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AUGUST 16, 2014
p. 70

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CONTENTS

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FEATURES

74

Soul-Stirring Airplane
The Carbon Cub on floats shines at the Greenville, Maine, splash-in.
By Dave Hirschman

84

Stand Up and Salute
Downed airmen owe their lives to the PBY.
By Barry Schiff

92

Big City Seaplanes
Manhattan's nearly secret seaplane base.
By Jamie Beckett

98

Tall Tale That's True
Rare warbirds will be for sale at Connie Edwards' Texas ranch.
By Dave Hirschman

108

Airlift Provides Lift
Cessna Citations deliver Special Olympians to their games.
By Julie Summers Walker

ON THIS PAGE: The Consolidated PBY flies over California's Catalina Island. Photography by Mike Fizer.

CELEBRATING SEAPLANES
Look for stories with this symbol.

CONTENTS August 2014

COMMENTARY

4 President's Position
Putting it in perspective.

18 Waypoints
Thanks for the service.

20 Proficient Pilot
Something for nothing.

22 Safety Pilot
The UAS conundrum.

24 License to Learn
Anxiety be gone!

26 Pilot Counsel
Don't wait too long.

DEPARTMENTS

12 Letters
Traffic dead ahead?

16 Visual Approach
Flying boat.

146 Fly by Wire
Index of advertisers.

147 Tips from PIC
Searching for a maintenance shop.

152 Pilots
Craig Peyton.

32 **THEY DELIVER**
Reindeer sausage pizza anyone?

SECTIONS

PILOT BRIEFING

30 Flight for a cause
Oshkosh journey benefits Wounded Warriors.

32 First Look
They deliver.

34 Giving Back
Saving puppies.

36 Aerial Adventures
Flying in the Los Angeles area.

38 Pilot Products
Better safety, softer landings.

40 Airport Stories
Up from the ashes.

42 Fly-Outs
Priest Lake, Idaho.

44 News
Laser-pointing perps.

50 Test Pilot
Shadow size.

52 Flying Clubs
Club appeal.

56 Pilot Products
Birds, begone.

68 AOPA Fly-Ins
Indianaoplis wrap-up; Gateway to the Backcountry.

PROFICIENCY & EFFICIENCY

112 Proficiency
Bulk up.

116 Technique
How low can you go?

120 Frugal Flier
Take the Pledge.

122 Wx Watch
Gusts and squalls.

126 Avionics
In touch with the newest Garmin displays.

130 Ownership
Birth of a blade.

132 Never Again
Flying the beam

MEMBERSHIP NEWS & NOTES

136 AOPA Action
Third class medical reform.

138 State and Local Action
AOPA in the states.

140 AOPA Foundation
Real-world weather.

142 Member Services
Listen up.

144 Insurance Services
Language decoder.

CELEBRATING SEAPLANES
Chris Rose photographed this Carbon Cub on floats at the fortieth annual Seaplane Fly-In, held at the end of each summer in Greenville, Maine. Dave Hirschman profiles the Carbon Cub—and takes us to the fly-in—in his story "Soul-Stirring Airplane," which begins on page 74.

Contact us at 800-USA-AOPA (872-2672)

MARK BAKER
AOPA President and CEO

Putting it in perspective

Why we need to be inside the beltway—and across the country

WHEN YOU HEAR THE WORD "CONGRESS," a lot of adjectives pop into your head—some of them flattering, others less so. Many Americans, myself included, have strong feelings about our form of government and the men and women we elect. Politics today is divisive, but it's my job to work with elected representatives from every corner of the country to ensure that general aviation is protected and find ways to help it grow.

Congress has a lot of responsibilities, and there are hundreds, even thousands, of issues competing for the attention of lawmakers every day. That's one reason it's so important to stay in close contact with elected officials and ensure general aviation issues are kept front and center.

In many ways, working with members of Congress is like working with anyone else. If you want to be heard, you also need to listen. Mutual respect and honesty are vital in any working relationship, and working with Congress is no different.

You probably already know how I spend summer weekends—flying to great GA airports from Indianapolis to Fort Collins, Colorado; Plymouth, Massachusetts; Oshkosh; Wichita; and Afton, Wyoming. Key West, Florida; Anoka, Minnesota; and more. But to give you an idea of how I spend my time inside the beltway, I'd like to tell you about a few things I've done in Washington, D.C., this summer.

When the House Aviation Subcommittee invited me to testify at a hearing on airport financing, I was eager to talk about how important Airport Improvement Program funds are to GA airports (see "Member News and Notes," page 136). It was also an opportunity to remind lawmakers of the critical role GA airports play, linking rural communities and providing disaster relief, law enforcement, medical, charitable, and business services.

The same week, the House General Aviation Caucus held a briefing where I had the chance to talk about the importance of third class medical reform. This is one of the top issues for AOPA members, and our elected officials need to know just how much it matters to pilots.

Hearings and briefings like these are vitally important, but they aren't the only way to work with D.C. decision makers to create a more positive environment for GA. I also spend a fair amount of time in one-on-one meetings with members of Congress and the leaders of key government agencies.

During those same few weeks of summer, I met with Sen. John Thune (R-S.D.), the top Republican on the Senate Commerce, Science, and Transportation Committee—as well as Sen. Kelly Ayotte (R-N.H.), the top Republican on the Senate Aviation Subcommittee. I also had meetings with Sen. Bill Nelson (D-Fla.), who is poised to serve as the top Democrat on the Senate Commerce Committee next year, and Sen. Jerry Moran (R-Kan.), a member of the Senate Transportation Appropriations Subcommittee. These are lawmakers who recognize the importance of aviation to their states and who hold positions of influence when it comes to decisions that affect how we fly.

Members of Congress aren't the only people in Washington who make decisions affecting GA. That's why I have also recently met with FAA Administrator Michael Huerta, Transportation Secretary Anthony Foxx, Customs and Border Protection Commissioner Gil Kerlikowske, and Department of Homeland Security Secretary Jeh Johnson.

These face-to-face encounters are critical because they create the kind of back-and-forth needed to make progress on important issues. Each meeting is a chance to share the general aviation perspective and talk about what we, as GA operators, need to function safely, efficiently, and freely as part of the national transportation system.

I know there are those who think we spend too much time in Washington, D.C., but the truth is that no advocacy organization can be effective without a strong presence inside the beltway. It's equally true that there's value in stepping outside the world of politics and regulation to get perspective on what's really going on.

I think we have the right balance of both at AOPA. Our headquarters is outside the beltway and we spend lots of time meeting with members across the country, getting to know their points of view and understand what matters most to pilots. Then there's the work we do in the states with the help of our state legislative affairs team and regional managers. But we also keep an office inside D.C., making it easier to build and maintain the relationships that let us get things done at the federal level. And, in the end, that's what we're here for—to represent you and your needs to the people with the responsibility to make things happen. **AOPA**

EMAIL mark@aopa.org

AOPA PRESIDENT
Mark Baker is an avid seaplane pilot and owns a Beech 18 and a Super Cub on floats.

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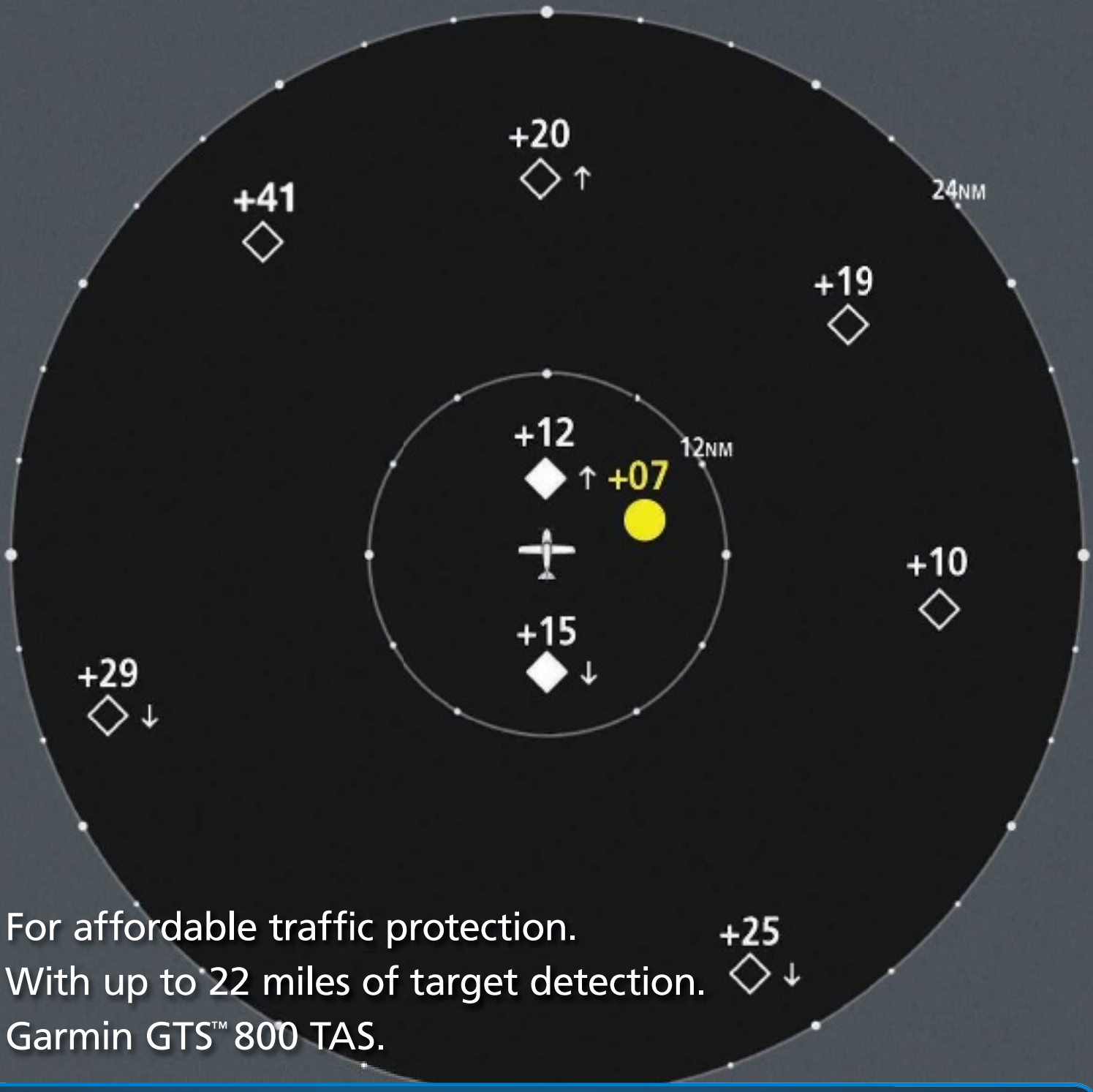

