

# THE PROFESSIONAL FLIGHT INSTRUCTOR MENTOR



MARCH/APRIL 2022

VOLUME 24 NUMBER 2



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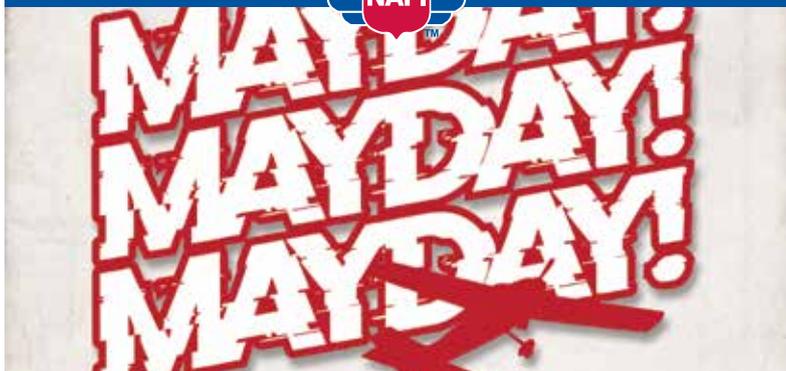


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# MENTOR

www.nafinet.org

Mentor is a how-to magazine dedicated to improving the teaching skills of aviation instructors of all disciplines

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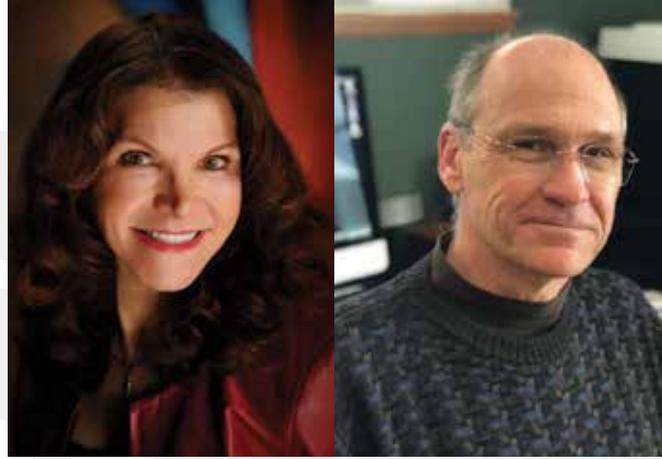
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# position Report

By Karen Kalishek, NAFI Board Chair  
and Paul Preidecker, NAFI Board President



## Sharing Our Vision, Supporting Our Mission

**N**AFI's leadership team recently undertook an in-depth process to evaluate your organization with the view of improving our service to the flight instructor community. This review encompassed finance, operations, industry relations and other aspects of NAFI. This review was to prepare for the future as well as to assess our status. NAFI is growing, and growing well, thanks to our members and engaged sponsors. We need to ensure that we are prepared to support our current membership while we make plans for a much larger community. A fundamental component of these preparations is strategic planning.

Just as you create a lesson plan for your client, an organization needs a plan. A strategic plan is more like a syllabus. It helps to set priorities, to focus energy and resources, and to ensure that employees and other stakeholders are working toward common goals. It also allows for changes based on a changing environment. Finally, a strategic plan acknowledges whom it serves, what it does, and why it does it, with a focus on the future.

When we undertook strategic planning, we created vision and mission statements. This was a natural place to start because it forced us to summarize, in just a few words, our plan.

What is a vision statement?

A vision statement is focused on the future. It is intentionally general in nature, yet inspiring as it encompasses values and goals in a few words. *NAFI's vision statement: Safer pilots through excel-*

*lence in flight instruction.*

This short phrase resonates with underlying themes. As flight instructors, we are a critical component of the aviation community. We teach people how to fly aircraft, but we do much more than that. We work with learners throughout their aviation journey, from initial flights to highly specialized training. We are a constant in the lives of pilots, and we bear a responsibility to continuously promote safety, for both current and future generations. How do we do manage continuous improvement? We do that through excellence in flight instruction. This brings us to NAFI's mission statement, the "how" in achieving this vision.

*NAFI's mission statement: NAFI promotes flight instruction excellence through education, mentorship and advocacy.*

The mission statement is simply how we will execute our vision. Similar to flight training, our process is dynamic, with a continuous loop of planning, implementation, evaluation and updating as progress is achieved.

NAFI's structure includes several committees. This structure is designed to address both the fiduciary responsibilities of your board and its strategic goals. Each committee has an overall leader or, in some cases, co-leads. These committee chairs are board members, with assignments based upon individual skills and interests.

NAFI has an active board of directors, with members who commit time and energy to building and continuously improving our organization. Each committee is charged with establishing

a meeting schedule, taking minutes, reviewing and prioritizing its objectives, assessing needed resources, and planning, implementing and tracking progress. A vital component of each committee's work is communication, which takes several forms. Coordination and collaboration with other committees and staff, as well as providing regular reports to the full board, are components of communication. As part of planning, each committee also looks ahead, assessing future goals and providing strategic plan and budget inputs.

**NAFI volunteers  
are key members  
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programs. If you  
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## position Report

### NAFI's Committees

The executive committee's responsibility is to convene as necessary for situations that may require action between formal board of directors' meetings. The executive committee consists of the chair, president, treasurer and secretary. NAFI's board is authorized to vote electronically as necessary, and special meetings are also authorized.

The primary function of the nominating committee is to solicit, evaluate and recommend new board members. This committee is also responsible for succession planning and maintains records on board member terms. An important function of this group includes promoting board of director diversity within the context of NAFI's current and future needs. As with any organization, we must ensure that board members have the skills that best align with organizational needs and goals. An example of this was selecting Adam Magee, who is a DPE, balloon instructor, 2021 FAA Team Representative of the Year and CPA. Adam has provided excellent service as NAFI's treasurer.

The oversight committee oversees the subcommittees for strategic planning, personnel, bylaws and committee structure areas. These subcommittees meet on a periodic basis for planning, audit and regular review of their functional areas. These committees typically meet to address emerging needs, or on a periodic defined basis.

Referring to our mission statement again, we created a committee structure based on our key areas of focus. We call these our pillars. NAFI has four committees representing the mission statement's foundation of education, mentorship and advocacy, as well as the vital need to continue growing a strong, well-functioning organization.

Each committee has stated objectives with identified deliverables such as specified financial balances, growth targets, documented plans, implemented programs and tracking. These objectives are linked to and support NAFI's strategic plan. Planning and communication are keys to success as the deliverables en-

compass implementation, review, tracking and coordination with operating staff and other committees as appropriate.

NAFI's four pillars and related committees are:

**Mentor.** This committee provides avenues for instructors to mutually support each other by sharing their experience and best practices. You will be learning more this year about exciting new NAFI member-benefit programming that is currently in the planning stage by this committee. This initiative will provide you with opportunities to both learn and share your experience.

**Promote.** This committee works to position NAFI as the leading advocate for flight instructors. Over the past several years, NAFI has made significant strides in its relationship with regulators and industry groups. Outreach and involvement have resulted in the selection of NAFI representatives for numerous FAA-led initiatives and support among aviation advocacy groups. NAFI's participation in stakeholder meetings across industry, government and academic agencies is important and will continue. This group leverages its advocacy by advancing the professional standing of flight instructors. Raising awareness of the value and virtue of NAFI membership as well as encouraging application of NAFI's code of ethics are components of this group's strategic objectives.

**Educate.** This committee provides relevant and interesting professional educational events, materials and opportunities to improve flight instruction. The inherent overlap between the mentor and educate committees provides synergy and fosters coordination and collaboration within your organization. As aviation activity grows and air traffic builds, there is an increasing need for more flight instructors, and a focus on flight instruction excellence that fosters safety. NAFI recognizes its role in growing the pilot population and increasing aviation safety. The educate committee is charged with developing and promoting flight instructor recruiting and retention programs for active, inactive and potential flight instructors. This is another

program currently in active development with an industry partner, and one in which members may become involved. You can look forward to further information this year as the program is readied. Another exciting initiative is to continue the evolution of our strategic educational partnerships with various identified constituencies. NAFI offers programming across numerous channels, including social, web, print and digital media. The educate area oversees media formats, evaluating content, member benefits, interrelationships and opportunities.

**Fortify.** This committee ensures a sustainable and continuously improving operating organization. Strategic goals of this committee are both operational and growth oriented. Financial, membership, sponsorship and fundraising objectives are established to ensure that NAFI continues to support member needs. NAFI

**As with any organization, we must ensure that board members have the skills that best align with organizational needs and goals.**

maintains a robust budgeting and analysis process to ensure financial stability and enable objective decision-making. This area also encompasses planning for internal support functions that evolve along with NAFI's growth. In addition, the fortify committee evaluates, prioritizes and creates NAFI member volunteer opportunities.

The NAFI board of directors is composed of enthusiastic individuals who bring years of aviation knowledge and experience to the organization. In addition, many board members bring experience in key business areas such as marketing, finance and organizational development. Also, we are fortunate to have the support of our staff, our dedicated contractors who do so many things behind the scenes and our team of volunteers. NAFI volunteers are key members of many outreach programs. If you would like to join your colleagues in volunteering for NAFI, send us an email at [NAFI@NAFI.net.org](mailto:NAFI@NAFI.net).

In the next few months, we will be focusing on events such as AirVenture, increasing social media presence and creating new educational content. Our strategic plan will be the tool we use to help guide us forward so we can help you succeed. 🇺🇸

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# YOUR FEEDBACK

## Turns Around About a Point, One More Comment

My Feedback comment is less about turns around a point and more about teaching styles using the article as an example. And keep up the good work!

The January/February edition of *Mentor* included a letter to the editor suggesting a “new and novel approach” to flying this maneuver. Always looking for new teaching methods, I followed the trail to a 39-page white paper attempting to describe how to precisely fly this maneuver. It read like Isaac Newton’s *Principia Mathematica*. I was startled to find the suggestion that learners and instructors use “simple calculus” to help understand this maneuver. Consider the following statement: “It is easy to see that the ‘gradient bank angle’ is anti-symmetric around the line connecting  $\theta=0$  and 180 degrees.”

This needlessly complex treatment of this or any maneuver detracts from teaching. There is no way this information is of any practical briefing or in-cockpit use. Furthermore, the treatment clouds the real purpose of the exercise as stated in the Private Pilot ACS — to develop the “skills required to divide attention between airplane control, traffic avoidance and ground track while maintaining coordinated flight.”

Instead of using this treatment, I might suggest that we

coach our learners to look out the window, know what to look for and use subliminal aircraft control to correct deviations.

I look to this publication for highlighting new trends and suggestions on how I can improve my teaching. Thus, a “deep dive” into the chosen subject matter is expected. But the content should be of practical use by the average instructor. This article should have carried a warning label such as, “Not to be used in an aviation teaching environment.”

*Chris Smith, CFI-IA, CFII, ATP, FAA Gold Seal  
Seattle, Washington*

## An Apology to Master Kaye

Thank you for recognizing me as a Legacy Master Instructor in the January/February issue of *Mentor Magazine*. However, I was disappointed that, as a 10-time consecutive Master Instructor, you did not include me in the correct “Silver” Legacy category. There was a lot of work done in those second 10 years.

*Sincerely,  
Don Kaye*

*Eds. Note: Apologies for the glitch. We were given incorrect information.*

## Nominations Sought for CFI Hall of Fame

Nominations for the Flight Instructor Hall of Fame administered by the National Association of Flight Instructors are sought through April 30.

Veteran CFIs Greg Brown, John King, and Martha King were inducted into the Flight Instructor Hall of Fame last year. NAFI now seeks nominations for induction in 2022.

There are several requirements for induction in this select group of aviation educators, including a minimum of 20 years of flight instruction experience. Nominees must have held a valid FAA flight instructor certificate, with at least 10 years of active flight instruction, though the criteria do include room for other roles, including technical support, academics, or writing textbooks.

Applications received by April 30 will be considered for the 2022 induction cycle. NAFI presents each inductee with a trophy to keep, and they are also given the opportunity to possess the Hall of Fame traveling trophy during all or part of their induction year (the honor has often been bestowed on more than one aviation educator).

NAFI will notify the honoree(s) for 2022 by June 1, with an induction ceremony to follow in a “public presentation” hosted by NAFI during a major aviation event. Information on the nomination process is available at the NAFI web site, where a list of previous inductees is available.



