterpretation.

The first occurs when flying between cloud layers that are not horizontal to the ground. There is no natural horizon so a pilot will have the tendency to fly in line with the clouds, which typically includes a corresponding bank. The problem is the pilot thinks he or she is flying straight and level. A few minutes in this position has a domino effect on several other perceptions and the pilot's physiology, but more on that in a bit.

The evil twin sister of this category is what is known as the "black-hole" effect. It occurs most often on approach at night or over water or anytime the horizon is not clearly visible. The pilot is unable to see anything between the intended landing surface and the aircraft, and as a result he or she can overestimate glide path or possibly believe the runway is tilted or sloped. It can lead to a disaster if this false information is what a pilot is using to make calculations for landing.



Our otolith organs manage input by using little hairs that bend back and forth in tandem with how our head is tilted.

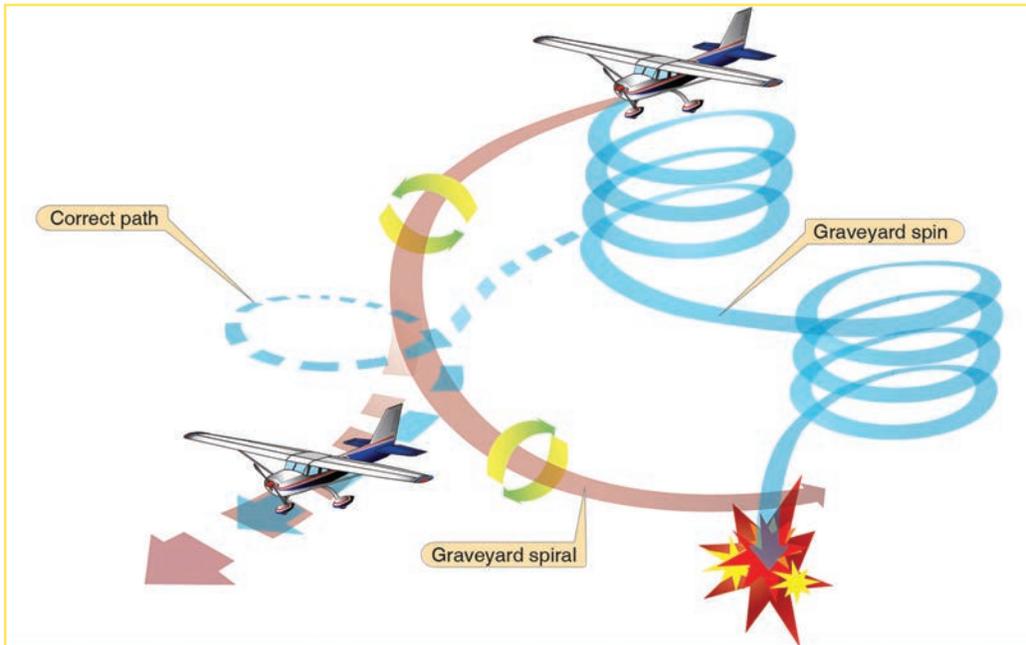
One last version of false positioning is when two aircraft are flying parallel to one another but at slightly different speeds. It can give the impression that they are slowly turning and could cause one or both of the pilots to make inputs to try and "correct" the situation. See and avoid gets a bit sinister when what you "see" is not reality and there are several mishaps in the NTSB database that can confirm this fact.

The next category is autokinesis, or the "wandering light" effect. This occurs when a pilot is fixated on a stationary light in an otherwise dark setting — usually for more than ten seconds. That light will appear to drift, giving the pilot the impression that instead of being fixed, the light is either from another aircraft — he or she will then maneuver to compensate — or that their own aircraft is making unwarranted movements. All can lead to unintended consequences. A great way to negate this effect is for the pilot to frequently shift his or her gaze in a "scanning" motion in order to avoid prolonged fixation. The study of autokinesis has also factored heavily in vertigo studies.

The last visual illusion can occur when a pilot mistakes ground light with starlight or even the light of another aircraft. The pilot will then maneuver in order to try to reposition the lights above them — in the instance of starlight — or to try to "catch up" with them, such as when flying in formation. This last category is believed to have factored heavily in my aforementioned fighter jet crash. The investigators theorized that in an attempt to rejoin with his flight lead, the pilot fixated on a reflection of light from standing water on the ground and followed it, believing it to be his wingman. The rest resulted in complete disorientation and incapacitation, which brings me to the physiological side of the discussion.

You Are Here (?)

Your vestibular system is responsible for managing your sense of balance and spatial orientation so that you move fluidly. Its base of operations is housed in your inner ear and the whole complex system is no bigger than a large pea. It is made up of two major components: the semicircular canals that detect changes in rotational acceleration, and the otolith organs which detect linear (straight) acceleration. While an essential system to be sure, it is not the most sophisticated when it comes to interpreting minor inputs or adjusting for inputs that come too close together in succession. This is compounded when in flight where it is even more difficult to get a good "read" because sensory stimuli vary in direction, frequency, and intensity.



The graveyard spin is by far the most disorienting and unrecoverable of the major physiological illusions.

Because the vestibular system is slow to adjust and works within a specific range — input typically has to be more than two degrees per second — it creates a mismatch in what you are interpreting and what is actually so. This is that disconnect I mentioned earlier. Some more common vestibular induced illusions are what we call the “leans,” the graveyard spiral, a somatogravic illusion, and the Coriolis Effect.

The “leans” is the most common form of spatial disorientation in aviation. It can result when a banked attitude is entered too slowly to set in motion the fluid in your semicircular tubes (they perceive rotation, remember?) or when a gradual turn is abruptly aborted causing the fluid in your ear to “overcorrect” and giving you the sensation that you are now banking the opposite direction when in fact you are straight and level. This is disorienting and may cause you to provide even more inputs in an attempt to “right” the situation, thus leading to loss of control.

The appropriately named graveyard spiral is by far, the most disorienting and unrecoverable of the major physiological illusions. Also known as the suicide spiral, or death spiral, it occurs when a pilot intentionally (or unintentionally) enters a tight turn. As established in the “leans,” any bank entered too slowly to be registered by the vestibular system may result in the wing dropping, and the pilot doesn’t realize that the plane begins to turn. Because the instruments show decreasing altitude, the pilot may

pull back on the stick and add power, thus inducing a tighter turn. As the plane spirals downward and its descent accelerates, the pilot still senses the descent but not the turn.

The word “somatogravic” is derived from *somato*: meaning “of the body;” and *gravic*: meaning “pertaining to gravitational forces.” This difficult sounding spatial disorientation category is actually quite simple: it occurs when there is an abrupt change in aircraft acceleration. This can happen in any direction: linear, rotational, or vertical.

Our otolith organs manage the input by using little hairs that bend backwards and forwards in tandem with how our head is tilted. If we accelerate (or decelerate) too rapidly in any given plane, even if our head is stationary, the gravitational forces still affect these little hairs and cause them to bend in the direction of the force. In other words, even if your head is secured in one place, if your airplane rapidly increases speed, the otolith organs adjust accordingly, bending backward if you are accelerating and forward if you are decelerating. This also occurs if you should sharply bank or roll from one side to another. The hairs bend side to side.