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Traffic dead ahead?

Tom Haines' 'Waypoints' column on the ADS-B debate received a lot of response from members who, like the author, see its promise.

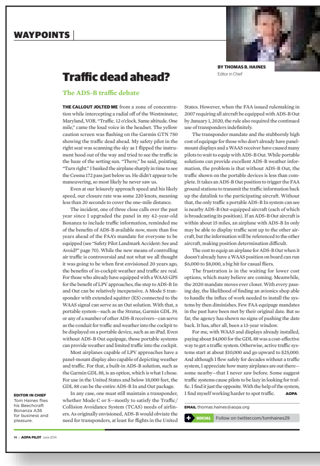
Tom Haines describes his Garmin GTN 750 and GDL 88 informing him about traffic that was very close. I had almost identical equipment installed in my Cessna 180. Within the first couple hours after installation, while approaching my home airfield, my GTN 750 began flashing and over the headset I heard the audible warning about "traffic." I had twice announced my intention to overfly the airport when a helicopter, which was not communicating on the right frequency, was suddenly crossing below me—at a very close altitude. Because of the warning, I had enough time to respond and avoid this traffic.

That one episode made the high costs of installation worth every penny. Since then I have noticed that there are a whole lot more aircraft around me that I would never have known about in the past. It certainly enhances my situational awareness. Even though I don't often fly into airspace where this level of technology is going to be required, after my experience I wouldn't want to fly without it. It is how I felt many years ago when I added a Garmin 430 to the panel of a previous airplane.

I suspect that the ADS-B In and ADS-B Out systems will help prevent a great many potential accidents.

David C. Wartinbee
AOPA 1255282
Soldotna, Arkansas

Tom Haines' statement in "Traffic Dead Ahead" that ADS-B uplinked traffic is referenced to the aircraft



"You have written the best description of ADS-B In and Out that I have ever read. Your explanation was succinct, correct, and easily understandable. Last year, already having a 530W, we upgraded our GTX 330 to ES and selected Stratus as our "In" solution. We would not fly without it!"

Amy Carpenter
AOPA 3401758
Atlanta, Georgia

[redacted]

providing the ADS-B Out trigger is not correct. ADS-B traffic from the ground (TIS-B and ADS-R) is always sent as GPS latitude/longitude so there is no difficulty in any aircraft knowing its location. Traffic is never addressed to a particular aircraft.

John Ferrara
AOPA 291263
Newtown, Pennsylvania

Above the Everglades

Thanks for a great article and a focus on "a flying wonderland"—Florida—in the June issue. You opened my eyes to some parts of Florida I should explore from the air next winter. And special thanks to Chris Rose for the photography.

As a Northern Virginia pilot who spends winters on Florida's west coast, I appreciate the richness of the Everglades. In fact, I wished the article might have included some imagery and discussion of the area around Everglades City and the Ten Thousand Islands. This leaves something more for the future. The Florida Keys, with airports in Marathon and Key West, are also both worthy of attention.

Brian Carlson
AOPA 5689057
Reston, Virginia

Women find their wings

I must admit I have really mixed feelings here. I'm all for having more women in the industry, but this is really more free stuff for girls when 20 percent more girls are graduating high school than boys, 25 percent more women are graduating college than men, and four times more boys commit suicide than girls. Even with boys doing so badly, the U.S. government pumps billions of dollars into our school system's "girl empowerment" K-12 programs through WEEA and related grants and others, started in 1974.

As much as it would be nice to see more women in the industry, I believe that society as a whole should be reaching out to boys. The federal government is filled with programs and scholarships for girls and women.

It's boys, particularly minority boys, who are the ones who generally need the help. This isn't going to pass the politically correct police, but the statistics don't lie.

Christopher Caldwell
AOPA 952729
Bailey Island, Maine

Why do so many more women want to ride horses than men? Why do so many more men than women want to fly airplanes? This could be a fascinating subject for psychologists but it's unimportant to most people. Everyone knows the genders differ in a lot of ways. Why should they not differ in mental outlook? Is it a smart use of resources to discriminate in favor of that part of the public that is less likely to respond to the magic of flight? If the goal is to achieve a 50-50 gender split, I predict that isn't happening anytime soon. The article could have passed without comment had it appeared in a journal from the Ninety-Nines, but *AOPA Pilot* needs to speak for all aviation enthusiasts.

A. Steven Toby
AOPA 1005713
Arlington, Virginia

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LETTERS

"Kudos to the exceptional gals in 'Women Find their Wings.' Three generations who live and breathe GA. And bravo to *AOPA Pilot* for featuring them in a powerful article that revived my battered belief that a woman's place is in the cockpit. This news is refreshing. I am re-inspired to persevere, knowing there are potential sister fliers out there, simply waiting to get word they really can fly after all. Thanks for making room for more estrogen in the traditional boy's club of pilotdom. The tide is turning. Ladies, start your engines!"

MayCay Beeler
AOPA 849322
Greensboro, North Carolina

Four C-note lesson

I enjoyed Rod Machado's "License to Learn." Although I got my ticket in 1999, I have only about 200 hours in my logbook. I find, as I am sure many private pilots do, that flying is the most expensive hobby a person can have. I fly until my extra money runs out, then wait until my flight review and get current again. I fly for a while until the money runs dry again then repeat the same cycle.

Microsoft Flight Simulator keeps the rust off. I do pattern work and cross-countries as well as maneuvers. During my last review I greased a landing so well that my instructor said he could not have done it any better.

Dan Terhune
AOPA 1364014
Rock Hill, South Carolina

Tipping Point

I believe that Leroy Cook stresses the danger of landing a tricycle-gear aircraft in a crab way beyond what happens in real-life situations ("P&E: Tipping Point"). Thousands of Ercoupe pilots have been landing in a wings-level crab safely for decades. In fact, it is the recommended way to land an Ercoupe without rudder pedals. Large airliners have been known to land safely in a crab if the crosswind is too great to allow them to lower the upwind wing far enough to counteract the crosswind without hitting the wing tip on the ground.

One, of course, should touch down on the main gear and then lower the nose gear. If this is done in a wings-level crab, the aircraft will be heading straight down the runway before the nose gear even touches the runway. Ask any Ercoupe pilot.

Sam Clipp
AOPA 063112
Pennsburg, Pennsylvania

Thoughts on third class medical

It is with dismay, disbelief, and disgust that I read that the American Medical Association is going to lobby against the driver's license medical. Physicians are supposed to use scientific evidence to make decisions. Physicians are supposed to care about their patients' interests. There is no evidence that the third class medical identifies medical conditions that prevent accidents in general aviation. So the AMA position is strictly economic self-interest of the most crude kind, ignoring scientific evidence and patient care. I call on all physicians to repudiate this crude abuse of the Hippocratic Oath. The AMA just degrades a noble profession. Their position on the driver's license medical deserves to be ignored.

I have had the privilege of serving as a flight surgeon and taking care of pilots in the Maryland Air National Guard for 23 years. My career was in emergency medicine as both physician and chairman of the department. I believe I know something about caring for patients.

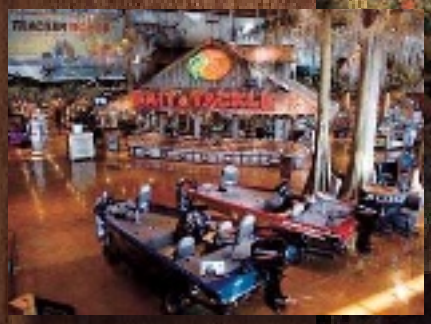
Claudius Klimt
AOPA 673940
Towson, Maryland

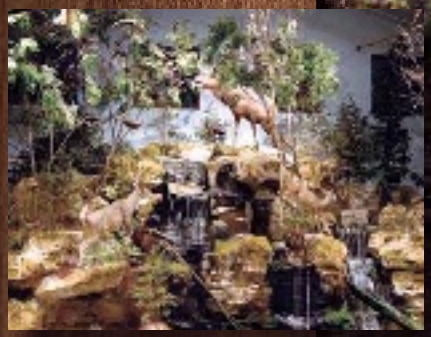
We welcome your comments. Editor, *AOPA Pilot,* 421 Aviation Way, Frederick, Maryland 21701 or email (pilot@aopa.org). Letters may be edited for length and style before publication.