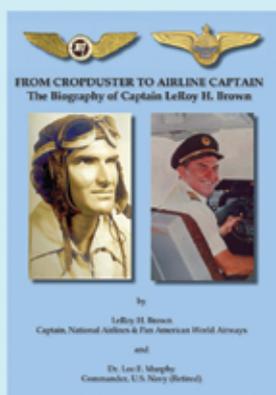
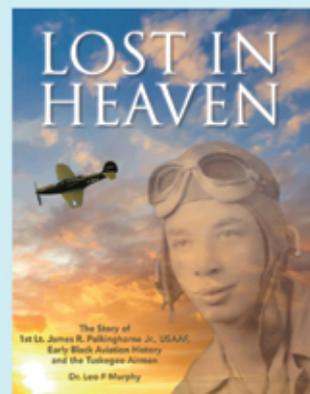
**NAFI was well-represented at Redbird Migration at the Sun 'n Fun Museum in Lakeland, Florida by Board Chair Emeritus Bob Meder, NAFI Chair Karen Kalishek and Board Member Victor Vogel.**

# Great Aviation Books

...at special prices for NAFI members

## *Lost in Heaven: The Story of 1st Lt. James R. Polkinghorne Jr.*

These are the stories of the famed Tuskegee Airmen and 1st Lieutenant James R. Polkinghorne Jr., one of their own who did not come home. It is a well-documented account with many illustrations of the time.



After starting a career of cropdusting, more than 35,000 flight hours later, Captain LeRoy Brown stepped out of the cockpit of a Pan American World Airways DC-10 to end a commercial aviation career that spanned nearly five decades.

## *From Cropduster to Airline Captain*

In *Shadow Flight*, Harrison Jones has spun an aviation tale of kidnapping, drug running, and intrigue. In the telling of the tale, he covers almost every aspect of aviation from flight instructing to charter to the airlines. It is really a gripping tale all aviators can learn from.



## *Shadow Flight*

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# MASTER CFIs



## ABOUT THE NAFI MASTER INSTRUCTOR PROGRAM

The NAFI Master Flight Instructor Accreditation is earned by aviation educators based upon a system of advanced professional standards and peer review. The accreditation identifies and publicly recognizes those teachers of flight who demonstrate an ongoing commitment to excellence, professional growth, and service to the aviation community. The NAFI Master Instructor accreditation is for two years and may be used to renew an FAA flight instructor certificate. Applicants must have been a CFI for two years and have given 1,000 hours of flight instruction. In addition, candidates must meet and document activity in four NAFI Master Instructor categories (Instructor, Educator, Service to the Aviation Community, and Professional Activity).

Members of the *National Association of Flight Instructors* work as independent instructors, at flight schools, universities, FBOs, corporate flight departments and in the military. Since 1967, NAFI and its members, who teach in 30 countries, are dedicated to increasing and maintaining the professionalism of flight instruction. NAFI members influence active pilots daily: students working to become pilots, current pilots training to advance their skills with new ratings or certificates and pilots who seek to improve their skills with recurrent training. NAFI also serves as an advocate with industry and government as a voice for flight instruction. NAFI helps shape the current and future direction of flight training. For more information about NAFI or the NAFI Master Instructor program, call 866-806-6156 or visit [www.NAFINet.org](http://www.NAFINet.org).



## AARON DABNEY EARNS FIFTH NAFI MASTER INSTRUCTOR ACCREDITATION

The National Association of Flight Instructors is proud to announce that NAFI member Aaron Dabney has earned his fifth accreditation as a NAFI Master Flight Instructor, which distinguishes him as a Bronze Legacy Master Instructor.

An active flight instructor since 2009 and a Master Flight Instructor since 2013, Dabney was born and raised in Victoria, Texas. As a youngster his weekends were spent at the feet of the World War II veterans and plant workers who populated the coffee circle at the local grass strip, Ball Airport. Before leaving for college Dabney soloed in his family's 1946 Piper Cub, and he is now proud to be the caretaker of that same airplane.

Since 2013, Dabney and his wife, Alisa, have owned Waco Flight Training in Waco, Texas. He prides himself on training staff instructors to marry old school stick-and-rudder flying to modern pedagogy and considers building the general aviation community in his area to be an essential part of his mission.

Dabney earned both his Bachelor of Arts and Master of Science degree in education at Baylor University. Since 2010 he has served as adjunct faculty in that institution's aviation science program, teaching both freshman and upper-level courses and serving as assistant chief ground instructor.

Dabney, newly named to the NAFI Bard of Directors, is an active volunteer in multiple capacities with NAFI and is a EAA Lifetime member. When he's not flying or teaching, he and his wife of 17 years love to travel and share their passion for small business ownership with others.



as the 82nd Airborne Division. He has four children and four grandchildren. He said he still enjoys flight instructing and has also taught skydiving, scuba diving and skiing.

When asked to sum up life as a professional flight instructor, Kehoe said: "What a great career, being a flight instructor. Where else can you experience the thrill and joy of 'first time experiences' over and over again."

### **JENNIFER WATSON EARNS SECOND NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member Jennifer Watson has earned her second accreditation as a NAFI Master Flight Instructor.

Watson began flying in August 2001 at Chandler Air Service in Arizona and was just about to solo when the 9/11 terrorist attack happened. She earned her private pilot certificate by December 2001 and headed off to finish her certificates and ratings with Mesa Air's program in New Mexico. In February 2004, at the age of 23, with an associate degree in aviation and 300 hours of flight time, Watson became a first officer flying an 86-seat jet.

After four years at the airlines, when her oldest son was born, she realized it wasn't her dream to be away from home all the time, so she took a break from flying but

### **JOHN 'MIKE' KEHOE EARNS FOURTH NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member John "Mike" Kehoe has earned his fourth accreditation as a NAFI Master Flight Instructor.

Kehoe has held the CFI designation for almost 35 years. He currently holds commercial, multiengine and instrument as well as CFI, CFII, MEI, AGI and AGII. He has been a senior instructor, chief flight instructor and director of aviation, stage check airman and end-of-course checkride examiner for Part 141 schools.

Kehoe said one of the most satisfying moments in aviation is watching a student's first solo flight. A close second would be a student passing a checkride the first time.

Kehoe served in Vietnam with F Company, 51st Infantry (LRRP) as well



# MASTER CFIs

missed it every day. In 2011, Watson found a way to have both a flexible schedule and fly as much as she wanted by becoming a CFI.

She said, "What I didn't anticipate is how much I would love teaching."

The current owner of a flight school in San Jose originally founded by Amelia Reid in 1960 took her under his wing, mentoring this new CFI with no real GA experience. With his support, Watson went on to earn tailwheel, CFII, MEI and ATP certificates and ratings and gained experience teaching aerobatics. When he decided to retire in 2014, he offered to sell the school. She and her husband, who is an A&P/IA mechanic, have expanded the school to three locations, and half the fleet are still tailwheels. In June the school will celebrate 60 years. As for flying goals, Watson said she desires to always be a student as well as teacher.



## **JOHN 'MIKE' HARDIN EARNS SECOND NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member John "Mike" Hardin has earned his second accreditation as a NAFI Master Flight Instructor.

Hardin grew up spending time at Terrell Municipal Airport (KTRL) in Texas. He said his earliest memory of aviation was flying with his dad at the age of 6. He started flight training at 13 in 1999 and earned his instrument, commercial and CFI in 2008 while working at his family's FBO, Terrell Aviation. He earned his MEI in 2010 and started his own flight school, Mike's Flying Service, a year later specializing in accelerated multiengine training in a Piper Apache. In 2012, Hardin earned his CFII and in 2014 obtained A&P certification with inspection authorization and his Gold Seal CFI.

In 2018, he celebrated hitting 10,000 hours by getting his seaplane rating in a Piper Super Cruiser and a Grumman Widgeon. With over 11,000 hours and 6,000 hours' dual given, Hardin has flown over 60 types of aircraft, and has served as the Region 11 director of the Ercoupe Owners Club since 2013. He has ferried planes, flown pipeline aerial patrol in Cessna Cardinals and flown for local clients, but he said most of his time is spent instructing in everything from Ercoupes to King Airs.



## **JOHN BOOS EARNS SECOND NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member John Boos has earned his second accreditation as a NAFI Master Flight Instructor.

Boos is a Gold Seal CFI, CFII and MEI and is chief flight instructor at Skill Aviation in Waukegan, Illinois, at KUGN. Boos started flying in 2013 and said he was hooked on aviation from the first lesson. He transitioned into full-time flight instruction in 2016, migrating from a career in electronic engineering. He is an FAA Safety Team representative and holds an AGI and IGI. At Skill Aviation, he mentors CFIs and runs stage checks and mock checkrides. He refreshed Skill's Part 61 private and instrument syllabuses and developed a tool to generate intermediate milestone dates for students who are on tight end-date timelines. He also developed an accelerated combined commercial-CFI course and numerous educational aids for the school.

In his spare time, Boos and his wife enjoy traveling in their Piper Turbo Arrow. He is an active amateur radio operator and enjoys Morse code, which came in handy to identify VORs and localizers. Boos holds a BSEE from UW-Madison and

an MBA from the University of Chicago as well as eight U.S. patents. He volunteers with the local Boy Scouts organization as an Aviation Merit Badge counselor.



### **WILLIAM DUBOIS EARNS SECOND NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member William E. Dubois has earned accreditation as a NAFI Master Flight Instructor. This is Dubois' second consecutive NAFI Master Instructor accreditation.

Dubois is a CFI Academy ground instructor for Airline Transport Professionals (ATP) at the company's KAPA location, where he helps to prepare new CFI candidates for their initial practical test. Dubois serves largely in a "teach the teacher" role, helping future instructors hone their classroom and cockpit education skills during ten-day intensive ground courses. He also travels the country for AOPA's You Can Fly initiative, teaching Rusty Pilot seminars as one of the organization's professional presenters.

Dubois, who's been a FAA Certified Advanced and Instrument Ground Instructor since 1984, also holds a commercial pilot certificate with an instrument rating and has a degree in Aviation Technology.

In addition to instructing, Dubois is a aviation writer whose credits include AOPA Pilot, CFI to CFI, EAA Sport Aviation, FAA Safety Briefing, Flight Training, Flying, Redbird Landing, Sun 'n Fun Today, and The Pulse of Aviation. He writes Questions from the Cockpit, a monthly reader Q&A column for General Aviation News.

On the flying front, Dubois holds both a world and a national speed record; and is active with the Sport Air Racing League (SARL), where he's a two-time national champion. An aviation history buff who has a fondness for old and antique

airplanes, he recently chronicled his adventures re-flying one third of the transcontinental airmail route—using nothing but the 100-year-old written instructions—for Smithsonian Air & Space magazine.

In addition to NAFI, Dubois is a long-time AOPA member, and is a lifetime member of the Ercoupe Owners Club.



### **JEANNE RIECK EARNS NAFI MASTER INSTRUCTOR ACCREDITATION**

The National Association of Flight Instructors is proud to announce that NAFI member Jeanne Rieck has earned accreditation as a NAFI Master Flight Instructor.

Rieck has been an active flight instructor since 2013 and the owner of Airplane Rental Ventures in Mesa, Arizona. Her mission is to build confidence and a high skill level in her clients. She said what brings her joy is seeing a student solo successfully in the challenging, busy airport environment where she teaches. It is also rewarding when one of her former clients is able to conduct a flight review for her.

Rieck is a former special education teacher and administrator, with a master's degree in special education. After 20 years in the classroom and leadership roles, she decided to take off on a new chapter and fell in love with flying at the first rotation. She said she loves an adventure, and the combination of flying and leading others to accomplish their aviation goals was a natural place for her to land.

Rieck has a commercial certificate with single, multiengine, instrument, seaplane and tailwheel ratings; is a CFI, CFII and AGI; and is participant in the Ninety-Nines Professional Pilot Leadership Initiative (PPLI) program. She owns two aircraft at Falcon Field in Mesa, a beautiful and demanding place to fly. When not flying, Rieck is exploring near the Grand Canyon with her husband at their off-grid cabin.

## Aaron Dabney Named to NAFI Board of Directors

Longtime NAFI volunteer Aaron Dabney has been named to serve on NAFI's Board of Directors.

Dabney has been a CFI since 2009 and holds five consecutive Master Flight Instructor accreditations. He and his wife Alisa have owned Waco Flight Training in Waco, Texas since 2013. Dabney earned both his Bachelor of Arts and Master of Science degrees in education at Baylor University, and since 2010 has served as adjunct faculty in its Aviation Science program.

"On behalf of NAFI, I am pleased to welcome Aaron Dabney to the Board of Directors," Board Chair Karen Kalishek said. "He has a combination of skills, experience, and enthusiasm that will certainly benefit NAFI in our mission to promote flight instruction excellence via education, mentorship and advocacy."