Conflict is introduced because that system takes a little time to readjust. That means that even if the acceleration/deceleration, bank, or roll is terminated, the sensation that you are still moving in that direction can persist. Another issue is that the sudden movement can induce a strong over-tilt sensation. This is exacerbated when there are no visual

cues to help you reconcile what you are feeling, such as in IMC. This could cause you to either climb or lower the nose in an attempt to (incorrectly) compensate for what you are feeling. An all-too-frequent result is loss of control.

Last is the Coriolis Effect. Abrupt movements of the head while turning send the fluid in your ears into a mini whirlpool, which creates the sensation that you are tumbling head over heels. This is most likely to occur when you look down at something (e.g., chart, navigational aid, etc.) while in a turn and then suddenly back up out the cockpit. This vertigo-inducing maneuver produces the unbearable sensation that the aircraft is rolling, pitching, and yawing all at the same time. It can quickly disorient you and cause you to lose control of the aircraft.

PSA

VFR into IMC is the number one cause of spatial disorientation and the failure to rely on instruments — whether through lack of training/certification or through selective omission — is the number one reason a pilot is unable to recover once affected.

One more thing about all of those NTSB reports: I cannot tell you exactly how many of the narratives started with “The non-instrument rated pilot ...,” but there were many. These three little words are significant and they become the basis for my public service announcement. If you haven’t already done so, take the next step. Invest in the training and get your instrument rating. File IFR when you fly, even if you are planning a VFR route. The benefits, to include updated weather forecasts, and air traffic and radar coverage, are substantial.

Next, maintain proficiency in using your instruments and learn to trust them. Almost all of these physiological and visual deceptions can be avoided by constantly comparing what you see and feel with what is represented on your gauges. When in doubt, go with the gauges.

Last, you’ve spent so much time learning your wonderful aircraft, maybe now is the time to learn a

little more about yourself. You are on the right track by reading this magazine and keeping informed about safety concerns in aviation, but you can take it a step further by participating in a physiological assessment of your own. You can do this by experiencing spatial disorientation illusions in an aviation physiology course. A little experience in one of their brain-scrambling devices can help you understand how these conditions can affect you specifically, and that knowledge can be invaluable. The FAA’s Civil Aerospace Medical Institute hosts a one-day course that does all of this, as well as provides survival and hypoxia tips. To find out more go to www.faa.gov/pilots/training/airman_education/ and click on Aerospace Physiology Training.

On June 12, 2001, I lost a peer and comrade in arms. He was highly trained, skilled, and in top physical condition, and yet he succumbed to the factors that encouraged spatial disorientation. His loss was the catalyst for my wanting to learn more and more about how we humans think, work, and interface with our machines. It is my honor to pass what I learn on to you. Together, through continued training and education we can keep our National Airspace System the safest in the world.

And to my departed brother I say; “Push it up, Chongo!” 

Sabrina Woods is an associate editor for FAA Safety Briefing. She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.

Learn More

FAA Safety Brochure: Spatial Disorientation

<http://go.usa.gov/3AFFA>

FAA Safety Brochure: Aviation Safety Courses

<http://go.usa.gov/3AFMB>

AOPA Safety Advisor

http://flighttraining.aopa.org/students/maneuvers/topics/SA17_Spatial_Disorientation.pdf



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As the Gyro Spins



Behind the Curtain of the Steam Gauges

A show of hands, please. How many of you have ever had a computer crash? Oh, wait. That's too many hands up. Let's ask another way: How many of you have *never* had a computer crash?

Really? Nobody?

OK, that's the reason we'll have backup "steam gauges" in our glass cockpits for a long time to come. While modern avionics are amazingly reliable, failures — even total failures — do happen. So when was the last time you gave your traditional flight instruments much thought?

You probably remember that steam gauge instruments run primarily on two systems, one using air pressure, and the other using gyros that might be spun by electric power, engine-driven vacuum pumps, or simple venturi systems. But if you had a really bad day and lost all your modern toys and some of your old-school backups at the same time, while your head (and your airplane) was in the clouds, would you remember what instruments share which systems?

What goes wonky if the vacuum system fails? What would it look like? How fast would it happen? What instruments are offline and which still work? What if a bug smashes into your pitot tube? What primary instruments are affected, and how do they read? Do you remember which traditional instru-

ments share juice with the modern computerized panels that are becoming increasingly common in general aviation aircraft?

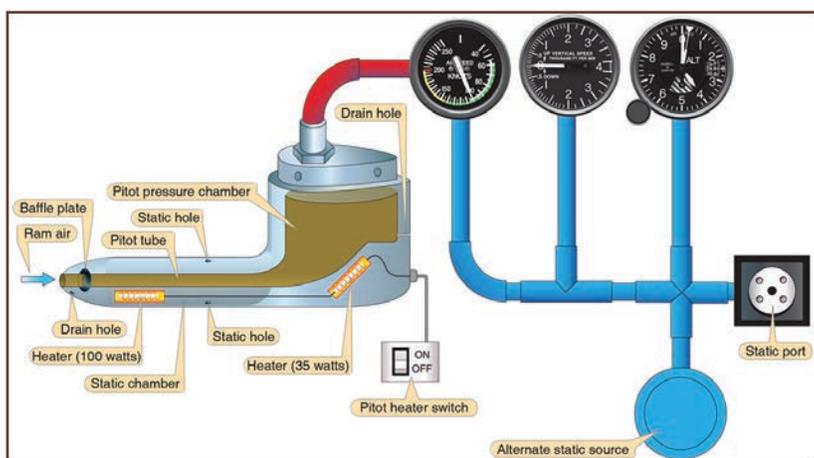
Let's preflight that old panel and review the drivers behind the dials.

The Pressure Instruments

Your plane's pressure instrument system, more correctly called the pitot-static system, is powered by measuring air pressure. The dials on the panel that are driven by this system are the airspeed indicator, the altimeter, and the vertical speed indicator. You can remember that these instruments are a single family by the fact that they all resemble each other: They have clock-like dials with hands. The remaining three instruments in the traditional six-pack have a more graphical appearance with miniature airplanes on them.

Your airspeed indicator is the only one of the three pressure instruments that uses the whole system, and it works by comparing air entering the pitot tube to air from a static port outside of the slipstream. The altimeter and vertical speed indicator only use the static system.

Failures of the pitot-static system come in three flavors: Blockage of the pitot, blockage of the static port, or blockage of both.



A typical electrically heated pitot-static head.

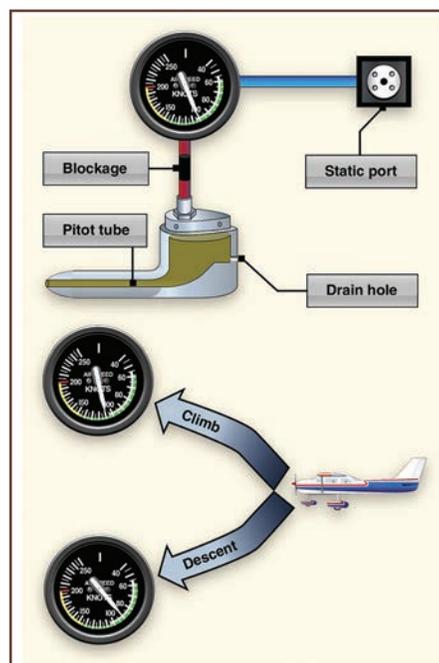
Plugged Pitot Tube

The most common causes of pitot tube blockages are insect impact, icing, and leaving the bright red “remove before flight” pitot tube cover on the tube during preflight.