HANGAR TALK

Aviation's nearly limitless possibilities for fun and adventure can be found in abundance late each summer in Greenville, Maine, where seaplane pilots hold an annual gathering. "It's refreshing to find so much about what is right with aviation in one picturesque, vibrant, and welcoming place," says Senior Editor **DAVE HIRSCHMAN,** who attended the event with Photographer Chris Rose for the first time in 2013. "And getting introduced to the float Carbon Cub in that idyllic location was unforgettable. The mighty LSA and the magnificent surroundings were quite a combination." See **"SOUL-STIRRING AIRPLANE,"** page 74.

The Consolidated PBY-5A droned over San Diego Bay at 500 feet during an air-to-air photo shoot. Naval vessels from the U.S. Pacific Fleet posed as appropriate backdrops. "We lowered our left wing and used NAS North Island (Halsey Field) as a pylon. Seaplane ramps from World War II are still there," says contributor **BARRY SCHIFF,** who pays tribute to this wartime hero (**"STAND UP AND SALUTE,"** page 84). "It was touching to see jet fighter pilots running out of Operations to wave at and honor this revered flying boat. We turned seaward, our ghostly image from another era disappearing over the horizon."





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Flying boat

There are very few Sikorsky airplanes in the air these days, but there was a time when the Sikorsky was queen of the sky. Usually associated with helicopters, Igor Sikorsky's first certified airplane was the Sikorsky S-38 Amphibion (Sikorsky prefered this spelling), developed primarily for Pan American Airways. Barry Schiff flew this rare bird for *AOPA Pilot* ("The Flying Boat," September 2003).

Subject: Sikorsky S-38B

Where:
Lake Meade, Las Vegas, Nevada

Photographer:
Mike Fizer

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Thanks for the service

Still the best in the world

BY THOMAS B. HAINES
Editor in Chief

THE CONTROLLER'S REQUEST seems odd: Asking an airliner to hold over the Orange County, Virginia, airport. Holding at an airport? Given thunderstorms all around, perhaps the controller is a little frazzled and misspoke? The airline pilot—I'm imaging it was the first officer by the sound of his voice—comes back and asks for the identifier. The controller provides it and quickly the airliner voice comes back, "We don't have those little airports in our database."

The busy controller then offers up another nearby airport, receiving the same answer from the airliner. By this time, as I'm motoring northbound up the west side of the Washington, D.C., metroplex in my Bonanza, I've figured out the problem. A big thunderstorm has parked itself just west of Washington-Dulles International, forcing the Potomac Approach controller to break the news to everyone on the frequency that Dulles arrivals are shut down while they sort things out; everyone headed there will have to hold. In looking at the displays before me, I discover that a thunderstorm has taken up residence over every nearby VOR—Gordonsville, Linden, Casanova, and Martinsburg. The controller is out of places to park airliners, so he is attempting to send them to hold over airports that happen to be clear of the many scattered storms in the area.

The controller is out of places to park airliners, so he is attempting to send them to hold over airports that happen to be clear of the many scattered storms in the area.

Still hopeful, the controller attempts to direct the airline flight to hold over Charlottesville, Virginia. "It's a bigger airport," he assures—and one with airline service, he doesn't add. "It should be in your database—Charlie Hotel Oscar." Given that most airline pilots don't have as much graphical weather information available to them as many GA pilots, I am not surprised that the airline pilots don't see the big picture—as I do in my 42-year-old airplane.

After a brief wait, a much deeper voice comes on the frequency—clearly the captain is getting involved: "As we have already told you, we don't have those little airports in our database," the new voice says sternly. "We need to hold at a TACAN," Ahh, apparently he's ex-military, too.

"Well, you could send him to the Elkins VOR—125 miles west," I say to my co-pilot, resisting the urge to offer the suggestion on the frequency.

The controller, ever the professional and not rattled at all, responds promptly. "OK then, I'll just vector you around a while. Turn heading 260; maintain seven thousand."

Our clearance is to Casanova and then Martinsburg, direct Frederick, Maryland, as we plow up from South Carolina. The Garmin GTN 750 display looks like it has the measles, with green, yellow, and red splashed here and there from the XM weather. Casanova is clearly not going to work, so I ask for Linden and then Martinsburg, as those slow-moving storms have migrated a little east and look passable. The controller agrees and helpfully sends us on our way.

Like everyone else on the frequency, we ask for occasional deviations left and right, all the while staying out of the clouds—always a good goal with thunderstorms in the region. We sneak by Linden and zigzag toward Martinsburg. As I'm debating whether to make a turn to the left or the right, the controller swimming in airliners gives me a vector to the right and a descent. Based on what I'm seeing, I'm a little skeptical at first, but quickly realize the visibility down low is good and it's going to be just fine; he's been watching out for us. Soon we're direct Frederick, having never seen the inside of a cloud or been hit by a raindrop. We give him a warm farewell and a compliment for the good service as he hands us off to the next controller.

A week later I'm able to thank him publicly as I am moderating a panel in Washington for the RTCA Global Aviation Symposium. The subject is "The Biggest Challenges Facing the FAA." I use the story to remind attendees that while the air traffic system has challenges, it still is the best in the world. Among the panelists is Paul Rinaldi, head of the controllers union. I note a smile on his face and a nod as I describe the good work by his controller. **AOPA**

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EDITOR IN CHIEF
Tom Haines flies his Beechcraft Bonanza A36 for business and pleasure.

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Something for nothing

BY BARRY SCHIFF

Creating your own tailwind

ONE OF THE MOST POPULAR cross-country flights from the Los Angeles Basin is, not surprisingly, across the Mojave Desert to Las Vegas. Convective turbulence, though, can make it a rough flight. It was during such a flight with my mentor, Paul Blackman, in his North American Navion, that he taught me in the summer of 1956 a useful technique that I have used in turbulence ever since.

The roughness during this flight began in earnest as we passed over Barstow, California. During the updrafts, I would lower the nose so as to maintain altitude and reduce power to prevent an excessive increase in airspeed. Upon entering a downdraft, I would add power and raise the nose to continue maintaining altitude. This is the most common method of coping with convective turbulence. As I fought through the thermals, Paul just sat there in the right seat, his arms folded across his chest and a knowing smile on his face. He slowly shook his head in a disapproving manner.

"What's the matter?" I asked. "Am I doing something wrong?"

"There's a better way to do this," he said. "Something we learned crossing the deserts of North Africa during the war."

I was all ears. Paul had been a command bomber pilot in B–24 Liberators and was a marvelous instructor. When he spoke, it was wise to listen.

"When you hit an updraft," he began, "use it to your advantage. Allow the airplane to gain altitude. Don't fight it. For just as night follows day, downdrafts follow updrafts." The idea, he explained, is to have surplus altitude available to sacrifice when transitioning from an updraft to a downdraft.

"When you enter the downdraft," he continued, "simply allow the airplane go down with it. Don't fight that, either.

"In terms of aircraft performance," he yelled over the air and engine noise, "thermals can be beneficial. They give you something for nothing. So don't fight it. Go with it. When in the surging updraft, just hold a constant attitude [not altitude], leave the power alone, and allow the airplane to rise."

He explained that lowering the nose to maintain altitude is counterproductive. It results in increased airspeed and less time spent in the rising air to take advantage of the free lift.

Sounds simple enough, I thought.

Paul then added, "Raising the nose in a downdraft is similarly counterproductive. The reduced airspeed causes you to remain longer in the sinking air. When you hit a downdraft, apply the same technique that you used in the updraft. Hold a constant attitude, leave the power alone, and allow the airplane to descend, sacrificing the altitude gained in the thermal. Increasing power at reduced airspeed to attempt maintaining altitude in a downdraft—especially in the heat of the summer—can result in an overheated engine."

None of this is earthshaking to sailplane pilots. They are adept at maximizing en route performance by decreasing airspeed and climbing in rising air. They allow their aircraft to lose altitude and increase airspeed in sinking air, which lessens their exposure to it. The idea in both airplanes and sailplanes is to spend more time in updrafts and as little time as possible in downdrafts. This technique is suitable only when flying VFR.

This technique also is good practice in severe or extreme turbulence, occasions when maintaining a more-or-less constant attitude is strongly recommended. This is structurally safer than imposing the damaging G loads that could result from attempting to maintain altitude during such turbulence (when IFR or VFR). It goes without saying, of course, that airspeed should kept at or below the minimum maneuvering speed (V_A) when the degree of turbulence calls for it.

Another method of improving en route performance involves envisioning the wind as it flows over mountainous or hilly terrain, and then altering course so as to fly within rising air as much of the time as possible. For example, when the wind is blowing across a valley, fly along the downwind side to take advantage of the rising air usually found there. Depending on the nature of the terrain, such a ride is often smooth. At such a time, simply lower the nose to prevent climbing and enjoy picking some extra knots in the process. It's like creating your own tailwind.

Cruising on the other side of the valley would be in sinking air that might not even be noticeable except that you might begin wondering why your airplane doesn't seem to be performing as well as it should.