She said Dabney has already served NAFI for several years as a dedicated volunteer, most recently taking on the role of organizer for NAFI's monthly MentorLive broadcasts. "Aaron is passionate about mentoring flight instructors and will be serving as co-chair of NAFI's Mentor Committee. He is a solid addition to NAFI's leadership team and will assist in developing new programming and member benefits," Kalishek added.

## NAFI Special Interest Groups Update

The NAFI Special Interest Group program, known as SIG, was launched in June 2021 with one group of rotorcraft instructors. Since then, NAFI's SIG options have grown to include these additional distinct areas of interest — seaplane, instrument, glider, tech, CFIs teaching CFIs, and new CFIs.

These meetings are filled with interesting and robust discussions providing an intimate venue for shared learning. And, as anticipated, the groups have become valued networking opportunities for all members involved.

Here is the latest list of NAFI Special Interest Groups:

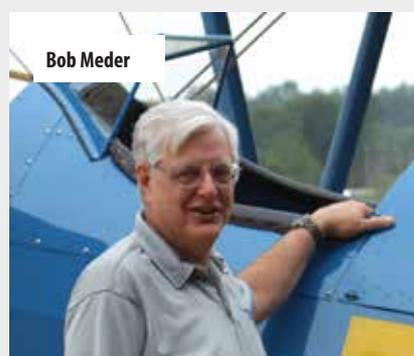
The Seaplane Instructors SIG is hosted by **Mike Pearson**, NAFI 23282. It meets on the third Thursday of every month at 8 p.m. Eastern.

The Instrument Instructors SIG is hosted by **Jan Squillace**, NAFI 21828. It meets on the third Thursday of every month at 7 p.m. Eastern.

The New Instructors SIG is hosted by **Percy Olsen**, NAFI 221310. It meets on the second Sunday of every month at 8 p.m. Eastern.

The Instructors Teaching Instructors SIG is hosted by **Bob Meder**, NAFI 18567. It meets on the third Sunday of every month at 8 p.m. Eastern.

The Tech SIG is hosted by **Charath Ranganathan**, NAFI 220298. It meets on the third Wednesday of every month at 9:00 p.m. Eastern.



National Association  
of Flight Instructors



Education Foundation

# \$10,000 Matching Grant

**Make twice the impact  
when you donate!**

Through the generosity of the NAFI Board of Directors, contractors and members, the NAFI Education Foundation has received a \$10,000 matching grant. Choose which of NAFI's outstanding programs you'd like to help support:

## Professional Development Program

The PDP is a 40-hour certificate program available exclusively to NAFI members representing courses in Instruction, Business/Communication, Leadership development, Human psychology/human factors/risk management, and more. When you select the PDP for your donation you help with the addition of enhanced options on the Learning Management System, and upgrades to simplify access and progress.

## NATIONAL ASSOCIATION OF FLIGHT INSTRUCTORS MENTOR LIVE

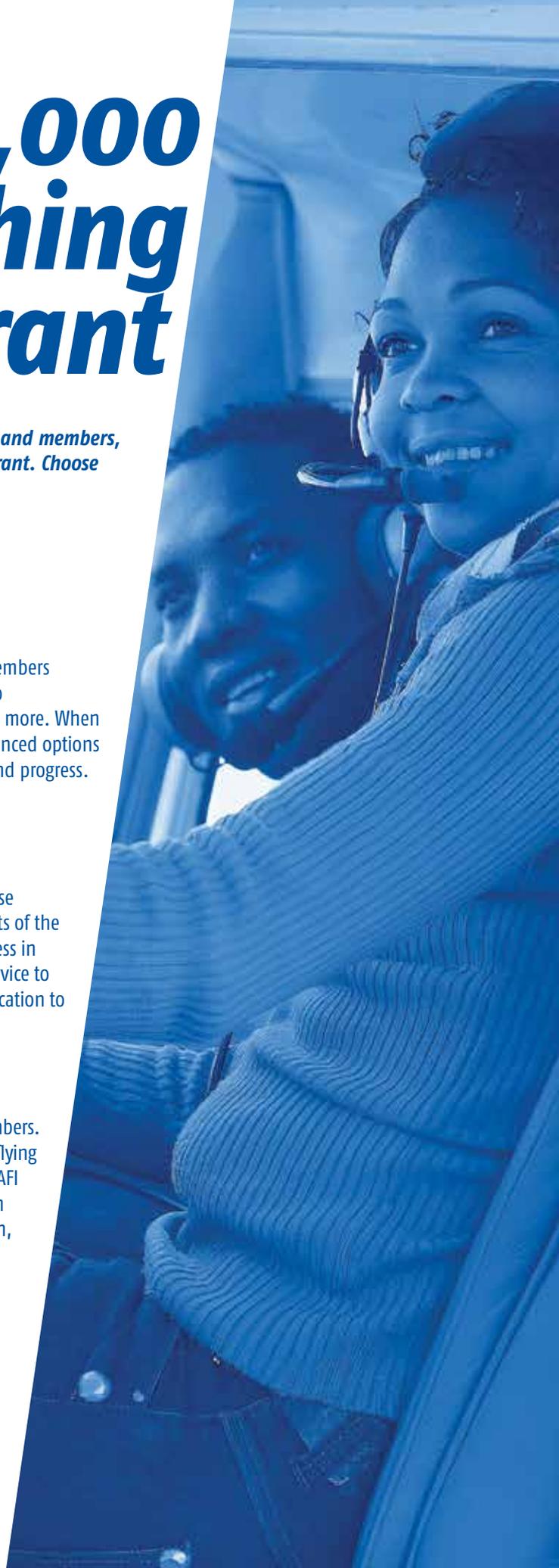
MentorLIVE is a monthly, interactive live-video streaming broadcast. These programs feature NAFI-member subject matter experts from many aspects of the flight instruction industry to help CFIs and all aviators reach greater success in their aviation endeavors. NAFI provides this program as a community service to offer rigorous, *WINGS*-approved content as a contribution to higher education to the broader flight instructor community.

## THE PROFESSIONAL FLIGHT INSTRUCTOR MENTOR

NAFI *Mentor* is a bi-monthly magazine published exclusively for NAFI members. Its articles cover the wide range of challenges in aviation education, from flying technique to business practices to professional development. Written by NAFI members for NAFI members, *Mentor* provides a unique aviation journalism perspective. In addition, *Mentor* explores the changing universe of aviation, and was the first publication to report on the challenges and potential of drones. When you select *Mentor* for your donation you help offset price increases, contribute to the addition of more writers for more targeted content, and provide more distribution opportunities.

Most important, when you fund these efforts you help keep dues low for all members while making a contribution to these valuable education offerings.

To donate, visit [www.nafifoundation.org](http://www.nafifoundation.org)



# NAFI NEWS



Charath Ranganathan



Ned Parks



Scott Manley

The Glider Instructors SIG is hosted by **Scott Manley**, NAFI 225619. It meets on the second Thursday of every month at 9 p.m. Eastern.

The Rotorcraft Instructor SIG is hosted by **Ned Parks**, NAFI 219224. It meets on the first Thursday of every month at 7 p.m. Eastern.

Do you have a passion for a certain type of flight training? Do you train in a particular aircraft type? Do you specialize in a specific area of flight training? Join a special interest group now and have the chance to virtually engage with NAFI members who share your interests. Join a SIG and share stories, learn trade secrets and build camaraderie.

Have an idea for a NAFI SIG? Want to host one? NAFI is actively seeking ideas and volunteers to expand the SIG program! Please contact NAFI Program Director John Niehaus with your ideas and/or interest in volunteering via email at [jniehaus@nafinet.org](mailto:jniehaus@nafinet.org).

Hosting requires access to video conference software allowing for 10-plus users simultaneously.

## MentorLIVE Growing Strong

### Future presenters



MentorLIVE first aired in September 2017 with fewer than 100 viewers. Now, after 53 more live broadcasts, the program averages 1,000 viewers. These viewers join the presentation from all over the United States and 105 other countries. To date, MentorLIVE has reached more than 120,000 viewers in total.

MentorLIVE is a live-streaming broadcast featuring subject matter experts from many aspects of the flight instruction industry to help CFIs succeed in their training endeavors. All presentations are WINGS-approved and require successful completion of a quiz to earn the credit.

We are pleased to announce the 2022 presenters for the balance of the year. Watch eMentor and the NAFI website for specific information on when and how to register.

April 20 – Gregory A. Feith, CFII, ATP, A/IGI, UAV, co-host of Flight Safety Detectives podcast, NAFI board of directors member

May 18 – John and Martha King, co-founders, King Schools

June 15 – Capt. Brian Schiff, ATP, CFII and MEI, and Mark King, MCFI-A of CP Aviation, Santa Paula, California

July 20 – Radek Wyrzykowski, CFII and MEI

August 17 – Richard McSpadden, AOPA Air Safety Institute Senior Vice President

September 21 – Ed Wischmeyer, ATP/CFII, Ph.D.

October 19 – Panel discussion featuring Thomas P. Turner, ATP, CFII and MEI, and Karen Kalishek, NAFI Chair, DPE, ATP, Master CFI/CFII/MEI, CFI-G, AGI and IGI

November 16 – Scott Manley, CFI-G

December 21 – Catherine Cavagnaro, CFII, ATP, Ph.D., owner, Ace Aerobatic School

Member volunteers make MentorLIVE possible — our producer, presenters and hosts all volunteer their time and expertise so we can provide this vital community service to all CFIs and aviators. If you have an interest in volunteering in any way, please contact Laretta Webb Godbey at [lgodbey@NAFINet.org](mailto:lgodbey@NAFINet.org).

MentorLIVE is broadcast free of charge to all aviators as a NAFI community service. To help support the production of these presentations, join NAFI today. All presentations are WINGS-approved.



# FAA TO CHANGE 'HOT SPOT' IMAGERY FOR SAFETY'S SAKE

NAFI helps spread the word

**H**ot spots are an important tool during preflight planning and taxiing on airport surfaces. Today you look at an airport diagram, and perhaps without much thought, you do not intuitively understand what the message is when looking at hot spots. They are currently depicted in a variety of shapes with no particular meaning. Well, this is about to change. As of May 19, 2022, hot spots on the Federal Aviation Administration's aeronautical charts and publications will have three shapes with two distinct meanings.

Are you aware of how many pilots have misaligned to and even landed on or departed from a wrong runway, and even a taxiway? Runway confusion has become a concern due to pilots approaching, landing, and departing on surfaces other than the intended runway, making this one of the FAA's Air Traffic Organization's Top 5 initiatives in 2017, and it continues to be on the Top 5 list.

The data remains consistent with approximately 80 percent of these events occurring with general aviation pilots

and nearly 20 percent with commercial pilots at a variety of airports across the national airspace system, and typically during daytime visual meteorological conditions. These wrong surface events not only happen on an incorrect runway, but on taxiways and even landings at the wrong airport.

The FAA convened a runway safety working group to identify ways to address this important issue. The group was composed of collaborative industry and agency partners to include FAA's Flight Standards, Office of Airports, Air Traffic Services and Aeronautical Information Services. FAA industry partners include the National Association of Flight Instructors, National Business Aviation Association (NBAA), Regional Airline Association, Air Line Pilots Association, Aircraft Owners and Pilots Association, Experimental Aircraft Association, and the National Air Traffic Controllers Association. One of the mitigations to address this issue was the development of a new Arrival Alert Notice, in addition to hot spot standardized symbology.

"This is a great example of leveraging the collaborative capability and power of the talented members of the government-industry surface safety working group (SSG) to develop a solution to a complex safety issue," said Alex Gertsen, SSG industry co-chair and director of airports and ground infrastructure at the NBAA. "The wrong surface challenge doesn't discriminate against general aviation, business aviation or scheduled air carrier operations. We all need additional tools and innovative solutions to help us reduce wrong surface events."

## **NAFI Will Help Launch the Effort**

The FAA will launch its Outreach and Education Campaign about standardized hot spot symbology and its Arrival Alert Notice via NAFI's MentorLIVE broadcast on March 16.

Watch NAFI's *eMentor* for more information. In case you miss the March 16 broadcast, it and all MentorLIVE broadcasts are archived on NAFI's website.

Along with many other industry groups, NAFI has participated in the FAA's

# 'HOT SPOT'

surface safety group, NAFI board member and chair emeritus Bob Meder explained. This group has focused on many issues involving safety on and in the vicinity of airports, with topics ranging from airport markings to pilot/controller awareness and coordination to drive safety. This is all in an effort to improve the already excellent safety record that aviation enjoys, he said.