Pop quiz: Regardless of cause, if the pitot tube is blocked, which pressure instruments fail?

Answer: Only the airspeed indicator. It’s the only instrument in the plane that actually uses the pitot tube. The other two pressure instruments rely solely on the static port.

In one of the common causes of a blocked pitot tube, a bug impact in which the forward facing part of the tube is blocked but the drain hole in the back remains clear, the airspeed



Blocked pitot system with clear static system.

shown on the indicator rapidly drops to zero as the system de-pressurizes. Recognizing what has happened is a no-brainer. But a blockage from icing is more insidious. Icing on the forward opening of the pitot causes a slow-motion failure, showing falsely dropping airspeed as the pitot is strangled off by the building ice.

On the other hand, in the case of icing where *both* the pitot and its drain hole get blocked, the airspeed indication stays constant

in level flight, but it works in reverse of what you’d expect with changes in attitude. It “increases” in a climb and shows a slowing airspeed in a descent, as the air trapped inside the system turns the airspeed indicator into a crude altimeter.

While the airspeed indicator is the only instrument that uses the pitot, it also needs the static port, so it — along with the other two pressure instruments — can be affected by a plugged static port.

Plugged Static Port

The most common cause of a static port blockage in-flight is airframe ice, while on the ground a static port can be blocked by debris or wax from cleaning the plane (preventable by even a casual pre-flight inspection). A blocked static port will affect all three instruments in the family.

With a blocked static port, the altimeter will remain “stuck” at the altitude the blockage occurred, the VSI will always show zero, and the airspeed indications will be inaccurate: Reading lower when operating at an altitude above where the blockage happened and reading faster when operating below the altitude of the blockage event.

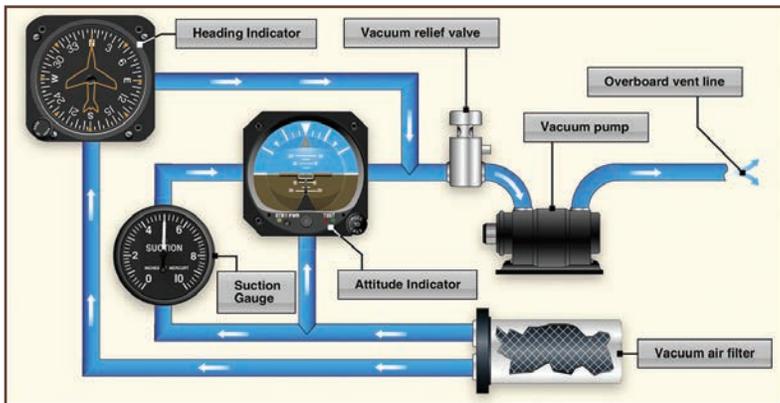
Blockage of Both the Pitot Tube and the Static Port

Ice build-up on both the pitot and the airframe is the only likely cause of total system failure. When the whole system freezes, all three instruments freeze as well. The altimeter won’t budge, and neither will the VSI. Only the airspeed indicator will change, but only with a change in altitude, showing a mind-fuddling increase of speed if the plane rises and a drop in speed if the plane descends.

The Gyroscopic Instruments

Your plane’s gyro instruments are individually driven by rapidly spinning gyroscopes mounted inside each instrument. The dials on the panel that are driven by gyros are the attitude indicator, the heading indicator, and the turn coordinator. All of these instruments commonly have small airplane graphics on them, and you can use this fact to remember that they are all part of the same system.

The gyros inside each instrument are “spun” by air from a vacuum pump or a venturi system, by electricity, or (in most planes) by some combination of the two. This creates a mind-boggling number of possible failure configurations, but it also makes it unlikely that you’ll lose all three instruments at once. But when the gyro family starts to squabble, it’s important to understand how each gyro in your



Typical vacuum system.

plane is being spun so you know which ones to trust.

Gyro System Failures

The air supply to the gyros that run on a vacuum system can be stopped in a number of ways. Vacuum pumps fail. In fact, the modern “dry” vacuum pumps common in much of the GA fleet have such a reputation for early catastrophic failure that many airplane owners periodically replace them before the end of their warranted service life. But beyond that, lines and filters can get clogged. Hoses can rupture and instrument case seals can leak. If you’re paying attention, regardless of the cause, you’ll notice the problem on your suction gauge that monitors the pressure in the vacuum system.

A total vacuum system failure will cripple all the air-powered gyros, most commonly the attitude and heading indicators, but a partial blockage resulting in low pressure may leave them functioning but inaccurate.

A total or partial electrical system failure will knock out any electric gyros, most commonly the turn coordinator — although some light airplanes have electric attitude indicators as well. Oh, and while we’re on the subject of the turn coordinator, it’s worth noting that the “ball” that indicates rudder coordination (more properly called the *inclinometer*) does not rely on the gyro, or power, and will still function properly if the instrument or its driving system fails.

But regardless of power source, gyro failures have one thing in common: They fail in slow motion. If the “fuel” behind the spin is cut off, the gyro slowly spools down and the instrument becomes progressively more inaccurate. Gyro failures are not immediately apparent in many cases, and are often recognized only when discrepancies among the primary flight instruments are noted.

Individual Gyroscopic Failures

It’s also more than possible for an individual

gyroscope to fail independently of the system spinning all the gyros. Most gyros in general aviation aircraft spin at a mind-boggling 18,000 rpm. Their bearings can — and do — wear out, ultimately causing the instrument to fail. And just like total system failure, it can be difficult to recognize the problem at first. Even a gyro instrument that suddenly stops is likely to indicate its last status. There’s nothing to point out its failure until the plane

changes pitch or bank.

Tying it All Together

Failures of either the pressure or gyro systems are often slow and subtle. Sometimes they simply freeze an instrument in place where it’s “supposed” to be. In either case, scanning your instruments to see if they are all telling you the same story is often the only way to recognize the problem.

Even in a modern glass cockpit, your scan should include the back-up steam gauges, and the steam gauges should be telling you the same story the expensive glass is. If not, something has failed and you need to correctly ferret out which instrument, or system, is out to ruin your day... not to mention your flight.

And, should that cockpit computer crash at the same time your steam gauges can’t agree on what the airplane is doing, take the time to work the problem in your mind. First compare your “clock” instruments to your “graphic airplane” instruments. This is comparing your pressure system to your gyro system.

Think about the clues each instrument is giving you, and think about what systems they share. And remember that a cockpit isn’t a democracy where you can just count the votes and declare that the greatest number of instruments that show the same thing prevails. A failure of an entire system can affect the whole family. Sometimes the lone dissenting vote is the right one. But if you remember to think about the boilers that drive your various steam gauges, you’ll be ready for anything that fate flies your way. ✈️

What goes wonky if the vacuum system fails? What would it look like? How fast would it happen? What instruments are offline and which still work?

William E. Dubois is an aviation writer whose work appears in a wide variety of aviation publications. He is a commercial pilot and ground instructor, has a degree in aviation, and holds a world speed record. He blogs his personal flying adventures at www.PlaneTales.net.