It's all a matter of knowing the direction of the wind and using it to advantage. The difference in flight time can be significant. **AOPA**

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BRUCE LANDSBERG
President, AOPA Foundation

The UAS conundrum

Sharing the skies safely

AIRCRAFT THAT FLY without a pilot on board have been called a variety of names—some of them unprintable. Drones, unmanned aerial systems (UAS), and unmanned aerial vehicles (UAV) are a few. Some pilots are concerned about bringing these machines into domestic airspace in a big way. The FAA is charged with figuring out how to get everyone to play in the sandbox safely.

Military UAS has been a dominant player in the past decade, performing surveillance and strike operations in Iraq and Afghanistan. There have been a few military incidents, but not many that have been reported to the general press. As the capabilities have expanded, however, so has the civilian demand for what UAS can do—often at a fraction of the cost of manned aircraft.

As with any good idea, there are those who fail to behave responsibly, and so it is with UAS. The highest-profile incident involved a close call with a regional jet in Tallahassee, Florida, in March. The close encounter occurred at about 2,300 feet, five miles from the airport, and the UAS came close enough that the RJ was inspected for damage after landing; there was none. But the UAS pilot and aircraft were nowhere to be found. Birds can bring down aircraft and so can a small UAS.

In May, another UAS, known as a quadcopter, escaped from its owner and crashed into the thirtieth floor of a St. Louis office building. This time the aircraft did not get away unscathed, but the owner opted for anonymity by leaving some $2,000 in aircraft and camera gear unclaimed.

There have been numerous other mishaps—some amusing, others not so much—that punctuate the news, but the reality is that UAS hold tremendous potential for both good and ill. The challenge is to find the balance.

Depending on your perspective, the ability for police to use them in tactical situations, as the military has, is a reasonable use in my opinion. Search and rescue, disaster reconnaissance, real estate agents, legitimate journalists, the paparazzi, farmers, delivery services, and voyeurs all have interest. The FAA should not be charged with deciding the privacy issues. That's the role of the courts and the legislative branch, and it can be messy, but the FAA's role is operational safety—period.

The model aircraft community is understandably concerned, as is the Association for Unmanned Vehicle Systems International (www.auvsi.org), which represents all UAS from the smallest hummingbird to 737-sized behemoths.

In 1981 the FAA issued Advisory Circular 91-57 for model aircraft. It's a good starting point for UAS regulation, but these voluntary guidelines are not sufficient for UAS—especially since the vehicles are no longer used merely for entertainment and recreation. The AC states, *Select an operating site that is of sufficient distance from populated areas. The selected site should be away from noise sensitive areas such as parks, schools, hospitals, churches, et cetera. Do not operate model aircraft in the presence of spectators until the aircraft is successfully flight tested and proven airworthy. Do not fly model aircraft higher than 400 feet above the surface. When flying aircraft within 3 miles of an airport, notify the airport operator, or when an air traffic facility is located at the airport, notify the control tower, or flight service station. Give right of way to, and avoid flying in the proximity of, full-scale aircraft. Use observers to help if possible.*

When UAS fly far away from people, either on the ground or aloft, perhaps the regs can be more forgiving—just as we allow for new Experimental aircraft in less dense airspace. They need to sense and avoid other aircraft. However, clear guidance is needed whenever a device slips the surly bonds of its handler and tears off like an errant Labrador Retriever. Collisions with people and other aircraft are unacceptable, and many small UAS operators don't have the financial resources to cover liability costs should the unthinkable occur.

Temporary flight restrictions are not a solution for routine operations, either. AOPA says, "unmanned aircraft and their operation should be certified to the same level of safety as piloted aircraft. Their operation in the National Airspace System should not have a negative impact on GA operations and should not require specially designated airspace for their operation."

The FAA, anticipating these aircraft in our airspace, convened a working group in 2007 to study the problem and make recommendations. It's a work in progress, and many agree that it's way past time for some basic rules to be published—even if they are not all-encompassing and subject to revision as the technology changes. UAS pose a number of problems, but they also open up some great opportunities for GA, including better utilization of airports, economies of scale in developing equipment to put on manned aircraft, and a source of new pilots—but, as always, safety comes first. **AOPA**

WEB www.airsafetyinstitute.org

BRUCE LANDSBERG has served as the president of the AOPA Foundation since January 2010.

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Anxiety be gone!

BY ROD MACHADO

Get the monsters out from under the airplane

SEVERAL YEARS AGO, a fellow pilot, whom I'll call Norm, confessed to an anxiety he developed about flying his airplane. "I just suddenly started worrying about engine failure, and it's getting to me. I can't shake it," he said. "I'm going to hang it up if I can't get past this."

Welcome to Norm's world, where feeling comfortable in the air is no longer the...norm.

Occasionally, we let something about airplanes spook us. Yes, spook happens. If you're lucky, you can identify provenance of your anxious disposition and follow the footprints to its source. Perhaps you were unnerved by an engine hiccup at night over the mountains or a low-altitude flight over open water during the Discovery Channel's televised *Shark Week* (it seems like every week is *Shark Week* on that channel). Either way, identifying the signature experience that spooked you means you can tackle your anxiety "head-on," and you don't need to call Spook Busters to do it. You only need to find a good instructor to help desensitize you to the problem.

The solution to their problems involved exposing them, then acclimating them, to the source of their discomfort.

By way of personal example, I remember being frightened of dancing in public when I was a teenager. It seemed as if every time I shook my booty on the dance floor, my spastic ticks and twists resulted in some healthcare professional looking for my medic-alert bracelet. I confronted the problem head on by taking contemporary dance lessons from a capable instructor. Problem solved. Unfortunately, disco disappeared a few years later, and I didn't get the memo. That's why healthcare professionals seem to circle me on the dance floor even to this day.

The type of anxiety Norm had is something that lends itself quite well to the head-on type of solution. This solution is similar to that used by parents when their child believes that monsters are under the bed. Dad lowers the mattress to the floor. Monsters be gone!

Knowing the source of his anxiety, Norm lowered his own mattress to the ground (so to speak) by seeking and finding an instructor who would let him land without the use of an engine. Now I realize this statement might set off someone's "crazy switch," if I didn't mention that this event occured in a glider. In Norm's case, being able to approach and land without the use of engine power help reduce—normalize—his anxiety level.

Over the years, I've flown with individuals having various aviation anxieties. These range from landing in strong crosswinds, flying instrument approaches to minimums in actual conditions, handling in-flight turbulence, and so on. In most instances (not all, of course) the solution to their problems involved exposing them, then acclimating them, to the source of their discomfort.

For instance, a while back, I met a private pilot who just withered at the thought of landing in a strong crosswind. So we waited for the opportune time, which came early one windy morning. Then we flew off to a nearby airport having crisscrossing runways and exceptionally strong winds.

We asked the controller for permission to use the crosswind runway, and he immediately obliged our request. This was good training for us, and it produced an instant home entertainment center for the controller. It turned out that the crosswinds were so strong that it was impossible to track the runway centerline using only a sideslip (for a flight instructor, this is proof that God does exist). So we used a combination of *sideslip* and *crab* to track the centerline during a series of low passes and touches and goes.

Later that day, this young private pilot flew home a different and more confident pilot. As far as your brain is concerned, when you learn something new, you become something new. He learned how to be more confident in his flying abilities that day.

So what scares you? What makes you hesitant to fly? Identify it. Challenge it. But do so in a responsible manner. Begin by finding a highly experienced instructor to assist you, but don't speak to him in metaphors. Asking him to lower your bed will make him think you need help moving. Instead of *monsters be gone*, you'll experience *instructor be gone*. Tell him or her what ails you. Develop a plan to experience the disturbing thing slowly and responsibly. That's one way to overcome your anxiety and fly more confidently. **AOPA**

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Don't wait too long

BY JOHN S. YODICE

The Aviation Safety Reporting Program

IT IS TIME to remind readers about the FAA's Aviation Safety Reporting Program—administered by NASA as the Aviation Safety Reporting System (ASRS)—which could save a pilot from the suspension of his or her FAA pilot certificate. Pilots call the AOPA Legal Service Plan, seeking legal guidance about a flying incident, and too many say that they did not file an ASRS report. They had forgotten about the program, or never were aware of it. By then our reminder often is too late to help.

The main reason for the program, which is background to this reminder, is to provide a free flow of safety information to the FAA and others. The program accomplishes this by inviting reports from the persons most likely to encounter unsafe conditions in our national airspace system, pilots particularly. The FAA understands that pilots and others might be reluctant to relate incidents that are embarrassing to them and that could arguably involve violations of the FARs. To overcome this reluctance, the FAA has adopted a method by which the FAA can get such information anonymously and confidentially—and, in return, the FAA will waive certificate suspension if the incident being reported involves an inadvertent violation of the FARs.

With this background, in order to guarantee to pilots the confidentiality of their reports and the anonymity of the reporters, NASA acts as a third party to receive and de-identify the reports before any information is passed on to the FAA. The reporting form for general use, ARC Form 277B, is the one that pilots should use, and is generally available online (including the AOPA website). The forms are preaddressed to NASA. It is frequently advisable to mail the form certified, return receipt requested, against the possibility of lost mail. The form is in two parts: a tear-off identification strip, and a second part that calls for detailed information on the event or situation. When NASA receives it, the identification strip is date-stamped, removed, and returned to the reporter. This is the pilot's proof that a report has been timely filed. NASA will then delete all information in the rest of the report that could be used to identify the reporter. To further tighten up this security, FAR 91.25 specifically prohibits the use of these reports in any FAA enforcement action. Growing in popularity is the method of filing a report on the Internet (http://asrs.arc.nasa.gov/report/electronic.html).