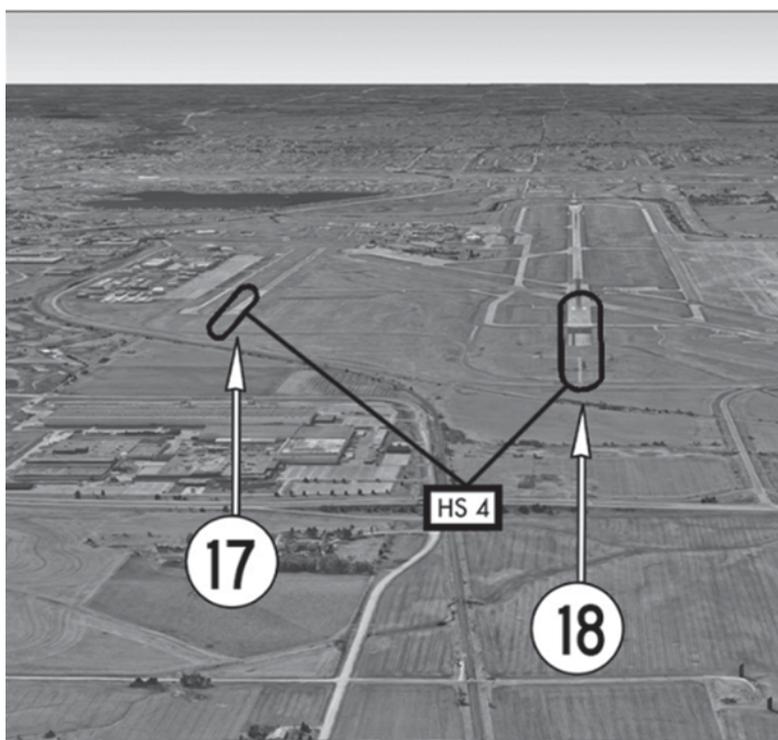
One of the key issues for many years has been airport hot spots. As you know, hot spots are those locations on airports that have been identified as having higher risk of incursions, with all of the issues that implies, including the possibility of movement conflicts that can lead to incidents and accidents, Meder said. These are obviously issues that everyone in the industry wishes to avoid due to the high potential cost, both in terms of human safety and the cost of an incident.

For many years, airport hot spots have been noted on the airport diagrams by a red box with an associated circle or ellipse showing where pilots and other airport personnel should operate with extra vigilance. To better highlight and draw attention to these locations, the FAA will be introducing a new graphic to better illustrate where these hot spots are located. As you can see, the graphic matches visually and dramatically the term "hot spot." We believe that this will be a significant enhancement to pilot and operator awareness of these locations, helping to mitigate the associated risks, Meder said.

NAFI is proud to have been a part of this process and is equally proud that the FAA has chosen the March 2022 MentorLIVE broadcast to introduce this new chart graphic, Meder added. The broadcast will also emphasize to all pilots the need to be aware of the higher risks associated with these locations and remind them to be extra vigilant in their operations.

## LINCOLN (LNK) ARRIVAL ALERT

### Landing South Rwy 17 and Rwy 18



#### Off-set Parallels.

**Pilots be aware that Rwy 17 is 550 feet farther down the approach than Rwy 18.**

Not for Navigational Purposes  
For Situational Awareness Only

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Effective 19 MAY 2022 to 16 MAY 2024



NATIONAL ASSOCIATION OF FLIGHT INSTRUCTORS



### 3 Shapes 2 Meanings

Ground Movement



Wrong Surface



MENTOR  
LIVE

By Marci Veronie

# My Wishlist for Every CFI

## An insurance expert's advice

■ Aviation underwriters develop a unique perspective on things that go wrong in and around an aircraft. We see most of the accidents that are reported to the FAA, and many of the incidents that are not, and I can tell you that we pay numerous claims where there is a CFI in the right seat. Many of these events have one thing in common: The accident chain started in the habits and attitudes that were formed early on, often during primary flight instruction.

That's where you come in. You may have the

ability to prevent an accident before it ever happens by planting the seeds of safety and caution from day one.

You might teach a student pilot something that will keep them out of trouble 10 years from now. In a very real way, your students continue to learn from you long after their checkride is over, even if you never see them again. In fact, the attitude that the checkride is the day that a student is done with flying lessons is part of Wish No. 1. Please teach your students that skills deteriorate over time, and recurrent train-

ing is a must (and one that helps with insurance premiums)!

Encourage them to go for other ratings, even ratings they'll never use. A seaplane rating teaches a lot about wind intensity and direction; a tailwheel endorsement teaches the importance and use of the rudder; and commercial maneuvers improve precision and encourage smoother flying. An instrument rating sharpens skills that will serve a VFR pilot well on even the most beautiful of days. Even if they don't get the rating, just learning something about flying on the gauges could be a lifesaver when the weather unexpectedly goes bad. If you can instill that belief in your students from their first lesson, you will have performed one of the most essential services you can imagine, along with the fact that you have a customer for life.

Wish No. 2 is to reinforce that as a pilot, they are in charge of the flight. One of the things many new pilots have trouble with is knowing when to say no. ATC is their friend, not their boss, though it may not sound that way when a controller is issuing an instruction. As an experienced CFI, you know you always have the right to say, "Unable," but students and less experienced pilots are easily intimidated. We see a number of landing claims because the tower asked a pilot to change runways on short final, and the



pilot didn't have the confidence to say "Unable," even if it meant a go-around or leaving the pattern and coming back for another try.

Wish No. 3: Practice landings! You know how they say the secret of success in real estate is "location, location, location"? Well, in aviation, it should be landings, landings, landings. I recently reviewed 19 accident claims, and 12 of them were landing mishaps. Some of the comments read, "Lost it on landing." Or, "Got hit with winds on landing." Frequently, what didn't need to be said was "Too slow" or "Too fast."

Wish No. 4: Fuel and flight planning versus fuel and reality. Instill the need to carefully calculate fuel consumption for the planned trip, and then honestly monitor and measure fuel consumption versus flight time. Don't let your student be the pilot who lost engine power because there wasn't any usable fuel left in

Instill the need to carefully calculate fuel consumption for the planned trip and then honestly monitor and measure fuel consumption versus flight time.

the tank(s).

Wish No. 5 may be the most important one I have to offer. In all things related to aviation, please teach your students to crawl before they walk and walk before they run.

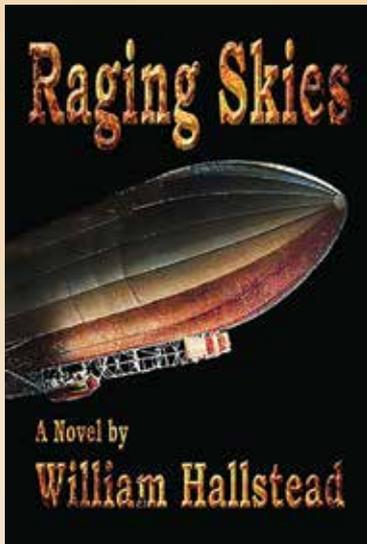
Those are tough attitudes to implant in the kinds of people who want to become a pilot. Pilots are, by nature, driv-

en. They want to get from point A to B as fast as possible. They want to challenge themselves to reach the next level, and then the one after that. They want to fly in more kinds of weather and land beneath lower ceilings. They want to impress their friends with their stick and rudder skills or take their family on long cross-country trips.

It's easy for them to get in over their heads. You can change that before it happens. Your students look up to you as the professional who knows it all. Please take the opportunity to show them from their first lesson what it means to fly like a pro.

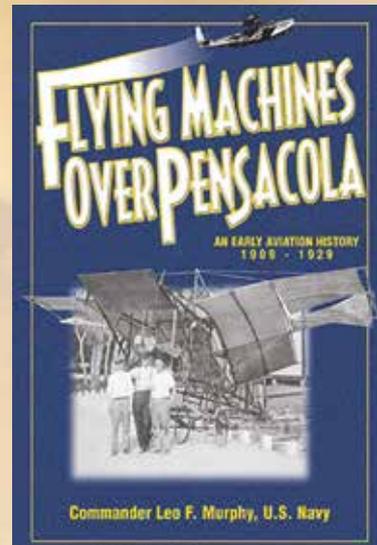
.....  
*Marci Veronie is the senior vice president of sales and marketing at Avemco Insurance Co. and has been with Avemco since 1986. She holds a property/casualty insurance and life health license in all 50 states and has extensive knowledge of aviation insurance and the aircraft that Avemco covers.*

## OK, as a flight instructor, you have to be pretty smart. You can only get that by reading & studying!



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A GOOD PILOT IS ALWAYS LEARNING

# Professional Development Program

The NAFI Professional Development Program is designed to develop and mentor a flight instructor's mastery of core concepts in aviation education and leadership.

Further, it provides the tools necessary to excel as teachers and client service experts, improving the standards of professionalism in flight instruction.

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# Preflight Your Doctor's Visit

Anticipating a prescription

.....

**By John Boos**

**W**ham! A hard fall on the back. Nobody wants that to happen, and this pilot, we will call him Bill, knew right away this was no ordinary fall. Bill had landed squarely on his upper back with the wind knocked out of him.

Here is a real-life case that illustrates at least one way a pilot can become involved proactively in their medical care by doing homework on possible medication before

a physician visit. The author is neither a doctor nor a pharmacist, so please don't mistake the course of action discussed as actual medical advice, or as an example of best practices. It is meant to illustrate a way to get involved in one's medical care as a self-advocate.

Our case study continues. Bill was lying on the ground, and after a self-assessment, he decided that nothing seemed to be broken, he wasn't bleeding, and he had not hit his head. He knew he should prob-

ably call for help, but being a stubborn fellow, he decided to get up and walk around, but with some pain.

After taking care of a few things, the pain got a little worse, so Bill chose to go home to rest. Later that night, he had trouble sleeping due to the back pain. Bill's spouse, a nurse, suggested that Bill visit his family doctor, his primary care physician.

Bill figured there was a good chance that medication may help him sleep, and

that rest would help him recuperate. He also suspected that the family doctor may have a medication already in mind to prescribe for this type of injury, but that medication may not be the friendliest for getting back to flying.

There are at least two relevant regulations related to this situation. 14 CFR 61.53 says that no person who holds a medical certificate may act as pilot in command, or as a required pilot flight crewmember, while that person: “(1) Knows or has reason to know of any medical condition that would make the person unable to meet the requirements for the medical certificate necessary for the pilot operation; or (2) Is taking medication or receiving other treatment for a medical condition that results in the person being unable to meet the requirements for the medical certificate necessary for the pilot operation.” Also 14 CFR 91.17 says that “(a) No person may act or attempt to act as a crewmember of a civil aircraft ... (3) While using any drug that affects the person’s faculties in any way contrary to safety ....” We know as pilots that using any medication should be reviewed with an aviation medical examiner (AME) to

determine suitability for flight.

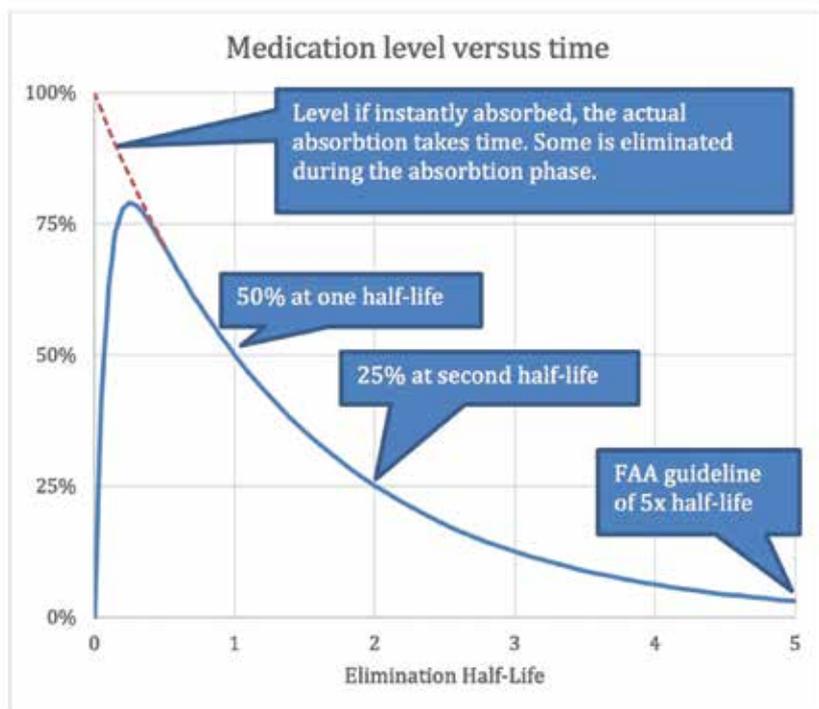
Since most primary physicians lack experience with the effects of medication at altitudes, Bill wanted to do some homework first on possible candidates for medication so he could open a discussion on treatment alternatives with his family doctor. It was not possible to reach Bill’s AME to discuss options due to the weekend. That discussion would have to wait until Monday.