Headquarters Hangar Flying

An Interview with FAA Deputy Administrator Michael Whitaker

Michael Whitaker was appointed Deputy Administrator of the FAA in June of 2013. His background in the airline industry, working for both TWA and United Airlines, has provided an excellent foundation for understanding the complex and dynamic world that makes up aviation transport. He and Administrator Michael Huerta are the FAA leaders ultimately responsible for ensuring the safe and efficient operation of our National Airspace System.

The *FAA Safety Briefing* team got the opportunity to sit down with the Deputy Administrator (and newly certificated private pilot) in late June. We wanted to know more about his thoughts and challenges in obtaining a private pilot certificate, his interest in pursuing an instrument rating, and his ideas and visions for the future of GA.

How do you feel working for the airline industry prepared you for your role as Deputy Administrator?

My time with the airlines, about 20 years in all, gave me a pretty good understanding of the airline business — how hubs operate and the major economics of the industry. This helps me to understand aviation transportation, and how important it is, as a whole.

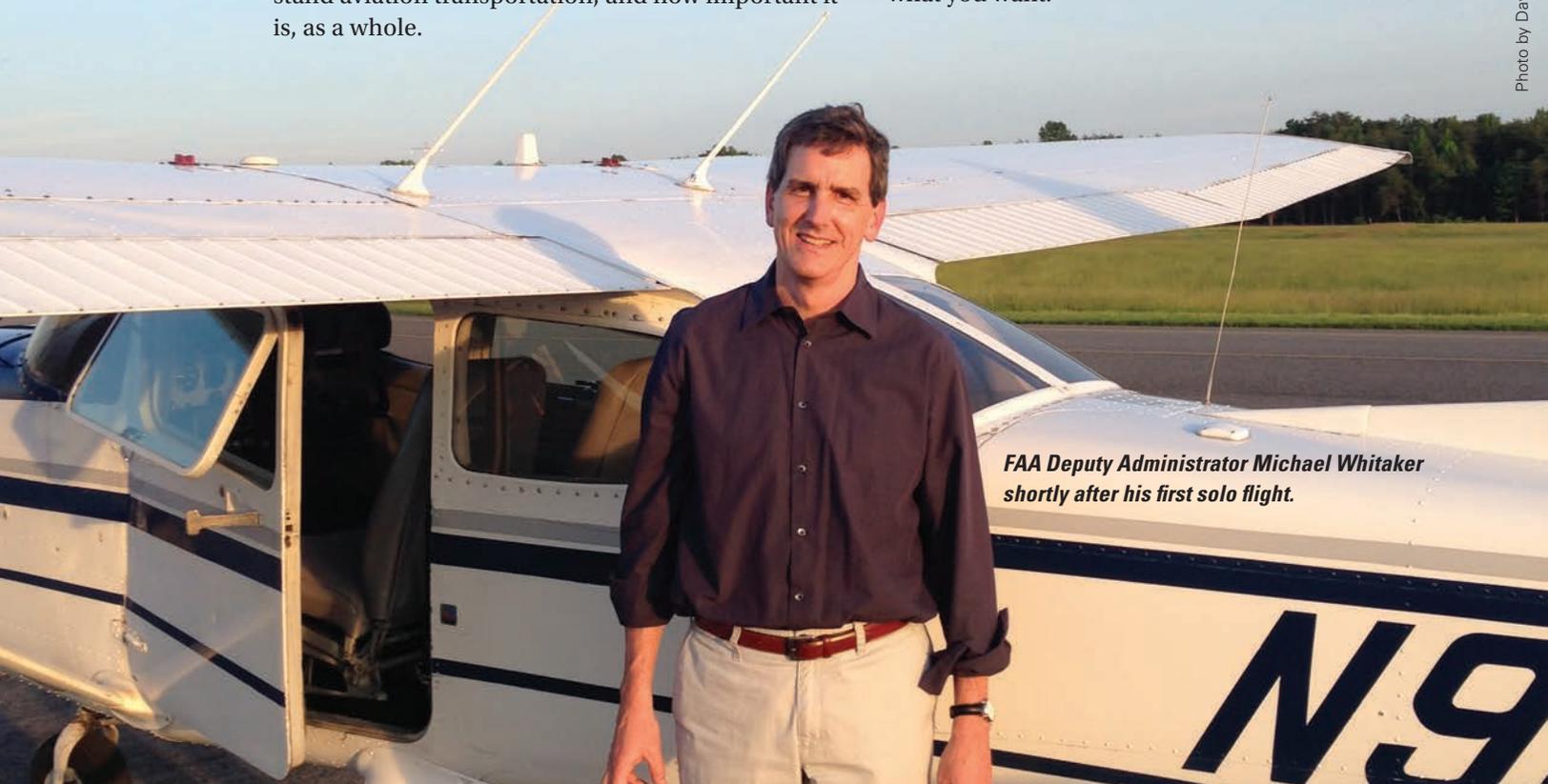
What made you decide to pursue a private pilot certificate?

I wanted to better understand the air traffic system and how it is integrated — it now makes a lot more sense. I also wanted to understand GA better. The accident rates are much higher [than commercial] and I wanted to understand the pressures that might lead pilots into bad situations.

Now that you have been through the ground and flight training, tell us what your experiences were working towards your private pilot certificate.

One thing that struck me was that you have to learn a lot of different technologies. Some are considered a bit obsolete, while others are more advanced. Regardless, when you take the practical test you have to know and operate them. I intentionally wanted to learn on an older aircraft with steam gauges because I wanted to understand the older technologies and be able to contrast them with the newer.

The process you go through to get your private certificate is pretty extensive; there is a lot of stuff you have to know and each thing has to build on the last. It can feel like a pretty big barrier to getting what you want.



FAA Deputy Administrator Michael Whitaker shortly after his first solo flight.

Photo by Dave Frostbutter

The FAA's vision is to strive to reach the next level of safety, efficiency, environmental responsibility, and global leadership. Where do you see GA fitting into that "big picture?"

GA is a really important part of the whole ecosystem of aviation. Take, for instance, the demand for airline pilots in the commercial sector. Previously, those people came from the military but now as that mission changes, that "source" is drying up. So we will rely more heavily on GA. GA should be the place where a lot of people can learn to fly and maybe from those there will be some who want to pursue it as a career. It turns, we have to make wanting to fly an attractive career path.

Great segue into our next question. There is a great deal of concern that getting a pilot certificate is no longer of interest to Americans. Our core population of pilots is getting older, and fewer young people invest the time and money into GA. What do you see as the root cause of this problem, and how can the FAA and industry work to bridge that generation gap?

I think some of it will be self-correcting as pilot salaries increase, which they are likely to do going forward. It is expensive learning to fly — more expensive that it probably needs to be. We need to work on keeping it accessible and make sure that we, as the FAA, are keeping as light a touch as possible so that we don't accidentally drive unnecessary costs.

That is what we are trying to do with the part 23 rewrite and the change to certification standards. We want to keep the cost down as much as possible while still maintaining a high level of safety. There is some amazing technology out there and we need to make sure we are not standing in the way of its path to the cockpit. This should help stimulate growth in the industry.

What, so far, has been your proudest moment in learning to fly?

It has to be getting my certificate. It was a little bit of a stressful episode but after completing [the check-ride] and flying back to my home base — that was a really happy moment.