There is an important 10-day limit. To get the immunity benefit of avoiding a certificate suspension, the pilot must act promptly to mail (or deliver, including via the Internet) an Aviation Safety Report within 10 days of (or becoming aware of) a potential violation.

There are some common-sense exceptions to the program. The FAA will not grant immunity unless the violation was "inadvertent and not deliberate." In the past, the FAA had been reasonable in interpreting this language. Unless the conduct really was deliberate, or grossly negligent, the FAA had been granting immunity. In more recent times, the FAA has been tightening up on its interpretation of what is inadvertent.

Immunity will not be granted if the FAA's investigation determines that the pilot is not qualified or competent to hold his or her pilot certificate. The FAA continues to interpret this exception reasonably.

Here is the one exception to the immunity aspect of the program that is frequently misunderstood. Immunity will not be granted if, in the previous five years, the pilot has been involved in an FAA enforcement action and found to be in violation of any part of the FARs. This limitation is often misunderstood to mean that only one report may be filed in a five-year period—that's wrong. There is no limit to the number of times reports may be filed. It is only after an official finding of violation is made that immunity cannot be claimed during the next five years.

In the stated exceptions, even though the immunity aspect may not be granted, the report will still be treated as confidential and anonymous. So, even though the FAA is tightening up on its interpretation of "inadvertent and not deliberate," there is no reason not to file. It is only in the next two exceptions that confidentiality and anonymity are lost.

Immunity will be granted only if the violation did not involve a "criminal offense" or an "aircraft accident" (as very narrowly defined by the NTSB). It is important to be aware that a report reflecting a criminal offense will be sent to the U.S. Department of Justice and to the FAA. Reports reflecting an accident will be sent to the NTSB and to the FAA. In both cases, there will be no confidentiality or anonymity. The information will be sent without being de-identified.

Except for these last two exceptions, there is hardly any reason not to file a report following any unusual flying event. **AOPA**

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JOHN S. YODICE is a legal counselor for the AOPA Legal Services Plan.

Flyby

Joe Hopkins
Real Estate Agent
Private and Commercial Pilot

Joe Hopkins

The Mission: Color

BELLEVUE, WA - Joe Hopkins is a real estate agent and private pilot who has been using Claroxan for over a year now. He has spent a good portion of his life interested in aviation and tries to use that passion for good things throughout the world.

Joe caught the aviation bug back in the 70's. He had a friend who had an airplane and Joe thought it was pretty neat that his friend was able to own his own plane and be free.

Feeling inspired, Joe actually went up for a trial flight and requested the instructor put the aircraft into both a stall and a spin to see if he could handle it. The instructor did and Joe stayed cool. That's when he knew he could handle flying airplanes.

Joe managed to get his private pilot certificate in 1990, tacked on an instrument rating in 1993 and received his commercial pilot certificate in 1995.

These days Joe makes his living in real estate. His background includes negotiating multi-year design and construction contracts for commercial and mixed-use projects, participating in due-diligence teams for the purchase and sale of commercial & industrial property, and marketing specialty design-build work for large high-end residences & estates. He works diligently and his discipline is dialed in enough to free up some time to fly airplanes.

Joe has accumulated 500 hours of total time and is still logging hours to this day. He is currently working towards his CFI certificate at the Arlington airport in Arlington, WA. His ultimate goal is to train missionary and foreign aid pilots who fly relief into impoverished countries.

We were able to catch up with Joe recently and talk about his success with Claroxan — the once daily tablet for healthy eyes. Here is what he had to say:

"I have worn glasses or contact lenses since I was in the sixth grade but that was never really a problem. I have kept a current medical since I received my private certificate back in 1990.

My problem was that I was never able to pass the FAA standard color field test. I used a passing result on the Farnsworth Lantern test to keep eligible for night flying.

I started using Claroxan daily in June of 2013 and on my most recent 2nd class medical test, I was able to pass the color portion!

I am not sure if it was Claroxan, but it seemed like a big coincidence. I am 62 years old this July, working on my CFI and can't wait for my check ride."

Thanks Pacific Health,

Joe Hopkins

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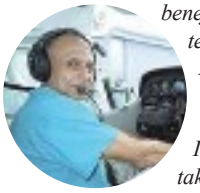
Aviation professionals trust Claroxan to support and maintain their eyesight.

Steven Allen

"My vision had improved from 20/35 to 20/20 in a matter of six months. After I spoke with my sister, I called Pacific Health to thank the kind rep who had explained the program when they took my first order."

Fred Marashi



"After taking it for four months I could see benefits in my eyesight in terms of less cloudiness. I thought it was amazing and could only attribute it to taking Claroxan. I plan on continuing taking it."

Gregory Jones

"Claroxan definitely works and has made a marked improvement in my vision. My right eye is weaker than my left eye and before taking Claroxan my Snellen Chart reading was 20/40 unaided. Now, when I am well rested, I am reading at 20/25."

Jim Wisniewski

"In my 50's I noticed some changes in my vision and I was looking for something to help restore and maintain my eyesight. I happened to come across Claroxan and decided I should give it a try. Boy was that a good decision! That was about 10 years ago. I am still taking Claroxan daily to this day."

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Oshkosh journey benefits Wounded Warriors

BY MIKE COLLINS

TWO PILOTS from Fairbanks, Alaska, are flying to EAA AirVenture in Oshkosh this summer, and they've decided to make the journey a fundraiser for the Wounded Warrior Project (www.woundedwarriorproject.org).

"I broke my first piggy bank in 1950 to take a ride in the backseat of an Aeronca Champ," said Lee Gilbert, 68, a self-described "airplane nut" since age 4. He wanted to be an Air Force fighter pilot but flunked the flight physical. Instead, he served as an armorer, working with F–105s and F–4s in Thailand. Later he served as Civil Air Patrol liaison officer for the northern half of Alaska, and in the Air National Guard as a KC–135 crew chief. Now he does environmental work for the Army. Gilbert has never been to Oshkosh.

Alex Mumley-Dupuis, 21, earned his private certificate at age 18 while in high school. He enlisted in the Air Force and works in airport management. "My dreams are to become an aerobatic pilot, inspiring younger kids to take pursuit in aviation—much like the pilots who inspired me," he said. He went to Oshkosh on an Air Academy scholarship from his EAA chapter in 1989, and flies Young Eagles frequently.

Gilbert said that he and his crew chief, Jeff Cornett, were determined to fly the T–28 to Oshkosh this year. "It's been on our bucket list for a long time. Then Alex said, 'Can I tag along in the Citabria?' Then he came up with the idea for the Wounded Warrior Project."

"With our background—both active-duty Air Force—we're kind of embedded in that military brotherhood, and taking care of each other," Mumley-Dupuis said. "I figured it would be a good opportunity to help in the betterment of others. Twenty years from now I want to look back and say, 'We made a difference.'"

Mumley-Dupuis and coworker and roommate Brian Jones, who will accompany him, started raising money. "First we came up with $5,000 and Jones said, 'I think we can do better,'" he said. They upped their goal to $10,000. "All contributions go to Wounded Warrior; all the expenses for the flight are coming out of our pockets."

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ALEX MUMLEY-DUPUIS and Lee Gilbert with Gilbert's T–28 and Citabria.

The pilots planned to depart Fairbanks in mid-July, with their exact route determined by weather, schedule, smoke from forest fires, and other logistical considerations. "The desired route will basically be backwards down the World War II Alaska-Siberia Route," used to ferry military aircraft, Lee Gilbert said. "The air route was crucial to the outcome of World War II, and to be able to tie it to Wounded Warriors is incredible."

Both pilots are carrying Spot GPS trackers on the journey, and their progress can be followed on the One Flight for Warriors website (www.oneflightforwarriors.org).

PHOTO BY ASHLEY TAYLOR

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FIRST LOOK

They deliver

Reindeer sausage pizza anyone?

BY PHIL SCOTT

DOMINO'S PIZZA USED TO PROMISE delivery in 30 minutes or less. Airport Pizza might take up to three hours, depending on the distance, the weather, and the number of stops before the bush pilot gets to the remote airstrip. Welcome to Nome, Alaska, population 3,000, where a 24-inch reindeer sausage pie costs between $50 and $60, and the pilot doesn't expect a tip.

"Up here it's more just a general courtesy," says Eric Greener, a 29-year-old, 5,500-hour bush pilot. Greener's one of 150 pilots who fly for Ravn Alaska, the second largest Part 135 operator in the country, and an occasional pizza delivery man to tiny, remote villages sprinkling the wilderness outside Nome. "Pizza's pretty unobtainable when you're living out in the middle of nowhere."

There's not much in the way of weather reporting, minimal lighting on minimal strips measuring between 1,500 and 4,000 feet long covered with plenty of snow and ice in the winter, big mud pits when it melts, and dirt and gravel in the summer. "Some times of the year are better than others," explains the laconic Greener.

Also, there's never a terminal. "There's basically a big parking lot," he says. "We pull up and they come and grab it." And that's pretty much the airline's involvement. Somebody calls up Airport Pizza, places an order, one of their folks throws it on the airplane—usually a Caravan with beefed-up gear and large tires. "In today's day and age they pay over the phone," he adds. "We're not even handling cash."

For Ravn Alaska's trouble, Airport Pizza owner Bill Howell offers Ryan's employees (along with Bering Air's, another bush airline that delivers for Airport Pizza), half off their next pizza. He estimates that bush delivery amounts to 5 percent of the business. "We've got rock star pizza," says Howell.