A bit of internet research showed that a muscle relaxant is often prescribed for this type of back injury because with this kind of injury a lot of the pain can be muscular — some muscles around the injury site involuntarily tighten up, causing other muscles to compensate. These multiple sets of muscles contracting in opposition can be painful. Modern medicine’s response to this is sometimes to prescribe a muscle relaxant.

A quick search of AOPA’s online Medications Database showed several medications are commonly used as a muscle relaxants, but none of them were listed as approved for flight. The FAA’s *Guide for Aviation Medical Examiners* advises AMEs that muscle relaxants are in the “do not

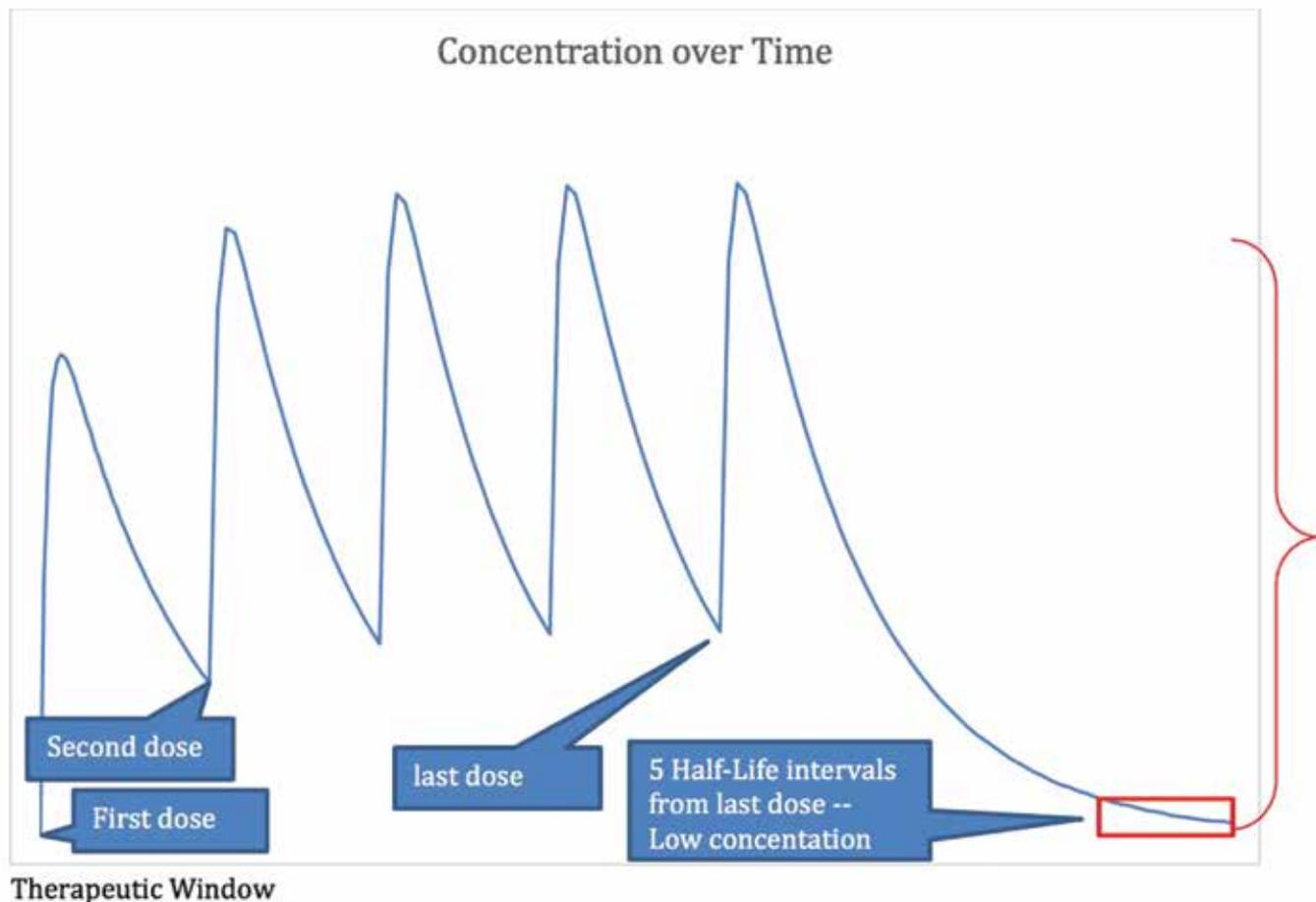
fly” category and that “airmen should not fly following the last dose of any of the medications below until ... 5-times the maximum pharmacologic half-life of the medication.” If the half-life is not known, then the wait is at least five times the maximum dose interval. Remember, this is a general guideline from the FAA. An AME may require a longer or shorter interval depending on the specific details.

So what is a medication elimination half-life? Medication works in the body by creating and maintaining a concentration of the desired drug concentration in the bloodstream within a therapeutic window that is a range where the drug has a therapeutic effect and is safe. First the drug is absorbed into the bloodstream at a certain rate, and then the body naturally but gradually eliminates that chemical compound through normal biological processes. The elimination half-life is the amount of time needed for the concentration of the medicine in the blood to drop by 50%. Figure 1 shows how the drug concentration increases as it is absorbed into the bloodstream and then gradually is eliminated. This figure illustrates the concept but does not represent an actual drug.



**Figure 1** Elimination rate of a hypothetical medication after a single dose, for illustration purposes only, not for determining treatment.

**Here is a real-life case that illustrates at least one way a pilot can become involved proactively in their medical care by doing homework on possible medication before a physician visit.**



**Figure 2 A hypothetical medication concentration example over time with 5 doses, for illustration purposes only, not for determining treatment, nor intended to illustrate any specific medication or course of dosage.**

Scientists at pharmaceutical companies use absorption and elimination rates to determine a recommended dosage and dosage interval to keep the drug concentration within the desired therapeutic window. Doctors use the recommended dosage level and interval, patient weight, and other factors to prescribe the treatment plan. In the case of oral pills, the concentration usually rises a short time after taking the pill and then diminishes over time to be supplemented with the next dose at the proper dosage interval. This is shown in Figure 2. In general, if the elimination half-life is short, the dosage interval will generally be shorter.

The elimination half-life for many pharmaceuticals is listed on the FDA drug insert sheets. Knowing this interval for various medications that might be prescribed could be helpful in having a discussion with one's physician.

Bill investigated his list of muscle relaxant medications and found the elimi-

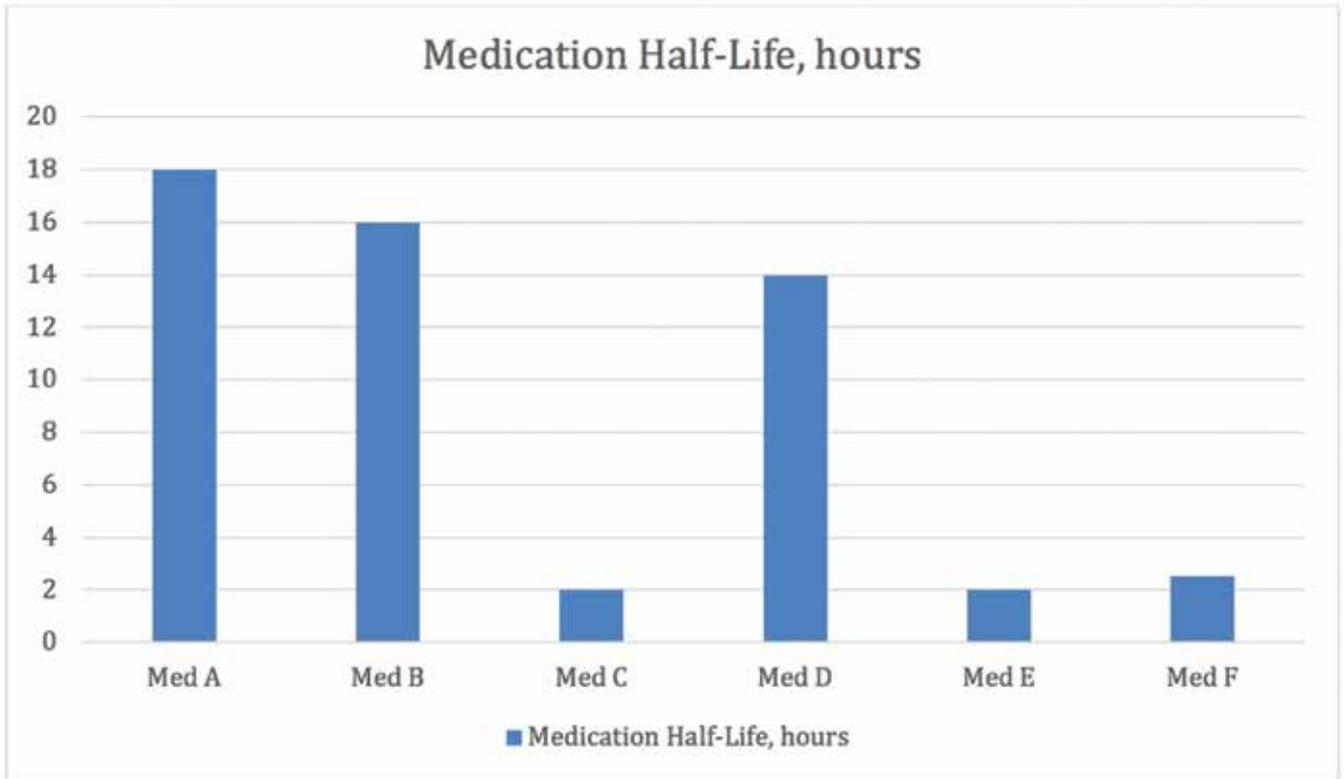
nation half-life for each on their FDA-approved drug insert sheets.

Bill also reviewed the FDA sheet information on dosage and side effects prior to visiting his physician. Bill decided that he would ask his primary physician about the medications with the shorter half-life to increase the chance that the AME would clear him to return to flight earlier. He also checked with his local pharmacy to verify that the medications were in stock and available.

Bill's primary physician examined Bill and recommended a muscle relaxant. The physician would ordinarily prescribe Medication A, because the longer dosage interval made it convenient for most patients. But Medication A would have meant four days of no flight. Bill discussed his research and the FAA guidance with his doctor. The physician reviewed Bill's printouts of the AOPA medication lists. They were able to discuss the merits of the different medications. Medication C was

on the physician's data sheet, and Bill was willing to trade off a shorter dosage interval and possibly avoid a four-day wait from last dosage to be able to fly. The physician agreed to prescribe Medication C with the two-hour half-life. Bill understood that he would still need to review this course of treatment with his AME and that he would need to abide with the AME's decision. Bill's physician appreciated the research and investigation that Bill had done.

That night, Bill took the medicine and was able to get a good night's rest. On Monday, Bill consulted with his AME. The AME explained to Bill that none of the medications had a direct healing effect on this condition, but were instead intended to improve Bill's comfort during recuperation. In other words, Bill could self-assess the condition of his injury with respect to his fitness for flight. The AME was at first concerned about a muscle relaxant because they usually have a long half-life, which could result in a multiple-day in-



**Figure 3 Medication half-life of several muscle relaxant drugs -- for illustration purposes only, not for determining treatment.**

terval before clearing to fly. Bill shared his findings on the half-life of Medication C. The AME was able to verify it and said that once Bill felt up to it and after a minimum 10-hour wait from the last dose of Medication C, Bill would be okay to fly per 14 CFR 61.53. The AME was happy that Bill had done the research; otherwise, Bill would have been looking at a four-day wait after a final dose of Medication A.

Every person's medical situation is unique. This author is neither a physician nor a pharmacist; therefore, none of this is intended to be advice on any person's particular situation, medication, medication strategy, medication behavior, medical treatment, etc. It is possible that a physician might want a patient to have a medication with a longer half-life for some reason. It is possible the AME may want to wait longer than five times the elimination half-life. The purpose in sharing this case study is to highlight a possible approach when a pilot expects to have medication prescribed. If a pilot expects to be prescribed a medication from the do not fly list, it may be helpful to review the elimination half-life of possible alter-

**If a pilot expects to be prescribed a medication from the do not fly list, it may be helpful to review the elimination half-life of possible alternative medicines to facilitate a discussion with one's physician.**

native medicines to facilitate a discussion with one's physician. Once the course of treatment is determined, it is up to the pilot and the AME to determine fitness for flight under the chosen plan.