At the AOPA Fly-In you talked about an incident you had involving a hard landing. What would you have other pilots "take away" from your experiences?

It took me awhile to sort through what the lessons were. It was at the end of a ten hour cross-country round trip and I think I didn't factor winds aloft into the trip enough. It was an extremely bumpy and not very pleasant ride with one fuel stop, and I now know I was pretty fatigued towards the end.

As far as the hard landing is concerned, I think my airspeed was just too high. I was trying to deal with the gusting winds and I added more airspeed than I needed, which created a landing that was difficult to manage. I did one go around, and probably needed another. Since then I have been out practicing take offs and landings constantly, even tabling my instrument training, to ensure I get the basics right.

How did the agency treat you after the event?

At first I, and a very gracious FBO, didn't believe there was too much to be concerned about, but once the aircraft was looked over it revealed some damage. Of course we did the right thing and reported it to the FSDO. After that it became a much more formal process. I received a certified letter with the Pilot's Bill of Rights — admittedly it made it a somewhat intimidating procedure — but the aviation safety inspectors involved were very professional and straightforward.

This job can be stressful sometimes. What do you like to do to decompress in your off time?

This may come across as heresy but I really enjoy sailing. Sailing and flying are my two hobbies and I do both in my off time to get away.

What's next for you in terms of flying goals?

I am pursuing my instrument rating. I think that instrument training is very focused on technology, so I am also trying to combine stick and rudder skills while taking the training slowly. I'm about 80 percent through the ground school and just a few lessons into the flying part of it. I am also trying out other aircraft.

Is there anything that we didn't ask you that you would like to offer? What would you like to tell our readers?

I'd like to put in a plug for ADS-B. I can't imagine flying without it. The obvious benefits are with the ADS-B In: the weather and the traffic data in the cockpit. It is just amazing and it gives you much better situational awareness. But ultimately the traffic in our airspace is going to be controlled via ADS-B Out, and if we don't have visibility on everything flying around out there, we lose that extra bit of safety. ADS-B Out is key to the safety of the system. 

GA is a really important part of the whole ecosystem of aviation.

Sabrina Woods is an associate editor for FAA Safety Briefing. She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.

Keeping Current

No matter how current, proficient, and well-equipped you are, there are days when Mother Nature's meteorological handiwork keeps GA pilots on the ground. Yesterday was one of those times, as a convergence of conditions brought record-setting downpours, strong thunderstorms, and even unusual (for the DC metropolitan area) tornado watches and warnings throughout the day. So it was a good opportunity to settle in and review the last draft of an important document that should be published in final form by the time you read this issue of *FAA Safety Briefing*: the FAA's *Instrument Procedures Handbook* (FAA-H-8083-16A).

Instrument Handbooks

The *Instrument Procedures Handbook* (IPH) is one of two FAA-produced handbooks targeted specifically for instrument pilots. You probably encountered the first *Instrument Flying Handbook* (IFH) (FAA-H-8083-15B), during your initial training for an instrument rating. The IFH is designed for use by instrument flight instructors and pilots preparing for the instrument rating knowledge test, so it introduces and explains all the basic concepts of flight instruments, attitude instrument flying, basic flight maneuvers for use in instrument meteorological conditions (IMC), navigation systems, air traffic control procedures, and instrument flight rules (IFR).

The IPH, on the other hand, is designed as a technical reference for all pilots who operate under IFR in the National Airspace System (NAS). It expands and updates information provided in the IFH, and it introduces advanced information for IFR operations. For example, the IPH offers detailed coverage of instrument charts and procedures, to include IFR takeoff, departure, en route, arrival, approach, and landing. In addition, the IPH provides safety information on subjects such as runway incursion, land and hold short operations (LAHSO), controlled flight into terrain, and human factors issues.

What's New?

The 2015 edition of the IPH contains substantial changes, updates, and reorganization intended for greater clarity. As with previous editions, the 2015 IPH benefits from extensive internal and external stakeholder review to ensure that it is aligned with

current policy and consistent with real-world IFR operations in the NAS. Key updates:

Chapter 1 (Departure Procedures):

- Updated information and reorganization of important concepts and principles related to obstacle avoidance and departure planning, to include updated graphics.
- Significant revisions to the section on Diverse Vector Areas.

Chapter 4 (Approaches):

- Changed internet references related to on-line flight planning and filing.
- Updated information on Vertical Descent Angles (VDAs), Visual Descent Points (VDPs), Required Navigation Performance (RNP) approach naming conventions.
- New information on Terminal Arrival Areas.
- Several general updates on Area Navigation (RNAV) and GPS-based approaches.

Where Can I Find It?

Published by the FAA Flight Standards Service's Flight Technologies and Procedures Division, Flight Procedures Standards Branch (AFS-420), the IPH is available in PDF format from the FAA's Regulations and Policies website at: <http://go.usa.gov/3A6e4>

What About the IFH?

In connection with the Airman Certification Standards (ACS) project, the FAA is working with industry experts on the Airman Certification System Working Group to review and revise the more basic *Instrument Flying Handbook*, last updated in 2012. The goal is to make the revised version of this publication available by June 2016.

Keeping mentally current with IFR policies and procedures is every bit as important as keeping your physical instrument flying skills sharp, so please take the time to download and review the 2015 *Instrument Procedures Handbook*. You can send comments regarding this publication in email form to: 9-AMC-AFS420-IPH@faa.gov.

Susan Parson (susan.parson@faa.gov, or @aviatrix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.



IFR Check Out!

It goes without saying that a good walk-around and preflight check is paramount to a safe flight. This is especially true for those IFR-specific items that go above and beyond your normal VFR checks. A good tip-to-tail preflight inspection can ensure your gauges, gadgets, and gyros are all in good working order. Here's a quick refresher on the basics.

Tip

First up is checking your airplane's logbook for pertinent dates. In addition to the usual 100-hour and annual inspection dates, IFR-specific items include the VOR accuracy check (more on that later), and the static system and altimeter checks (within 24 months). This last inspection, described in 14 CFR section 91.411, is required if the aircraft is operated in controlled airspace under IFR. Each static pressure system, altimeter instrument, and automatic pressure altitude reporting system must be inspected, tested, and found in compliance.

Then it's on to the pitot-static system. This system drives a host of pressure-sensitive instruments, to include your altitude and airspeed, so you will want to make sure no resourceful critters have taken up residence or gotten stuck in your pitot tube, drain hole, or static port. Visually inspect the ports, tubing, accessories, and instruments connected to the static system and repair or replace any parts that are defective.

On those chillier days, you'll want to ensure the area is clear of icing. This is also a good time to make sure your pitot heat system is working properly. As William DuBois points out in this issue's article, "As the Gyro Spins," a little blockage can play havoc with your readings, cause confusion, and introduce the potential for a costly error.

Tail

You will want to make sure your radio, emergency locator, and VOR antennas (typically placed on the vertical tail of the aircraft) are positioned correctly, secure and free of obstruction.

Not always being able to see clearly is the name of the IFR game, so do everything in your power to make sure you can be seen as clearly as the situation will allow. Check all of your position lights for cracks, and eliminate the everyday grime that can build up. Once inside, follow this up by making sure the lights are also operational.

Although not specific to just IFR flights, let me also take this time to plug sound tire checks in your preflight inspection. We just don't give tires enough love sometimes, even though they are quite literally the things that bear us up on our way to our aviation adventures.