"It's good—and the reindeer sausage pizza is great," says Greener, who grew up near Chicago. "I wish they had deep dish, but I'm easygoing. If it's edible I'll take it."

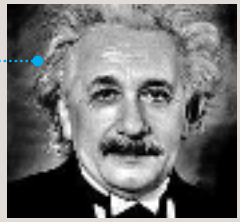
AOPA 75 YEARS

75 years ago

THIS MONTH

AOPA was founded May 15, 1939.
It is August 1939. The Chief Justice of the United States is Charles Evans Hughes. There are 48 stars on the American flag. Regular television broadcasts have begun in the United States. There is a drought in the northeast United States, causing a recession and soaring prices. Joseph Stalin is General Secretary of the Central Committee of the Soviet Union.

AUGUST 2
Albert Einstein alerts President Franklin D. Roosevelt to an A-bomb opportunity, which leads to the creation of the Manhattan Project. Einstein had arrived as a fugitive from Nazi Germany six years earlier.



AUGUST 6
First broadcast of the *Dinah Shore Show* on NBC radio.

AUGUST 15
The Wizard of Oz, MGM's classic musical based on L. Frank Baum's novel, and starring Judy Garland as Dorothy, premieres at Grauman's Chinese Theater in Hollywood.

AUGUST 19
Adolf Hitler begins the opening operations for *Fall Weiss*, the invasion of Poland.

AUGUST 23
Hitler and Stalin sign the Molotov-Ribbentrop Pact, which stuns the world that the two countries have an alliance.

AUGUST 26
First major league baseball telecast—the Red Sox beat the Brooklyn Dodgers.

AUGUST 27
A Heinkel He 178, the first turbojet-powered aircraft, flies for the first time.

AUGUST 30
New York Yankee Atley Donald pitches a baseball at a record 94.7 mph.

AUGUST 30
Poland mobilizes against Nazi Germany.

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GIVING BACK

Saving puppies

And cats, and dogs

BY BENÉT WILSON

IN SEPTEMBER 2013, THE AOPA FOUNDATION gave away 10 grants, worth $10,000 each, as part of its Giving Back Program, designed to recognize good work being done through general aviation by nonprofit organizations. Pilots N Paws, which uses volunteer pilots to transport rescued, sheltered, or fostered animals, was one of those grant recipients.

The organization heard about the program through word of mouth, said Pilots N Paws Executive Director Kathleen Quinn. "A lot of our pilots heard about the program and encouraged us to apply for it," she said.

The $10,000 grant was used to help fund fly-away outreach events that resulted in hundreds of animals being rescued and delivered to new families along the East Coast. "When we started in 2009, we would do an annual event. But with the foundation grant, we can have two fly-aways," said Quinn. "In October, we had 90 pilots working on one day to transport 535 animals, thanks to the AOPA Foundation."

Pilots N Paws was able to empty an entire animal shelter, the Fort Stewart Military Pet Shelter, along with rescuing other animals in Hinesville, Georgia, near the base, said Quinn.

"A lot of animals went to New Jersey. Some pilots can do the entire flight, while some flew relay points to airports on the east coast, from Southern Pines, North Carolina, to points in Washington, D.C., and Virginia.

"One of the cool things about this fly-away was it was not just about the animals," said Quinn. "While we're dedicated to saving animals from shelters, we also impact the lives of the people we're delivering animals to," she said.

"Some of the animals came from Fort Stewart and they were sent to New Jersey to Paws of War and trained to become comfort and service animals for military members who have been affected by combat-related injuries and post-traumatic stress disorder.

"We also had a fly-away on March 1 out of Alabama, where we flew more than 200 animals," said Quinn. "Our next fly-away will be September 26 to 27 at Greenville Downtown Airport in South Carolina, and we're in the early stages of planning a Midwest fly-away."

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BENNETT'S BOOTS was one of the dogs rescued by Pilots N Paws volunteer pilots.

PILOTS AND PAWS

DETAILS

The AOPA Foundation's Giving Back Program awards grants to nonprofit groups doing good work through GA. The application process is open May until July (http://foundation.aopa.org/GA-Image/Giving-Back).

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AERIAL ADVENTURES

Flying the Los Angeles area

Tips for out-of-towners

BY ALTON K. MARSH

PILOTS FLYING ABOVE Los Angeles are usually there to get from one place to another, not to impress friends with the scenery. Routes are defined by radials from VORs and must be rigidly followed, leaving little time for looking at anything other than conflicting traffic. Deviation just a few degrees from a radial creates potential for conflict with other traffic. Still, flying one of the routes across LAX can be spectacular.

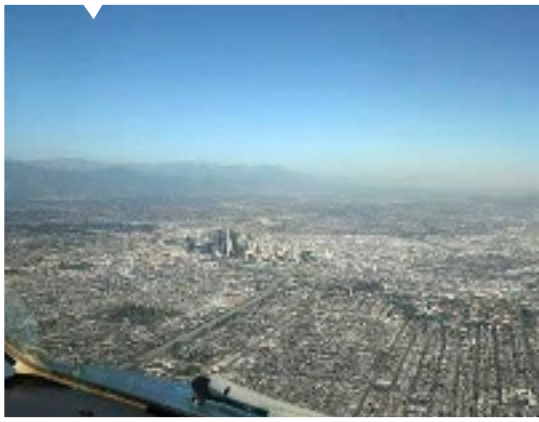
If you have never done it, you might want to get training first from an instructor in the area. One of the best schools is Channel Islands Aviation of Camarillo, California, where chief instructor David Koble has some tips for you. Even if you memorized the route from the Los Angeles Terminal Area Chart, a marine layer of fog can suddenly create the need for an instrument approach or a quick escape to visual flight rules weather.

The routes depicted on the LA terminal area chart are the Coliseum Route, Hollywood Park Route, Coastal Route, and Mini Route. Koble suggests you avoid the Mini Route. Koble said both the northbound and southbound routes use 2,500 feet. That means a potential collision course, and at an altitude so low that an engine failure may create the necessity for an off-airport landing in commercial or residential areas. (Freeways are too busy to be considered.)

The best route, Koble said, is the Coastal Route with altitudes of 5,500 feet to 6,500 feet, depending on direction. It uses the 323- and 123-degree radials of the LAX VOR.

WHAT YOU'LL SEE

The "Coastal Route" follows the shoreline and you'll see the Santa Monica Pier, Marina Del Rey, and the *Queen Mary.*



ISTOCK

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ADVICE FROM A CHIEF INSTRUCTOR

Chief instructor David Koble said a common mistake is to assume VFR checkpoints can be used to define the various routes. If you try to define the south end of the Hollywood Park Route using the *Queen Mary* (found in GPS databases as VPLQM), you'll be two to three miles off the route.

If you use the Special Flight Rules route, controllers will not provide flight following. If you were already on it, they will cancel it. You'll transmit position reports, either entering or exiting the route, to no one but other aircraft.

Contact clearance delivery at the departing airport and tell them your plan. In all likelihood that is what you will get. When taking off, tell the tower the route you plan to use.

After takeoff, advise departure control of your intended transition route through the Class B airspace. If controllers know ahead of time what you plan, they may clear you on course while still climbing from a lower altitude.

Study the map carefully to learn the location of the numerous flight training and aerobatic areas in the Los Angeles terminal area. They are marked on the chart and listed in the legend.


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PILOT PRODUCTS

Better safety, softer landings

KLR 10 AOA review

BY DAVE HIRSCHMAN

FINAL APPROACH SPEEDS in most GA aircraft are a guessing game. The recommended speed is found in the pilot's operating handbook, but that's calculated at full gross weight. Then there's the time-honored practice of noting the power-off, flaps-down stall speed (found at the bottom of the white arc on the airspeed indicator) and multiplying it by 1.3 to get a ballpark approach figure. And if the wind is gusty, add half the gust factor. As a result, our target speeds vary and tend to be based more on habit and intuition than hard numbers.

Bendix King's new KLR 10 Lift Reserve Indicator avoids the guesswork and helps pilots fly more precise approaches, accounting for variables such as payload and density altitude. Consistently better, and shorter, landings are among the benefits.

We recently installed the KLR 10 system in Editor in Chief Tom Haines' Bonanza A36, an aircraft the staff uses for photography and company travel, and the KLR 10 light bar on the glareshield has quickly become indispensable. Up- and down-arrows are quick and easy to interpret, and the AOA indicator's prominent placement means pilots don't have to divide their attention between the airspeed indicator and the outside world.

During a series of flights in which the A36's center of gravity ranged from full forward to nearly full aft, and loads varied from a single pilot and less than half fuel to four adults and full fuel, the AOA indicator provided a steady and accurate guide during approaches and landings. While flying the optimum AOA, the target final approach speed ranged from 81 mph when the airplane was light to 87 when fully loaded. Transitions during roundout and flare, however, felt nearly identical.

In the five years I've flown this particular A36, I've tended to approach too fast with the resulting few extra seconds floating in ground effect (and longer-than-necessary ground roll) as the obvious consequence. My rationalization was that slightly too fast is better than too slow, and since most GA airports have runways long enough to land an A36 two or three times—using that extra real estate hardly seemed like a tragedy.

But the KLR 10 will simplify future trips to short runways, and it allows pilots to keep their eyes outside throughout each approach and landing. As my confidence in the AOA indicator grew, the airspeed indicator became increasingly irrelevant. (The airspeed indicator lets you know when it's safe to lower the gear and flaps.)