Modern health care invites us to become educated so that we can be proactive and participate in our treatment through discussion of options with our primary medical care provider. As pilots, we need to take special caution to be able to protect our ability to fly. We know that medications may have more implications for pilots than for the general public. Prior to a medical visit, one might consider investigating various medications and possible implications for flight. Doing this research can facilitate a discussion on treatment with one's primary care provider and one's AME. 🇺🇸

*John Boos is the chief flight instructor at Skill Aviation in Waukegan, Illinois. He is a NAFI Master Flight Instructor and holds a Gold Seal CFI, CFII, and MEI. He started flying in 2013 and has been instructing since 2016. He transitioned into aviation from a career in engineering and finds the office view much better from the cockpit.*



Do you teach declaring emergencies?

**By Boots**

# 121.5

Have you ever had to declare an emergency? Do you teach your students how and when to do so, and *not* to fear doing so when needed? Most pilots will never need to do so during their entire flying career. But when they do need to declare an emergency, it is critical that they do it, and do it as early as possible.

Most are afraid of the paperwork later and an investigation by the FAA. That should not be even a slight concern. You declare an emergency because you need help or need to violate a FAR for your safety and the safety of your passengers and your aircraft. Period! Nothing else should be considered.

In most cases, there will be very little or no paperwork and nothing from the FAA other than a cursory discussion of what happened and why. It may be different if you intentionally did other things that you knew were improper and got yourself into trouble as a result, before you needed to declare that emergency. Even then, you are trying to save your own life and maybe those of others. Discussing it with the FAA later means you succeeded.

The last time I felt the need to declare an emergency was right after takeoff with a commercial student from the Van Nuys Airport, 16R, an 8,000-foot-long runway. The student was demonstrating a maximum performance takeoff and at about 75 to 100 feet altitude said, "Something is wrong." A second later I felt the power fall off to idle.

Van Nuys is a busy jet airport, and I knew there were jets lined up waiting to take off behind us. I immediately took the controls and first tried to push the throttle full forward, but of course it was already there. The engine was gone, and there was nowhere to go and not enough altitude to make the return to the opposite runway. There was heavy street traffic beyond the runway fence and off to the side, with wires as well. We were both immediately pushing the nose down to prevent a stall, and I pushed the right

rudder all the way to the floor and used aileron to stay over the runway (full forward slip) and held and then trimmed the nose down to the airspeed we had previously practiced for best full-slip descents.

That took about four or five seconds, and my next action was to push the talk button and yell, "Mayday! Mayday! Mayday! XXX landing." Nothing else. I was trying to get the plane back on the runway even though I expected to run off through the fence at the end. That seemed like the softest way to crash, which is what I expected to happen. The tower people knew me, the student, and the plane well and were smart enough not to say anything.

**Declare an emergency when you have an emergency. No hesitation. No concern about ramifications.**

Usually they would ask the nature of the emergency and the number of souls aboard, as well as how much fuel was aboard. They could see that there was no time for us to answer any questions, and there was nothing they could do to help — except stop all other traffic at the airport so that a jet didn't take off or go around and run right over us — and they immediately rolled out the emergency equipment. That was exactly what I had hoped would happen.

I did put the plane down on the runway with about 300 or 400 feet remaining and managed to get it slowed to the point I was certain I could stop it before running through the end fence, and maybe even roll off the end taxiway

exit. This all happened in 15 or 20 seconds. As we were rolling toward the end of the runway, I could see the firetrucks paralleling us on the taxiway, and the tower then called to ask if we needed assistance. I didn't know yet, so just said I didn't know while thinking maybe I could get clear of the runway at the end exit taxiway. I did get clear and asked tower if they could see anything. I had no idea what had happened, why the engine went away and if there was smoke or fire, meaning evacuate. They saw nothing and turned me over to ground control and reopened the airport.

A couple hours later, I called the tower on the phone to ask if there was anything they needed me to do as far as paperwork or reports. I clearly violated the FARs by landing without a clearance and causing the airport to be shut down for those few minutes while they sorted things out. The response I received was that no, there was nothing to file. I was told we handled it professionally, no damage was caused, no one was injured, and we had done a good job. That was it.

We both filed ASRS reports, and about six or eight weeks later someone from the Aviation Safety Reporting System (ASRS) department within the Department of Transportation called me, just to inquire if I had figured out what had happened to cause the engine to fail. I told him the truth. That after two weeks of tearing the plane apart and looking (I'm an A&P/IA mechanic) with a second A&P assisting, we found nothing wrong. Our only assumption was that a slug of water had become lodged within the fuel system, and during that high pitch attitude, maximum performance initial climb-out, the water had found its way into the fuel line. We test flew it with the same remaining fuel and found nothing amiss, and 700 hours later, we had not had a problem again.

The point is: Declare an emergency when you have an emergency. No hesitation. No concern about ramifications.

Perhaps a better example, which is a

# 121.5

grayer area, is getting in weather that is over your head. If VFR, it should be obvious that if your student inadvertently or, even foolishly, intentionally finds themselves in IMC conditions, they have an emergency. If IFR and on an instrument flight plan, many types of weather will also constitute an emergency. This is especially true if they have not properly briefed the weather before the flight.

Another real experience I can offer as an example is flying a Cessna 182 with four souls aboard, plenty of fuel and an instrument flight plan heading into California's Bay Area. It was a flight planned for about 1.5 hours. A flight service station briefing shortly before takeoff told me that although there was a marine layer covering the Santa Monica area at the time of departure, we should be out of that and in clear air after about 20 minutes, and clear to our destination.

So I filed, and off we went. After 35 or 40 minutes, we were still solid IFR at our cruising altitude. Turbulence was moderate, but it was sure dark in those clouds, and it did not seem anything like that marine layer that we were told about. We left center frequency to go to flight service to get an update and were still told that we should be clear any minute. Back to center, and there was simply no clear air around that we could see, and in fact it was getting worse.

Then I noticed our airspeed had decreased by about 10 knots, so I got concerned about why. The engine was making proper power, nothing seemed wrong, but the airspeed had decreased. Then I noticed that I had the plane pitched up a few degrees. It didn't register at first, but then I looked out at the wings. Ice! Summer in Southern California at 8,000 feet and the C-182 is icing up. You know the first thing that came out of my mouth, which the editor wouldn't like.

I radioed center and told them I was icing up and needed a higher altitude. They told me they were unable because of other traffic for about 20 more miles. My response was that I needed a higher altitude *now*. The frequency suddenly lit up. As soon as others on the frequency heard the word "ice," they also looked and

found they had similar problems they had not yet noticed. There had certainly been no ice forecast in any of the weather briefings.

Center asked me if I wished to declare an emergency. My response was that I would if I needed to in order to get a higher altitude. They immediately gave me the higher altitude to get out of the ice buildup, and I never formally declared and nothing more was said about an emergency. That was simply the end of that discussion. Had I not offered to declare if necessary, 20 more miles might have been 20 too many since the ice was building. It is possible that center had declared the emergency for me and said nothing about it. ATC will many times do that so that they may then offer more assistance than their own FAA rules would otherwise permit.

The *Aeronautical Information Manual* (AIM) also talks about using the term "Pan, Pan, Pan" rather than "Mayday, Mayday, Mayday." There seems to be some distinction without a difference, written by attorneys. You either have an emergency or potential emergency, or you don't. My initial CFI tried to explain it to me more than 50 years ago. He said don't even bother with the "Pan, Pan, Pan" call. It makes no sense at all, and ATC will treat it exactly the same as any other emergency call. More than 50 years later I agree with that conclusion.

"Mayday, Mayday, Mayday" should be the first call on the radio when the safety of the aircraft is in doubt. Tell your students to first make that call on whatever frequency they are already talking to an ATC facility on. If they are not talking to anyone, teach them to go to Guard 121.5 and make the call in the blind. Someone will quickly answer. They will then usually have them switch to a different frequency if able in order to clear 121.5 for other possible emergencies. In addition, the students should know and expect to be asked how many souls are aboard the aircraft and how much fuel is aboard. Those questions can be frightening if they are not expecting them. It is the standard question in every emergency communication.



If they have time, of course they need to know to switch the transponder code to 7700. That will wake up any radar facility in the area and tell them that there is an emergency in progress. Even if they are not talking to that aircraft, they will start clearing any traffic out of its path, and they will call on 121.5 to try to offer assistance. Make sure your students know to avoid switching their transponder through code 7500, which would indicate they are being hijacked. Civilian small planes can and have been hijacked, and if ATC is unable to establish communications with the plane quickly



to determine if that is an error, fighters will be launched to intercept the aircraft. Show them how not to rotate the knobs or switches, if so equipped, through that 7500 code.

The other emergency transponder code we all should know about and instruct our students about is 7600 — loss of communications. It will also light up the ATC radar screens the same as 7700 will, but it only indicates loss of communications ability. If VFR at the time, it's not really an emergency at all, but if landing at a towered airport, it will alert the tower that the aircraft

cannot communicate and wants a light indication for a landing clearance. If IFR at the time, it is a true emergency since you can no longer accept any sort of vectors or updated clearances.

I used to teach instrument students to squawk 7700 for the first minute and then to switch to 7600, to indicate what the emergency was, but a tower controller told me that was not necessary because 7600 lights up their screens the same as 7700 does.

Another situation that used to be a common type of emergency for students and new pilots was simply get-

ting lost. GPS has largely done away with that, but students do still get lost. GPSs do fail, and unfortunately, when they do and the magenta line goes away, some pilots have no idea where they are or what to do. The old school ways of reading sectional charts, drawing lines on them and following along that line as they fly has largely gone away. As a result, finding themselves on that sectional chart they carry is almost impossible in the cockpit when the magenta line disappears.

That is a classic gray area for declaring an emergency. I would say that instead,

# 121.5

## From the FAA's AIM

### 6.1.1 Pilot Responsibility and Authority

The pilot-in-command of an aircraft is directly responsible for and is the final authority as to the operation of that aircraft. In an emergency requiring immediate action, the pilot-in-command may deviate from any rule in 14 CFR Part 91, Subpart A, General, and Subpart B, Flight Rules, to the extent required to meet that emergency.

If the emergency authority of 14 CFR Section 91.3(b) is used to deviate from the provisions of an ATC clearance, the pilot-in-command must notify ATC as soon as possible and obtain an amended clearance.

Unless deviation is necessary under the emergency authority of 14 CFR Section 91.3, pilots of IFR flights experiencing two-way radio communications failure are expected to adhere to the procedures prescribed under "IFR operations, two-way radio communications failure."

### Emergency Condition — Request Assistance Immediately

An emergency can be either a *distress* or *urgency* condition as defined in the Pilot/Controller Glossary. Pilots do not hesitate to declare an emergency when they are faced with *distress* conditions such as fire, mechanical failure, or structural damage. However, some are reluctant to report an *urgency* condition when they encounter situations which may not be immediately perilous, but are potentially catastrophic. An aircraft is in at least an urgency condition the moment the pilot becomes doubtful about position, fuel endurance, weather, or any other condition that could adversely affect flight safety. This is the time to ask for help, not after the situation has developed into a *distress* condition.

Pilots who become apprehensive for their safety for any reason should *request assistance immediately*. Ready and willing help is available in the form of radio, radar, direction finding stations and other aircraft. Delay has caused accidents and cost lives. *Safety is not a luxury! Take action!*



if weather is OK, if they have plenty of fuel and terrain is reasonable for their ability, they should use 121.5 if they are not already talking to anyone, and simply declare that they are lost and would appreciate some help. Someone will answer them quickly, and they will get the help they need to guide them to a nearby airport to land or get them on course to where they are going.

However, if fuel is a concern, if it is getting dark, if turbulence is bad or any other problems are occurring, declare the emergency and go from there.

The point is not to be afraid to utter the word emergency or mayday when in trouble.

Some of you may remember the Avianca Boeing 707 en route from Bogota to John F. Kennedy International Airport that crashed on the shore of Long Island, New York, in January 1990. It ran out of fuel and crashed after a missed approach at JFK. It was a Colombian aircraft with a Colombian crew. New York City did have and still does have very busy airspace. Flying IFR into JFK, you better be on top of things. This was an airliner with an experienced crew. They had missed an approach and wanted to make another attempt, and they were already fuel critical.