A good tip-to-tail preflight inspection can ensure your gauges, gadgets, and gyros are all in good working order.

Gauges, Gadgets, and Gyros

Inside the cockpit, there a host of instruments you will want to warm up and monitor. Gyro-based gauges such as your attitude, heading, and situation indicators should be allowed five minutes to reach normal operation levels.

In accordance with 14 CFR section 91.171, VOR accuracy must be checked (and recorded) within 30 days of an IFR flight. In addition, navigation equipment checks should include confirming the



Photo courtesy of H. Dean Chamberlain

operation and annunciations of distance measuring equipment (DME), instrument landing system (ILS), global positioning system test, and (if still installed)

Inability to see clearly is the name of the IFR game, so do everything in your power to make sure you can be seen as clearly as the situation will allow.

automatic direction finder (ADF). Last, your turn coordinator is the only back up instrument to indicate straight and level flight if you lose vacuum. So while roll-

ing out of your tiedown space, do a quick check to ensure it is in sync with your movements.

For the communications side of the display, request a radio check at a non-towered field before taxiing out to ensure you can understand and be understood when relaying information back and forth to air traffic control. This is also a good time to use the transponder self-test function. Items such as your magnetic compass, airspeed indicator, altimeter, and outside air temperature are best checked while taxiing to make sure they all read as expected.

Glass cockpits equipped with items like IFR-approved GPS, a moving-map display, and an auto-

pilot come in many different varieties, so it is best to consult the Pilot's Operating Handbook (POH) or Airplane Flying Manual (AFM) for the best information on making sure your gadgets are good to go. Basics include before and after engine start checklists, electronic flight planning, and ensuring your soft keys and knobs are fully functional.

Last, but not least in either traditional or glass, don't forget to hack that clock! It may seem trivial, but the clock is a requirement. Since several IFR scenarios play out down to the second, make sure your timekeeping is as accurate as possible.

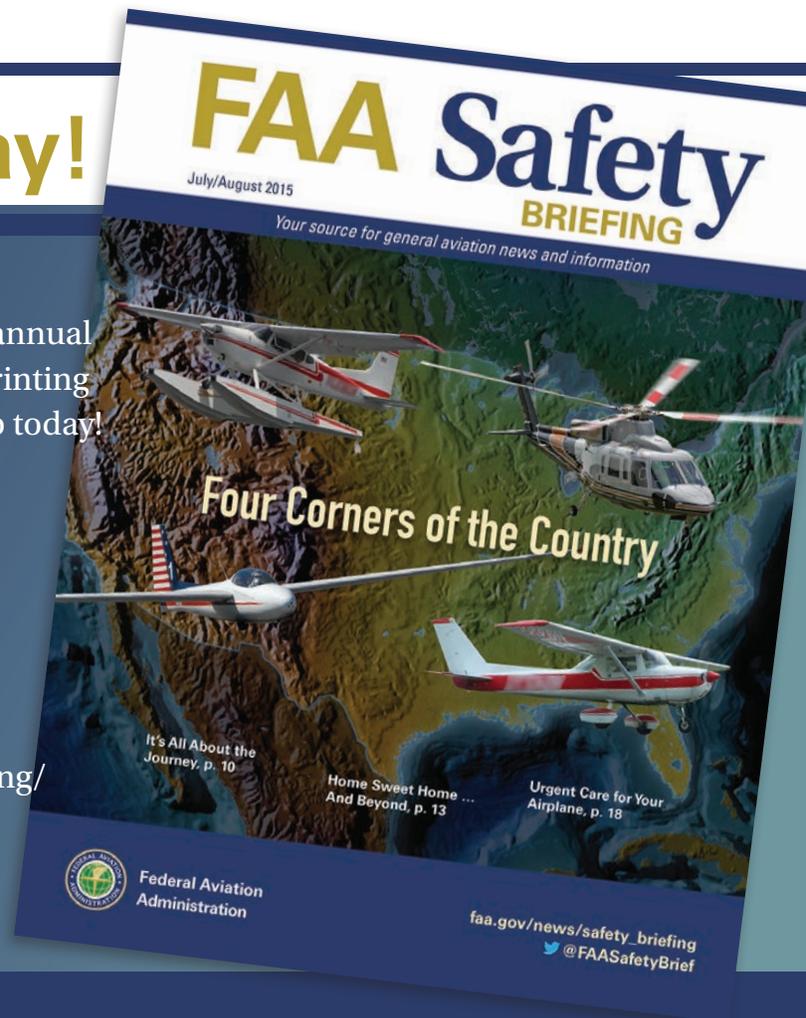
Obtaining your instrument rating is a significant accomplishment. By keeping your aircraft in tip top condition for IFR flying, you can extend your aviation opportunities to the maximum.

Sabrina Woods is an associate editor for FAA Safety Briefing. She spent 12 years as an aircraft maintenance officer and an aviation mishap investigator in the Air Force.

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Mission: Control

FAA's Fly Safe Campaign Targets Loss of Control Strategies

Greetings airmen. As you well may be aware, loss of control (LOC) accidents continue to be a persistent problem in the general aviation community. The number one cause of fatal GA accidents each year can be traced right back to LOC issues. In fact, it's estimated an LOC accident in GA occurs every four days! But with your help, that can change. Your mission — should you choose to accept it — is to spread the word about FAA's new #FlySafe campaign.

In an effort to reverse the trend of LOC-induced accidents, the FAA is working with the GA community on a new safety awareness campaign this flying season titled #FlySafe. FAA Deputy Administrator Mike Whitaker officially kicked-off the #FlySafe campaign last June in front of hundreds of pilots that gathered at the Aircraft Owners and Pilots Association's (AOPA) Fly-In at the Frederick Municipal Airport, Frederick, Md. "This is a great example of government and industry coming together to find a solution that will ultimately save lives," said Whitaker.

The safety campaign will take its cue from the findings of the General Aviation Joint Steering Committee (GAJSC), a joint government-industry team of aviation experts that has been analyzing GA accident causal factors for several years. Each month, the #FlySafe campaign will highlight government and industry solutions for LOC accidents that are based directly on the work of the GAJSC. In addition to talking about various ways that pilots can improve their airmanship, the campaign will also focus on highlighting new equipment that can add another measure of safety to the cockpit.

A new loss of control safety topic will be announced each month on faa.gov along with links to learn more on that subject. The campaign kicked off with angle of attack indicators and transition training as dual topics for June, followed by managing unexpected events (July), flight risk analysis tools (August), medications and pilots (September), survival (October), visual meteorological conditions training (November), and enhanced vision systems (December). FlySafe will continue over into 2016 so be on the lookout for more topics next year.

You'll also be able to find information on each of the safety topics by going to the *FAA Safety Briefing* home page at www.faa.gov/news/safety_briefing. A list of links to safety flyers on each topic is at the bottom of the page. The #FlySafe campaign also elevates the ongoing work of the FAA Safety Team (FAASafetyTeam) both online (www.FAASafety.gov) and across the nation via its network of safety outreach Representatives.

"By having a coordinated messaging effort that involves several key players in the GA community, I believe the FlySafe campaign can and will make a difference," said Kevin Clover, the FAASafetyTeam's National Operations Lead. "We all just need to take some time to focus on these issues and make ourselves aware of how these accidents can happen and the interventions we can use to prevent them."