The technology's real promise is reducing in-flight loss-of-control accidents in which airplanes inadvertently stall and spin. These often fatal accidents happen in airport traffic patterns when pilots get distracted and allow their airplanes to get too slow, turn too steeply, fly uncoordinated, or take other actions that raise the angle of attack to the "critical angle" at which the wing aerodynamically stalls.

The FAA's Small Airplane Directorate has taken the forward-looking step of allowing aircraft owners and pilots to install a new generation of relatively low-cost, non-TSO angle of attack indicators with minimal paperwork. (The KLR 10 has a retail price of $1,600.)

It's the avionics equivalent to adding seatbelt shoulder harnesses: It can't hurt, and may help a lot.

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INSTALLING THE KLR 10

The KLR 10 comes with all the required hardware, manuals, and even a small screwdriver to complete the installation and calibration. The probe is built to fit in an aluminum inspection hole cover. It's exceptionally well manufactured, and completely independent from the aircraft pitot-static system.

Fitting the probe to an inspection plate in the Bonanza's left wing, routing the associated plumbing into the fuselage, connecting the "interface module" under the left seat, and installing the AOA indicator took most of one day. Then it was time to calibrate the unit.

The calibration is a three-step process that requires smooth air—and that was in short supply this winter and spring on the East Coast. Our first few in-flight calibration attempts were unsuccessful and required altering the fixed angle of the probe. That meant filing out a groove in the inspection plate cover and repeating the process. The probe angle was reduced from 50 degrees to 45 and finally 40 before the calibration took hold. Once completed, it never has to be reset.

Also, for IFR airplanes, a heated AOA probe is highly desirable, since the tiny holes that sense differential pressure are susceptible to even trace amounts of airframe ice.

Flying with the AOA system brings home lessons that all pilots learn academically but don't always understand intuitively: namely, that an airplane can stall at any airspeed and any attitude. In a steep turn, for example, AOA increases and can easily reach the critical angle at airspeeds far in excess of the power-off stall speed. Also, it's possible to exceed the critical angle of attack even when pointed straight down, for example, on the back side of a loop. (Note to Tom: *This is a purely theoretical discussion and I have not been looping your Bonanza!*)

The AOA education and constant awareness that the KLR 10 and other indicators provide may ultimately be their most enduring safety legacy.—*DMH*

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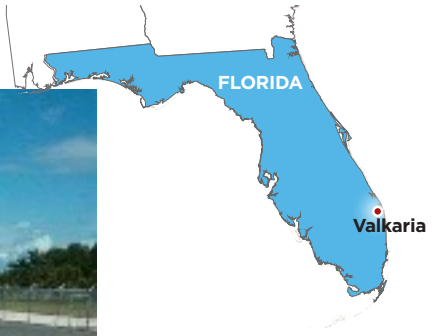
AIRPORT STORIES

Up from the ashes

Valkaria finds the formula

BY BILL WILSON

VALKARIA RC VELOCITY CLUB President Joe De Pinto and airport manager Steve Borowski look over the newly completed race course for radio-controlled cars at the Valkaria Airport Park.



IF YOU GO

Valkaria Airport (X59)

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YOU WOULD BE FORGIVEN if you wondered how an improbably named airport on the eastern shores of Florida would find the key to survival in a hostile environment—which might serve as a model for airports all over America. Valkaria Airport (X59), just south of Melbourne, has emerged from years of bitter controversy and not only prevailed, but is thriving. And, in so doing, it is providing other airports of similar fate with a formula for future success.

Born as a World War II Navy relief field with a triangular runway configuration, Valkaria was handed over to local authorities in the mid-1950s with the intent that it remain an airport. The goal was noble, but the execution lagged. Valkaria was subject to benign neglect for years and facilities suffered. Locals around the airport became restive when traffic picked up from a now defunct helicopter training school and began a drumbeat for closure. It accelerated to the point of dirty tricks, false accusations against airport employees, public arguments, and political interference. The local newspaper was actively searching out controversy and finding plenty. If there had been a Las Vegas line against Valkaria it would have been 100 to 1.

Enter Steve Borowski, new airport manager. Fortunately, Borowski knew how to fight fire with fire. He lined up his own political support, got money for a master plan, and saw it completed. The FAA, which had given over keys to the airport and did not really want them back, supported the effort with repairs, refurbishment, and guidance. With the active involvement of AOPA, the State of Florida, and the local Brevard County government, the nearby political opposition melted away and Valkaria was on its way to repairing its damaged past and emerging as a full-fledged general aviation/recreational airport.

Borowski knew that playing to only pilots would not win the public opinion lottery. So he worked out ways that surplus materials from the new runway, taxiway and other field improvements could be used to build facilities which could be used by the entire community. Today Skyman Park features a BMX bicycle course with jumps made from the coquina rock removed to build the new runway. In addition there is a radio-controlled car/truck/boat area that features not only a new pond and a smooth asphalt track for closed circuit races, but the largest off-road RC course in the country. The airport manager reports that bad blood which flowed so frequently from local political entities has almost vanished. Mutually beneficial communication channels are open and in regular use.

Borowski is sanguine about his success. "We're up from the ashes, but we've only just begun."

'USA TODAY' REPORT OVERTLY SENSATIONAL; AOPA RESPONDS

A *USA Today* series "Unfit for Flight" published in June presented a negative and highly distorted view of general aviation safety.

AOPA President Mark Baker responded with a letter to the editor pointing out that there has been a 75-percent decrease in fatalities from 1973 to today.

"General aviation—and AOPA—has been aggressive in pressing the FAA to make it easier and more affordable for new technology and safety equipment to be installed in the existing fleet," Baker said.

The three-part series written by Tom Frank portrays GA as unsafe and investigations into GA accidents as flawed, incomplete, and favoring manufacturers. The reporter ignored information AOPA provided that showed new tools, training, and technology that make GA safer.

"USA Today's snapshots of court cases and inflammatory headlines frankly do nothing to improve aviation safety. They only distort the true picture," said Baker.

Go online for more (www.aopa.org/News-and-Videos/2014/June/18/USA-Today).

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FLY-OUTS

Priest Lake, Idaho

Two big airstrips—and a seaplane base

BY CRISTA V. WORTHY

PRIEST LAKE, THE "CROWN JEWEL OF IDAHO," is set against the western edge of Idaho's Panhandle just 15 nautical miles south of the Canadian border and 54 nm northeast of Spokane, Washington. The sapphire-blue lake is surrounded by a dense emerald forest; mountains provide a scenic backdrop. Children play on white sand beaches or search for huckleberries as fishermen ply the lake for Dolly Varden, cutthroat, and Mackinaw trout and Kokanee salmon. The 57-1/2-pound U.S. record Mackinaw was caught here years ago—30-pound lunkers can still be pulled up with deeply trolled lures. Campers enjoy long summer evenings before curling up in their tents; other visitors splurge at lakeside resorts. Best of all, this pristine paradise is available to pilots with virtually any type of airplane—choose from two big airstrips and a seaplane base.

The Cavanaugh Bay Airport (66S) sits at the south end of Cavanaugh Bay, which extends like a thumb on the lake's east side. Runway 15/33 is 3,100 feet of immaculate turf—a Citation III landed here last year. Approaches are normally made over the lake, right pattern to the uphill Runway 15. Watch for sprinklers which may be operating to one side; at 120 feet wide, there's plenty of room. Parking and tiedowns are west of the runway. The shady campground is for fly-in guests only, with water, firewood, tables, hot showers, and a bunkhouse—all free. Friendly caretaker Allen Lieske, who has been here 14 summers, has hot coffee brewed by 5:30 a.m. and three courtesy cars that rent for $5 per day plus 30 cents a mile. The state park, seven miles away, has a wide beach and a store. You can rent boats, waverunners, kayaks, and canoes. On the lakeshore off the runway's north end you'll find Cavanaugh's, with three condos, a cabin, and a restaurant/bar serving lunch, dinner, and Sunday brunch.

Dr. Loel Fenwick's Tanglewood Seaplane Base (D28) welcomes visitors and is just 0.4 nm northwest of 66S and can accommodate even large seaplanes.

The Priest Lake USFS airstrip (67S), 1 nm west of the lake, is your best access to two upscale resorts. Runway 14/32 is 4,400 feet by 175 feet of dirt; use 122.9 for all area ops. Both resorts offer free pick-up and beaches for floatplanes. Hill's Resort has a championship golf course, fine dining, water sports, and lake- or forest-view lodging. The Grandview Resort has a restaurant, cottages and suites with full kitchens, and watercraft for rent.

Crista Worthy is managing editor for *Pilot Getaways* magazine. She lives in Hidden Springs, Idaho.

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Cavanaugh Bay Airstrip (D28) and Tanglewood Seaplane Base.
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SPOKANE FLY-IN

AOPA's fourth fly-in of 2014 takes place in nearby Spokane, Washington, August 16, from 8:30 a.m. until 4 p.m. at Felts Field (SFF). This historic airport was one of the first in the West. Aviation started here in 1910. Join AOPA at this storied airport for a fun fly-in day, which features expert speakers and seminars, great food, and family fun (www.aopa.org/fly-ins).

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TEXTRON AVIATION

Laser-pointing perps

FBI offers $10,000 bounty

BY ALYSSA J. MILLER

THE FBI IS OFFERING up to a $10,000 reward for information leading to the arrest of people who intentionally point a laser at aircraft and is working to educate the public on the severity of such actions.