The captain spoke poor English, and the co-pilot spoke good English and so was doing the communicating. After the miss, they reported "fuel critical," which is not the same as actually declaring an emergency. It is intended to get some priority handling but is far short of an emer-

gency. The co-pilot did say they were low on fuel several times. The captain several times asked him in Spanish if he had said it was an emergency, and the co-pilot said he had. But when he spoke to approach control in English, he never used the word emergency. He said urgent and low on fuel and that sort of thing, but he never declared an emergency. Eight of the nine crew members and 65 of the 149 passengers on board were killed.

That is why it is so important that your students understand the how and why of declaring an emergency. Declaring too soon might make them feel foolish. Waiting too late can be catastrophic. They should not be afraid to use that tool at first indication that they might not be able to safely complete their flight or land at another suitable airport. 

.....

*Boots is my full name. It's not a nickname. I was born and grew up in Hollywood, California, which usually is enough of an explanation. It's the only name on my driver's license, FAA certificates and passport. I obtained my private pilot certificate in about 1968, my instrument, commercial and multiengine about three years later, and my CFI, CFII and multiengine CFI around 20 years ago. I also obtained my A&P certificate with an IA about 25 years ago. Most of my flying was based at the Van Nuys Airport (KVNY), and I owned a Cardinal RG for about 10 years. I've flown in many parts of the world, including Central America, Africa and Europe, but never actually flew or wrenched for a living. I was on the Rare Bear racing team when we were winning at Reno. I am still active as a flight instructor and live in Knoxville, Tennessee.*

Many pilots become  
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Maintain physical contact between the fuel nozzle and filler neck to prevent static charge buildup.

**Y**ou already know the procedure. You’ve done it hundreds of times. Taxi to the pump or call for the fuel truck, clip the ground wire to the airplane and pump fuel into the tanks.

When finished, undo the ground clip as the last thing you do before the truck drives away or you taxi off to aviation-land.

“But why do we have to clip a wire to the airplane, Piglet,” asked Winnie the Pooh. “To keep the airplane from rolling away?”

“Oh, no,” said Piglet, “that’s what chocks are for. The ground wire is to keep the airplane from blowing up!”

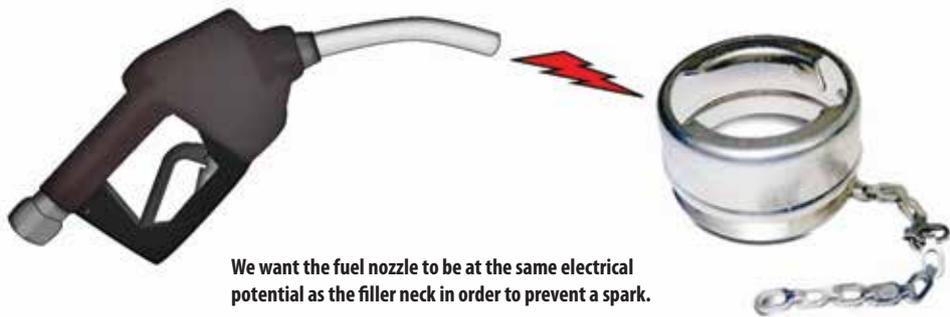
We ground aircraft when fueling to prevent static electricity that can ignite a fuel-air mixture. Fuel, air and spark are the three ingredients needed for combustion. Liquid fuel is not as easy to ignite

as fuel vapor, but fuel vapor is explosive when ignited. That’s how an internal combustion engine works: atomized fuel, air and spark.

Our job when fueling, since we cannot eliminate fuel or air, is to minimize the chance of a spark. How we do that, as you know, is by grounding the airframe. (The word “airframe” will be tweaked be-

low; keep reading.)

Throughout this article, the term “grounding” shall include normalizing the potential (in other words, equalizing the voltage) between a fuel truck and the airframe; more correctly, the fuel tank’s filler neck. The fuel truck may or may not be at literal “ground” (earth) potential. What is important before fueling, to be as specific



We want the fuel nozzle to be at the same electrical potential as the filler neck in order to prevent a spark.



# GROUNDING WHILE FUELING

Everything you know may be wrong

.....

**By Philip Mandel**

as possible, is for the fuel nozzle to be at the same electrical potential as the filler neck. That is where a spark would be most harmful since that's where the fuel vapor is most concentrated (get close with your nose if you want proof). To reiterate, in this article "grounding" means "normalizing," not "earthing."

According to an Embry-Riddle course on fueling and refueling safety ("Refueling and Defuelling Risks," SKYbrary), the primary risk is unintended ignition of fuel vapor, which can occur by a single spark. "A spark of sufficient intensity to ignite fuel vapor can result from the discharge of electrostatic energy (static) created either from the movement of the fuel in the aircraft tank during the fueling process, or its accumulation on the surface of aircraft or vehicles." For our pur-

poses, movement of the fuel through the hose (from the pump to the nozzle) may be more static generating than movement of fuel in the tank. Regardless, it's static, and static can lead to a spark, and a spark can lead to an explosion.

A *General Aviation News* article published in 2006 (Grounded: What's the proper way to ground during refueling?) said this: "We ground an aircraft during the refueling process to ensure that the plane and the refueling apparatus are at the same electrical potential and to dissipate the electrical charge that is generated by the fuel transfer process. ... At a ground mounted avgas pump, the ground cable goes from a ground strap to the aircraft to dissipate the electrical charge. In a refueling vehicle, the cable goes from the refueler to the aircraft to ensure that the

two vehicles are at the same electrical potential. ... The important thing for pilots to know is the location of the ground lug or connection point for your aircraft. It is important that the lug has an electrically conductive path to the fuel filler neck or port. If the lug gets painted or is rusty, you will not have a good conductive path to dissipate the charge buildup."

## **Where to Attach the Ground Wire**

Where, specifically, should we attach the ground clip? The tie-down ring? Tail-pipe? Wheel bolt?

All flight instructors learn the fundamentals of instruction, which includes several laws of learning, one of which is the law of primacy: "Primacy in teaching and learning, what is learned first, often creates a strong, almost unshakable im-



The author is shown attaching an alligator clip to his Thorp T-18 exhaust pipe and checking for continuity. The ohmmeter shows that there is no continuity — no electrical connection at all — from the exhaust pipe to the filler neck.



pression and underlies the reason an instructor needs to teach correctly the first time.” (FAA-H-8083-9B, *Aviation Instructor’s Handbook*, p. 3-13)

Back in 1981, my primary flight instructor taught me to attach the ground clip to “anything metal” on the airplane. Tie-down ring, tailpipe, wheel bolt — they’re all the same. “As long as it’s metal, it’s a valid ground.”

After I got my CFI in 1983, I taught as I was taught: “Anything metal.” Funny thing is, as a master-degreed electrical en-

gineer, I always thought that did not quite ring true. But, since my primary instructor taught me that way, and since the law of primacy is real, I kept up the tradition of saying “anything metal.”

Here I am decades later enjoying the friendly banter on social media (“Are you freaking kidding me?” “Where’d you get your license, Kmart?” wondering if I should jump in and theorize why we should or should not clip to a tie-down ring, tailpipe, wheel bolt or elsewhere. Fortunately, my sense of self-preservation

kicked in (strangely, that’s not one of the laws of learning) and kept me out of the online fray ... at least until this article is published, maybe.

Long since retired from engineering, I still own and know how to use a multimeter. I thought, rather than theorize what would be safe to attach a ground clip to, why don’t I grab my meter and measure some tie-down rings, tailpipes, and wheel bolts on actual airplanes and deal with facts, not theory.

### The Exhaust Pipe

The first airplane I tested was my experimental Thorp T-18. What I wanted to know was this: Is the exhaust pipe electrically connected to the fuel tank filler neck? The answer was a resounding no.

You may be thinking, “Experimental, my foot. Who knows what the builder did? What about a production-built, certified aircraft?” After testing my Thorp, I got my multimeter leads on a 1967 Mooney M20C. Not only was there no continuity from the exhaust pipe to the filler neck, but there was also no continuity from the exhaust pipe to itself. Same pipe! Metal! There should be zero ohms from the pipe to the pipe, in other words from the pipe to itself, right? Sorry to shock you (a pun!), but there wasn’t.

How can it be that there was no connection from the Mooney’s exhaust pipe even to itself? There was enough oxidation on this well-aged but fully airworthy exhaust pipe to create an insulative layer on the surface of the metal. That layer of what I guess was iron oxide was enough to prevent any electrical connection to the pipe.

Would this particular exhaust pipe provide a valid, useful, safe way to ground the aircraft for fueling? I hope you said, “Heck no, you can’t even make contact with the pipe!”

That’s 0-for-2. What about other aircraft? I measured several Cessna 150 and 172 rental aircraft, a factory-built RV-12iST, and a Piper Apache based at my home field at Stark’s Twin Oaks Airpark (7S3) in Hillsboro, Oregon. After checking a total of 10 aircraft, two of them showed hope — continuity between the exhaust pipe and filler neck.

The others? No joy. Clamping an alligator clip to those airplanes' exhaust pipes would be just for show — not for safety. Over the next few days, I tested a few more aircraft that were either based on the field or visiting for maintenance. One hundred percent of them failed the continuity test.

So far, we have two reasons not to clip to an exhaust pipe when fueling:

- Probable lack of electrical connection between the exhaust pipe and filler neck.
- Possibly no electrical connection at all between the alligator clip and the exhaust pipe, regardless of whether the exhaust pipe is electrically connected to the filler neck.

Want another reason to avoid the tailpipe? Two words: Stress risers.

Mike Busch, a well-known A&P/IA mechanic, in a December 1999 article (“When Metal Lets Us Down,” AvWeb), wrote: “Stress is normally concentrated at the surface of a loaded part. Stress concentrations also occur at geometric discontinuities — so-called ‘stress risers’ — such as corners, holes, notches, threads, scratches, nicks, and pits. ... Stress is also concentrated at — and magnified by — any geometric discontinuities in the part, such as corners, holes, notches, threads, scratches, nicks, and pits. Such discontinuities are commonly referred to as ‘stress risers’ and are almost invariably where fatigue cracks begin.”

Do you want scratches, nicks or pits in your exhaust pipe, creating stress risers where fatigue cracks can begin?

Folks with nicely polished exhaust pipes don't want scratches, nicks or pits for an additional reason: cosmetics. I sure wouldn't want a blemish on my shiny tailpipe, would you?

All told, we now have three reasons not to clip to an exhaust pipe when fueling:

- Probable lack of electrical connection between the exhaust pipe and filler neck.
- Possibly no electrical connection at all between the alligator clip and the exhaust pipe, regardless of whether the exhaust pipe is electrically connected to the filler neck.
- Likelihood of introducing stress risers or blemishes on the pipe.

**Long since retired from engineering, I still own and know how to use a multimeter. I thought, rather than theorize what would be safe to attach a ground clip to, why don't I grab my meter and measure some tie-down rings, tailpipes, and wheel bolts on actual airplanes and deal with facts, not theory.**

### **Tie-Down Ring, Landing Gear?**

What about our trusty tie-down rings? Will they work? First of all, if they are rusty or painted, the answer is no. Both rust and paint are excellent insulators. Bright and shiny, however: Maybe.

Trouble is, during manufacture or maintenance, was the fairing around the wing strut (think of Cessna singles) painted prior to ring installation? If so, that's not going to work out, because ... you already know why. Paint is an excellent insulator.

On the other hand, if the tie-down ring is screwed directly into the wing spar, it is likely to be a good candidate as a grounding point, but again, only if it's shiny! No rust, no paint, no corrosion.

What about retractable tie-down rings like on larger Cessna singles (C-182, C-210, etc.)? First, they are probably painted! If so, no joy. But if they happen to be shiny, they are still not great candidates because the retract mechanism involves a bearing around which the base of the ring rotates. What keeps the ring from binding during extension and retraction? Grease. What is grease? An insulator!

Think of the typical Cessna nose gear

strut. It's normally covered with grease, paint, dirt and grime, all of which are great insulators. And to reiterate, bearings are surrounded by an insulator: grease. Ergo, no part of a nose gear strut is valid for grounding, in my opinion, and none of the landing/nose wheel/tail wheel bolts, nuts or axles are going to be any better.

We seem to be running out of options! Wouldn't it be nice if airframe manufacturers included built-in grounding points so we wouldn't have to guess? Alas, they did not (jets and other heavy iron excepted). Therefore, we need to invent a grounding strategy we can count on.