That ties us back to the mission theme mentioned earlier. For a campaign like this to be successful, we can't do it alone; we definitely need your help. We hope you will "accept the mission" and join us to help spread the word about loss of control prevention strategies. It could be as simple as sharing a link to an article you found

helpful with a fellow pilot, or maybe mentioning one of the topics during your next "hangar flying" session. If you're more technology-minded, search for #FlySafe on Twitter, Facebook and/or Instagram. The FAA's social media presence has grown tremendously in the last year so be sure to keep connected with us. Working together as a community we can make a difference to improve safety and reduce LOC accidents this season.

Tom Hoffmann is the managing editor of FAA Safety Briefing. He is a commercial pilot and holds an A&P certificate.



Learn More

FAA's FlySafe Campaign Launch page
www.faa.gov/news/updates/?newsId=83106

Inadvertent IMC:

Being Somewhere Other Than on Cloud Nine

The pilot was on the final instrument approach required to complete the Instrument Rating Practical Test Standards. At decision height, the examiner called out “runway in sight.” The helicopter was slightly right of course and less than a dot above glideslope — not perfect, but well within the standards. After a positive exchange of controls, they began air-taxiing to the ramp for shutdown. As the rotors wound down, the examiner asked the applicant to finish securing the aircraft and to meet her inside to finish up the paperwork.

During the debriefing, the examiner complimented the pilot on his performance and concluded by presenting a new temporary airman certificate bearing the freshly printed words “Instrument Helicopter.” The examiner told him to enjoy this day because “it’s the best you’ll ever be flying helicopters on instruments.

While driving home, the pilot reflected on the comment his examiner made and wondered why she would say that. With fairly minimal instrument training under his belt, how could this be true? Certainly he could improve with added time and experience. At that moment, the pilot decided to dedicate himself to becoming the best instrument pilot possible. In no way was today going to define him.

The notion of “use it or lose it” is certainly true when it comes to maintaining instrument proficiency. Since helicopters predominately operate in VFR conditions, and since most helicopters are not even IFR certified, instrument skills tend to be marginal at best. Given the prominent news coverage of weather-related accidents involving helicopters, instrument proficiency has become a major concern.

Fatal Statistics

Statistics show that more than two thirds of all weather-related helicopter accidents result in at least one fatality — a rate three times higher than all other general aviation accidents. A common factor in many of these accidents was the pilot’s decision to “press on” into deteriorating conditions, which often leads to an encounter with inadvertent instrument meteorological conditions (IMC). Based on mission profiles, Emergency Medical Services (EMS) helicopter operators are extremely susceptible to inadvertent IMC. On a daily basis, EMS crews are called

to fly into unprepared landing sights littered with obstacles and hazards. A surprise encounter with low clouds or fog can easily overwhelm any pilot.

The Best Defense

Avoidance is the best defense against deteriorating weather conditions. However, if caught in such conditions, pilots are urged to divert, or make a precautionary landing as quickly as possible. Never press on! Remember, it’s better to be on the ground wishing you were in the air than the other way around.

If already instrument rated, pilots should regularly gain as much flight time as possible under simulated instrument conditions with a qualified instructor. If you are not instrument rated, consider making the investment. Instrument training enhances aeronautical decision making and can provide tools that help improve your piloting skills — a safety investment well worth the time and money.

Primary Option

Pilots have options for escaping inadvertent IMC: climb, descend, or reverse course. Descending is considered most risky because it involves flying closer to the ground. Descending also is likely to increase airspeed, resulting in less time to recover from unusual attitudes.

Climbing or reversing course, or a combination of the two, is likely to be the safest option. Additional altitude increases distance from the ground and will enhance reception for tracking a new course. Regardless of technique, maintaining positive aircraft control should be the highest priority. Pilots who remain calm and make subtle input changes are more likely to maintain positive control while seeking safer skies.

After executing an IMC escape plan, pilots should attempt to land as soon as possible to regain situational awareness. Flying further into deteriorating weather conditions is never a smart idea. It’s better to land and wait out the weather versus trying to complete a mission that is truly impossible.

Bottom line: be prepared for those days when perfect weather conditions suddenly disappear. Invest in your skills and understand what your options are. Even if you think your instrument skills are at their best, there is always room to improve.



Flight Forum

Mystery Plane

As I was reading through the May/June 2015 issue, I came across the Part 23 Rewrite update article. At the bottom of page 13 was a beautiful silhouette of what appeared to be a mid-wing, t-tail aircraft with struts. I cannot recall ever seeing this type of aircraft and was hoping you could shed a little light on its pedigree. A quick image search did not find a similar model. Any information on this mystery plane is much appreciated. Thank you for your help and for a great magazine.

— Abraham

I was looking thru the May/June 2015 issue of Safety Briefing and noticed a photo of an aircraft that has had my interest for a year. On page 13 there is a photo of an aircraft that I would identify as either a Saab Safari or a Pakistani built version called the Super Mushshak. Can you tell me anything about the photo?

— Michael

Good eye to you both! This eye-catching plane is in fact a Saab MFI-15 Safari and you can read more about it on either Wikipedia (http://en.wikipedia.org/wiki/Saab_Safari) or on the Aviastar.org website (www.aviastar.org/air/sweden/saab_safari.php/).

ADS-B Out?

The excellent article in the January/February 2014 issue of *FAA Safety Briefing* (www.faa.gov/news/safety_briefing/2014/media/JanFeb2014.pdf) seems to say that ADS-B Out will not be required in aircraft that are not flying in Class B, C or D airspace. I reached this conclusion on the basis of the illustration on page 17 of that issue. Can you verify for me that my interpretation is correct?

— John

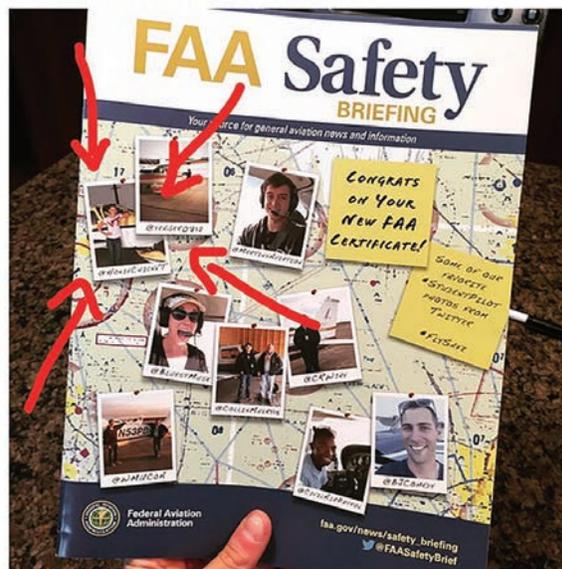
Hello and thank you for your question. The following link gives an excellent breakdown of what you need for each class of airspace. You should be able to find the answers to your questions and much more information about ADS-B Out: www.faa.gov/nextgen/equipadsb/airspace/.

Ready for My Close-up!

We decided to shake things up a bit for the new FAA Safety Briefing complimentary cover — the cover we send newly certificated pilots and maintenance technicians — and looked for your help in the design. We searched for and asked permission

to use your proud pics via Twitter (@FAASafetyBrief) and in return featured a few of them to pose as “model” aviation citizens. Below is a great response from @HokieChickVT!