Think about typical Cessna engine cowls, in particular ones with shiny screw heads. Those screws, which are often Dzus (quarter-turn) fasteners, grab mating nut plates on the other side of the sheet metal, potentially making an electrical connection to the cowling. Not all Cessna cowl fasteners are shiny, however. I instruct in a beautiful C-182 in which the cowl fasteners are painted and therefore useless for grounding.

But let's say yours are shiny. Note that the aft part of both the upper and lower cowlings fasten to more sheet metal where the cowling meets the airframe. With all that touching going on, there is a darned good chance of having electrical continuity from the shiny, unpainted, uncorroded, clean, nongreasy Dzus fastener head to the airframe. Note that I said “darned good chance.” That's different from saying “absolutely, positively, without a doubt.”

Let's say we find some shiny metal and physically test it using an ohmmeter, proving it is electrically connected to the airframe. Here is where we need to pause for a moment and remember our goal: To make sure the *fuel nozzle* is at the same electrical potential as the *filler neck* prior to fueling.

Getting the airframe to the right potential is great, but an additional important question is this: Is the *filler neck* electrically connected to the *airframe*?

Answer: Darned good chance. Question: How can you find out? Answer: Grab an ohmmeter and test it!

Note that some fuel tanks are not electrically common with airframe ground.

“Plastic” airframes come to mind, plus metal aircraft with plastic fuel tanks (the RV-12). Remember, though, it is the *filler neck* we want equal electrical potential with because that is where the *fuel nozzle* is going to nuzzle.

While you’re at it, test the Dzus fastener head to the airframe. Heck, test the exhaust pipe to the airframe. Wheel bolts. Whatever you can get the probe on, test, test, test. Make it real. You may be surprised at what you find, whether it’s as bad as implied in this article or not. Just do yourself a favor and don’t stop after testing one airplane, especially if you find continuity where this article says there isn’t. That particular airplane may cooperate from “anything metal” to the airframe and to the filler neck, but the next airplane you measure may not.

In any case, you cannot clamp the ground clip to the head of a Dzus fastener since it sits flush with the sheet metal. Perhaps if you unscrew the fastener you can, but then you lose the electrical connection to the cowling!

What do we do if we can’t find a valid place to clamp the ground wire? I’m so glad you asked. The good news is this: Explosions due to sparks during fueling are rare. However, rare is not the same as never. Even once a decade is too often, especially since it is preventable.

Remember the goal: To force the *fuel nozzle* to be at the same electrical potential as the *filler neck*. If you find a definite, reliable, tested ground point available that is suitable for alligator-clipping and guaranteed to be electrically connected to the fuel filler neck now and for the rest of time, by all means use it!

If not, the most straightforward way to eliminate static charge is to momentarily touch the fuel nozzle to a definite, reliable, tested ground point such as one of the cowl screw heads discussed above.

If nothing of the sort is available, you can use the fuel tank filler neck itself. The question is, how do we do that without having fuel vapor present?

Here’s how: Touch the ground clip to the filler neck *before* opening the fuel cap. If you do it prior to releasing any fuel vapor, there won’t be any ignition. Yes, there might be a spark, but a spark

through no-fuel air is harmless. It happens every winter — just shuffle your feet across a carpet and then touch a doorknob. Zap!

However, some aircraft have fuel caps that, when secured, keep you away from any clean, unpainted portions of the filler neck. A common example of that is the Piper Cherokee series with fuel caps that are larger in diameter than the opening. Other fuel caps prevent touching clean, bare metal parts of the filler neck because of the nature of their design.

How should we handle situations like this? Some suggestions:

- If you use your multimeter and test for continuity from the naked filler neck to something else on the airframe (clean tie-down ring, shiny screw/fastener head, the firewall itself if you can get to it), then that other part can substitute for touching the filler neck.

- If that doesn’t work — for example, on a “glass” airframe or where no shiny metal is reasonably accessible — you may have to get sneaky and remove the fuel cap just enough to grant access to the naked filler neck. Keep most of the hole covered to minimize any fuel vapor at the point where you plan to do the touching. Keep in mind that you are going to touch fuel nozzle to filler neck anyway. Better to do it with the ground clip since it does not have any built-in fuel vapor like the fuel nozzle does. The only fuel vapor present will be the small amount released from the fuel tank.

What do you do with the ground clip once you have equalized the electrical potential as described above? Believe it or not, it is irrelevant. How can that be?

Think about it this way: Once you equalize the potential between the filler neck and the fuel truck (or earth ground), there cannot be a spark until static charge is built up again. How does static charge accumulate? One way is by flying. Flying through the air generates static charge on the airframe.

How else does static charge accumulate? As mentioned above, static can accumulate by the act of flowing fuel through the hose.

The good news is this: When fuel is flowing, you can ensure the *fuel nozzle*

and *filler neck* remain at the same potential very simply: Maintain physical contact between the two. In other words, you only need to equalize the electrical potential between nozzle and neck *before* letting a significant amount of fuel vapor escape. Once you have done so, all you need to do is *maintain* that equalized potential by keeping the *nozzle* and *neck* in contact with each other. No spark can occur under those conditions.

That being the case, it doesn’t matter where you connect the ground clip once you have equalized the electrical potential. First use the ground clip to eliminate the static charge, and then clip it anywhere you please (but never the tailpipe, for reasons discussed above). You should be safe as long as you are certain to maintain physical contact between the *fuel nozzle* and the *filler neck*.

Do you really need to maintain 100 percent continuous contact? Probably not. A second or two of disconnect when you shift your body or move the nozzle to check the fuel level should not be enough time to build up significant static charge. Just be sure of a couple of things:

- Do not scrape the nozzle against the inside of the filler neck since that might generate metal filings or dislodge dirt that can accumulate and plug fuel filters, carburetors, injection ports and the like.

- Do not lean on the nozzle in such a manner that you might deform the fuel tank or the skin. Support the weight of the hose and nozzle so as not to strain the fragile filler neck.

Do me, yourself, the aircraft owner and the aircraft itself a favor. Be careful during the fueling operation. Take your time. Pay attention. Treat it like the critical, potentially dangerous operation it is. Do not have side conversations, watch your buddies land, check your cellphone or do anything else during fueling. Teach your students the same.

Fuel as if your life depends on it. Because it does. Fly safe, fuel safe, be safe. 

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*Philip Mandel is a CFI-I, MEI, AGI, IGI and FAA Safety Team lead representative and FAA Team Representative of the Year of the Portland, Oregon, FSDO.*

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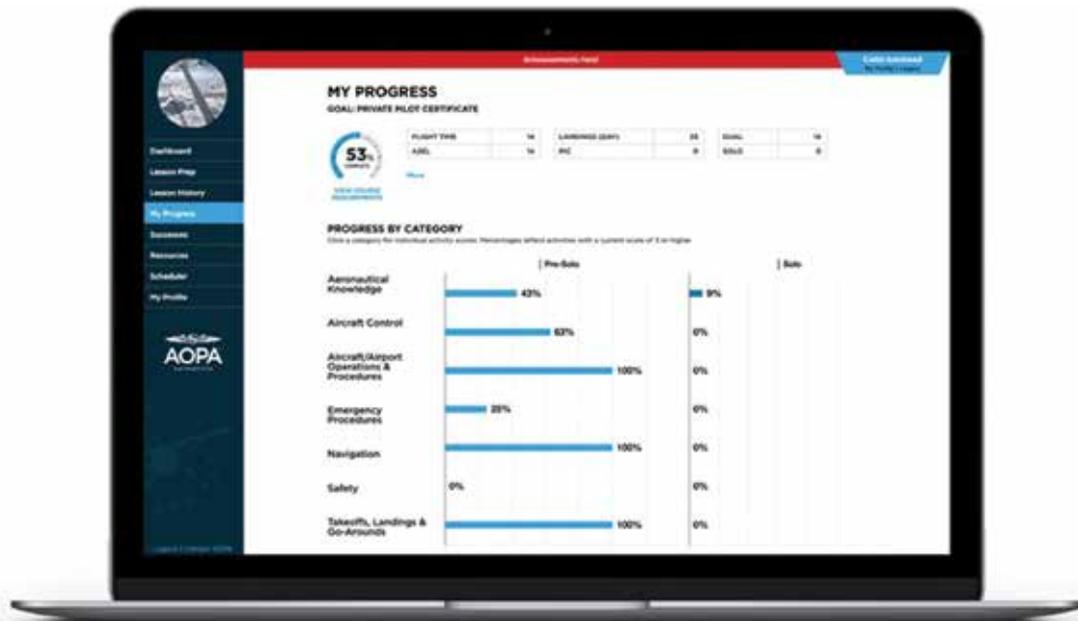
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# AFTA — In Flight and On the Ground

By You Can Fly and Air Safety Institute staff

**Eds. Note:** This is one in a series of articles in a NAFI-AOPA partnership whereby NAFI publishes articles in AOPA's magazines and AOPA publishes articles in NAFI Mentor in support of excellence in flight instruction.

We have plenty of acronyms in aviation, and here's a new one you'll like: AFTA. It stands for AOPA Flight Training Advantage. The program launched last March, and this first release focuses on private pilot training. AFTA's web portal and iPad-based training application helps make the process of flight training more effective for CFIs, students and flight schools. How? Let's take a look.

The AFTA app automatically creates lessons based on your students' progression, yet you keep the flexibility to modify the lessons as needed. The program assigns students homework to prepare for the next lesson, which includes access to the needed study materials. At the same time, your students know what to expect and how to prepare before every flight.

You will save time and simplify record-keeping with the ability to quickly grade flight maneuvers in flight, then have this information readily available to share with your students during the debrief. You also have the ability at a finger's touch to see a list of all your students, their records and their next lesson plans. CFIs tell us they love the Activity Index, including ACS standards, associated homework, teaching tips and common errors students may make. And for students, the portal is a great way to see their milestones and progression as it allows them to review their training history, grades received and pertinent notes from their instructors.

Another advantage? Let's say you won't be able to fly with your students for a couple of weeks, but you don't want to delay their progress. No problem. You can easily share students with other instructors as

their progress, lesson plans, etc. are made transparent across the platform. The program also allows you to add a student with existing training hours and dynamically create the first lesson to pick up where they left off.

Lastly, flight school owners can get a quick overview of key performance stats for students and instructors. Not only that, the program will help owners deliver an efficient and quality training experience that will have students come back for more.

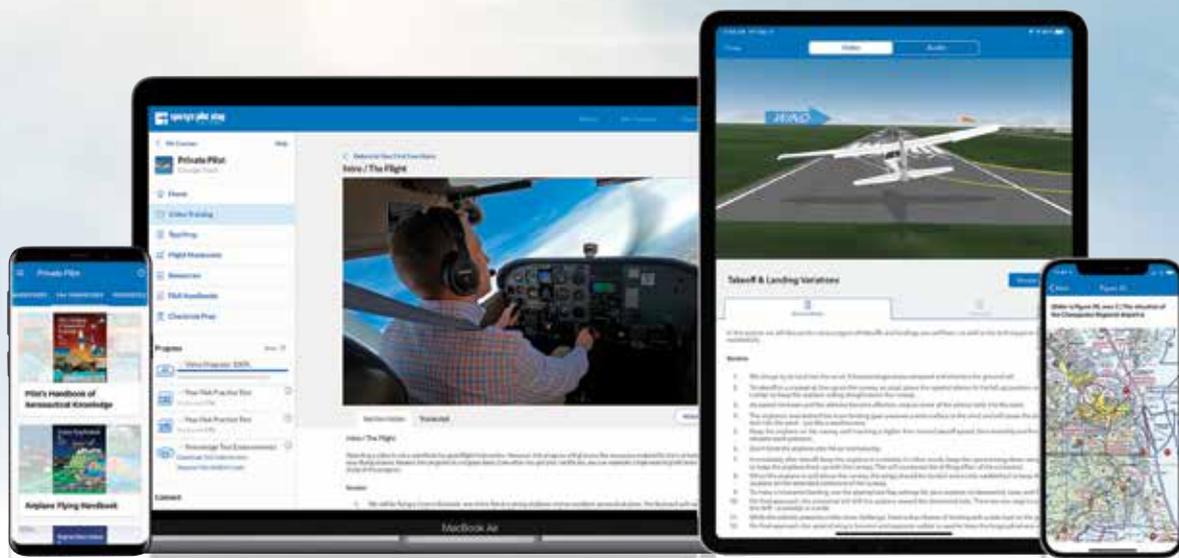
Visit [AOPA.org/afta](http://AOPA.org/afta) to review additional highlights and to register for the program, which is free for CFIs and flight schools. 

*You Can Fly and the Air Safety Institute are supported by donations to the AOPA Foundation.*

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