25 April Byrd @HokieChickVT · 2h
Thanks @FAASafetyBrief I got to check one off the bucket list. HA :-)
#BeOnMagazineCover #avgEEK #studentpilot



FAVORITE
1

12:41 PM · 20 May 2015 · Details

FAA Safety Briefing welcomes comments. We may edit letters for style and/or length. If we have more than one letter on a topic, we will select a representative letter to publish. Because of publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards District Office or air traffic facility. Send letters to: Editor, *FAA Safety Briefing*, AFS-850, 55 M Street, SE, Washington, DC 20003-3522, or email SafetyBriefing@faa.gov.



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Clear Eyes in Cloudy Skies

I often marvel at how much aviation has changed in the twenty-odd years since my very first lesson. Just in my experience as an instrument-rated pilot, there have been several game-changing developments.

Game Changers

The first was GPS, which revolutionized navigation. Long before I ever saw a panel-mounted GPS navigator, I was among the early adapters whose flight bag wasn't complete without the latest hand-held moving map wonder.

Next came datalink. It's hard now to imagine that I ever willingly operated in instrument meteorological conditions (IMC) without the kind of weather situational awareness that this technology provides.

Information gathered through today's technology is great, but it can improve safety only if we pilots use it in the context of overall critical thinking about what we realistically can — and can't — safely do in a typical GA airplane.

of online weather and flight planning tools, complete with graphics (e.g., color-coded station

models) that vastly simplified tasks such as weather analysis and selection of a legal and appropriate alternate.

Now, of course, we are in the midst of the tablet/app and ADS-B driven shift to anytime, anywhere mobile capability for instrument flight planning, risk analysis, and all aspects of flight monitoring. The most popular apps even include information about the ground facilities and services you might need if the weather data they provide persuades you to divert.

All this information is great, but it can improve safety only if we pilots use it in the context of overall critical thinking about what we realistically can — and can't — safely do in a typical GA airplane. That requires asking and, of course, answering several important questions.

Is there convective activity?

There is no category of airplane certified to fly in or through thunderstorms. If the forecast calls for convective activity along your intended route of flight, you need to dig deeper, develop a solid under-

standing of the situation, and ensure that you have both a plan for, and a commitment to, diverting to a safe alternate destination. If you conclude it's safe to launch, appropriate use of weather technologies such as ADS-B and datalink can help you monitor developments and stay well clear of convective activity.

What's the freezing level?

We associate icing with winter operations, but it can occur at any time of the year. ADS-B, datalink, and even radar are all "blind" to icing, so your best defense against this peril includes a very careful preflight analysis of forecast and actual conditions (including any PIREPs on icing), and then disciplined in-flight monitoring of the outside air temperature. My personal policy is to never launch into the clouds without knowing that I can stay below the expected freezing level without hitting anything. It's also important to have at least one gold-plated escape plan in case the ice finds you anyway.

How low is too low?

Your instrument rating allows you to legally shoot an approach to minimums, but "legal" and "smart" are not synonymous. Here's where it pays to have well-established and frequently-reviewed personal minimums that account for your actual proficiency and comfort level in IMC. My personal rule is to avoid low IFR (LIFR). Even with another pilot on board, LIFR conditions add more risk to single-engine GA operations than I care to assume.

Do I have options?

The existence of "real" options (not just "legal" alternates) is another important factor in my preflight planning for a trip in IMC. In my book, widespread IMC strongly indicates a "no-go" decision, especially if there isn't even a marginal VFR airport in range.

More trigger points?

Now that I've shared a few of my trigger points for deciding whether to launch into IMC, I'm curious to hear yours. Write to me at the address below, and we'll consider publishing a list of the best IFR safety ideas in a future issue.

Susan Parson (susan.parson@faa.gov, or @avi8rix for Twitter fans) is editor of FAA Safety Briefing. She is an active general aviation pilot and flight instructor.

Hugh McFarland

Air Traffic Control Specialist, Houston TRACON



Hugh McFarland and his wife Paula

VFR and stuck in the soup? Your local air traffic controller and fellow pilot Hugh McFarland is here to help!

A recent flight assist garnered Hugh the prestigious 2015 National Air Traffic Controllers Association (NATCA) Southwest Region Archie League Medal of Safety Award and the National President's Award. The assist was for a VFR-only pilot who needed help after getting caught on top of clouds that extended for hundreds of miles. With Hugh's help, the pilot was able to make a 20-minute emergency descent and land safely.

"Being an active instrument pilot in small general aviation aircraft was very helpful in providing air traffic control services to this pilot," notes McFarland. "The pilot did what I recommend to all pilots who encounter difficulty while flying: *Ask for help.*"

That's an important point. "Pilots are often reluctant to acknowledge that they need a little help, which deprives them of available services," notes Hugh. "If you declare an in-flight emergency for any reason, you get whatever help you need." That said, controllers are also attuned to the big picture. "There's a fine line between helping a GA pilot and trying to fly the plane for them."

Hugh's experience as a pilot also helps in routine operations, because "Knowing what the average GA pilot is dealing with and what I would want if I were piloting that aircraft helps me provide better service. Many times I can anticipate the next request and work it into my duties."

It also helps him spot potential problems. A few years ago, Hugh was working a Piper PA-32R on a RNAV (GPS) approach in IFR conditions when he queried the pilot about a change in the aircraft's track. The pilot reported an autopilot failure that required him to hand-fly the approach. Not long after that, Hugh noticed the aircraft climbing. "I suspected a vacuum pump failure, so I instructed the pilot to use the turn coordinator to level the wings and use the airspeed indicator and altimeter to determine the pitch." The pilot regained control a mere 700 feet from the ground, and landed safely at a VFR airport. "This flight assist was a result of staying focused on the task and knowing the limitations of the typical GA aircraft."

From Cherokees to twin Cessnas, GA has been a part of Hugh's entire life. His father is a pilot, and his sons have been flying with him in GA airplanes since they were six weeks old. Hugh earned his wings while in college in 1986 and he has been flying ever since. He started his ATC career in 1989.

Hugh's first aircraft was a 1947 Cessna 120. He parked it on the ramp right in front of the VFR tower where he worked. "It's pretty cool to look out your 'office' window and see your own airplane!" While weathered-in on a trip to Florida, he found his next airplane — a Mooney M20E. "My wife and I flew that Mooney all over this beautiful country. When our children came along we always amazed people who watched us unload everything from car seats to a portable playpen. We got really good at loading that small but capable aircraft."

When it was time to upgrade the family's flying car, Hugh found a Beechcraft BE55 *Baron*. "With seating for six and ample baggage room, it was the ultimate traveling machine for a family of four. Obtaining my commercial certificate in the *Baron* was very rewarding. Now I have my sights set on the ATP"

Good luck, Hugh, and thanks for all you do to make the skies safer and friendlier!

Paul Cianciolo is an assistant editor and the social media lead for FAA Safety Briefing. He is a U.S. Air Force veteran, and a rated aircrew member and search and rescue team leader with the Civil Air Patrol.





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*"A good pilot is always
learning. That's why I read
FAA Safety Briefing."*

*– FAA Deputy Administrator
Michael Whitaker*