In 2012, shining a laser at an aircraft became a federal crime with a maximum punishment of five years in prison. In addition, such an act can be considered interfering with an aircraft, a felony carrying up to 20 years in prison and a fine up to $250,000. The FAA also can impose civil penalties.

DON'T GET BLINDED BY THE LIGHT

A laser beam "can travel more than a mile and illuminate a cockpit" so brightly that it is the "equivalent of a camera flash going off in a pitch black car at night," the FBI said. This can cause pilots to experience temporary blindness and lead to a safety-of-flight issue. Here are tips from the AOPA Foundation's Air Safety Institute and FAA to protect yourself.

- Don't look at the laser beam. "The natural reaction is to say, 'Oh, look at that,'" said AOPA Foundation President Bruce Landsberg. "No, don't do that." Shield your eyes with your hand or a clipboard, if able.
- Don't rub your eyes. Rubbing your eyes could cause further injury.
- Slide down in your seat. Lower yourself in the cockpit to prevent being hit directly.
- Turn up the lights in the cockpit. This helps to minimize the effects of sudden bright lights at night.
- Look at your flight instruments. The sudden flash of the laser is similar to flying into instrument conditions. Focus on your instruments and don't make sudden movements.
- Use all available resources to maintain aircraft control. Turn on the autopilot to maintain a stabilized flight path while your eyesight recovers.
- If more than one pilot is on board, transfer control of the aircraft to the pilot who is least impacted by the laser.
- Communicate the incident to ATC. Notify air traffic controllers who can, in turn, warn others of the potential hazard.
- Use the aircraft. Climb or turn away from the laser to use the aircraft to block its beam.

EMAIL alyssa.miller@aopa.org

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World's only civilian tiltrotor

AgustaWestland completes autorotation tests

BY IAN J. TWOMBLY

AGUSTAWESTLAND announced recently that its AW609 Tiltrotor has completed dual-engine-failure autorotation tests. This is a big milestone in the long development process that will result in the world's only civilian tiltrotor, expected to be certified in 2017.

The aircraft's massive prop rotors make it impossible to land and take off with the engines in airplane mode. Because the aircraft exists in the space somewhere between an airplane and a helicopter, AW had to work with the FAA to determine exactly how it would be tested. The result was a requirement to be able to land safely in the same way a helicopter does after a failure in either mode. For the testing program, that meant a demonstrated ability to go from a worst-case scenario of full aircraft mode to a safe landing in full helicopter mode.

The few people outside company test pilots who have flown the aircraft praise its automated systems management capability. That is on display during the autorotation, where the aircraft automatically maintains an angle of incidence that results in 100 percent rpm after an engine or drive system failure. As the aircraft descends it must at some point convert fully to helicopter mode, which the company said it does rapidly. The nacelles go to a full aft position of 95 degrees for a run-on landing.

Most interesting about the aircraft is what might lead to a failure. It's powered by Pratt & Whitney PT6 engines, each with its own gearbox. Both are connected by a common drive shaft, so if one engine fails, the other working engine will provide power to both rotors.

AW thinks a complete and simultaneous dual failure is highly improbable, and the only time it envisions a subsequent failure is with fuel contamination. Either way, more than 70 tests over 10 flight hours appear to prove the aircraft has the ability to handle such a problem.

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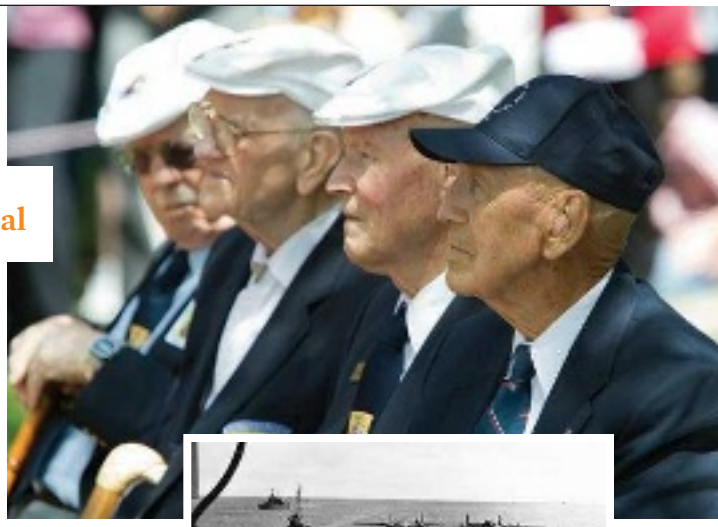
Honoring the heroes

Doolittle Raiders receive Congressional Gold Medal

BY ALYSSA J. MILLER



FOUR OF THE RAIDERS Lt. Col. Edward J. Saylor, the late Maj. Thomas C. Griffin, Staff Sgt. David G. Thatcher, and Lt. Col. Richard E. Cole (top). The *USS Hornet* in 1941 (above).

SEVENTY-TWO YEARS after successfully bombing Japan, changing the course of World War II in the Pacific, the Doolittle Tokyo Raiders have been honored with a Congressional Gold Medal.

The medal was accepted on behalf of the group by Lt. Col. Richard E. Cole, and will be given to the National Museum of the U.S. Air Force and displayed with the Raiders' goblets.

Only four of the 80 Raiders are living today: Cole, Lt. Col. Edward J. Saylor, Staff Sgt. David G. Thatcher, and Lt. Col. Robert L. Hite.

On April 18, 1942, the Raiders, led by James H. "Jimmy" Doolittle, flew 16 B–25Bs from the *USS Hornet* in the Pacific Ocean to bomb Tokyo. The group overcame many obstacles to complete the risky mission—flying bombers off an aircraft carrier, taking off farther out to sea than planned after being spotted by the enemy, and facing deteriorating weather conditions en route, especially nearing China. After bombing their targets in Japan, one crew landed in the Soviet Union; the others bailed out over China or ditched off the Chinese coast (see "Secret Mission," October 2012 *AOPA Pilot*).

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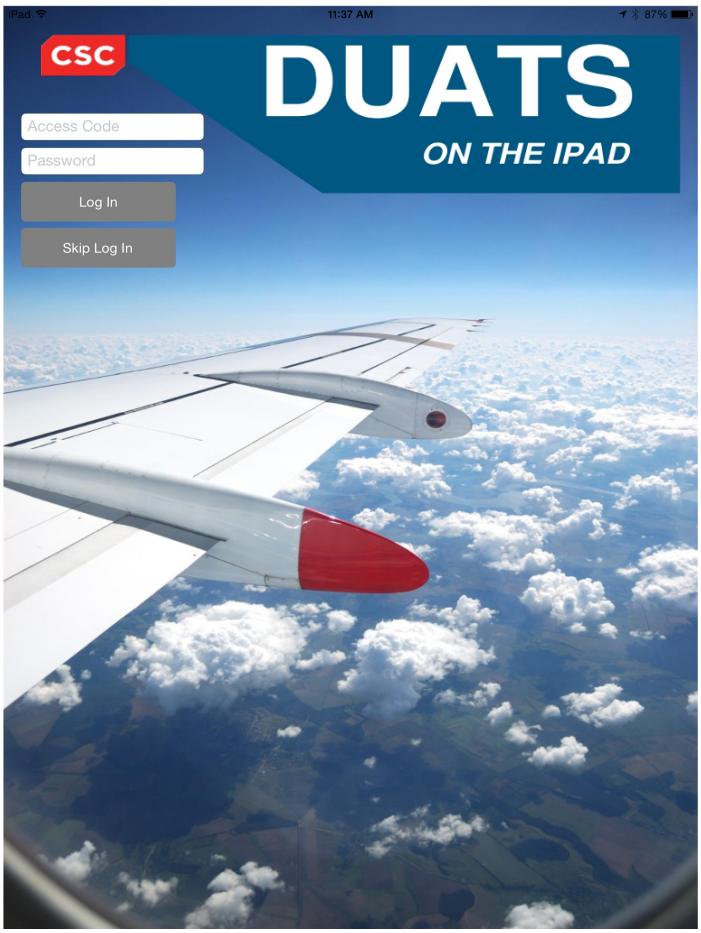
AOPA Edition August 2014



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How do I get started?

You will need a Free CSC DUATS access code and password to log in and enable the full functionality of the app. If you already have a CSC DUATS access code, you may continue on to the Apple App Store, otherwise go to www.duats.com and click on the “Create New Account” button to get an access code and password.

Hint: Once you create your account, go ahead and establish an aircraft profile. The App will automatically load all the aircraft profiles you create (or have created) on our website.

Once in App Store, search for “CSC DUATS” and download the app. After downloading it, run it and you will see our start screen shown above. Enter your Access Code and Password to log in to DUATS. The first time you run the CSC app, you will see a box asking if you would like to use your current location. By clicking “OK”, this will allow the App to find and display airports surrounding your location. Then you will see our start page where you can access all the functions. If you have any difficulty getting started, call us at 1-800-345-3828. (*continued on back)*

CSC DUATS iPad Start Screen

iPad Quick Start Guide

1. Charts - The Charts icon takes you to the start screen, the screen that you will first see. Touch this icon to get back to the chart screen at anytime.
2. Chart Selection -The Chart Selection controls the chart that you are viewing. It allows you to select Sectionals, TACS, WACs, Low Enroutes, High Enroutes or Street Maps. It also allows you to overlay the map with NEXRAD, Looping NEXRAD and/or METARS.
3. Route - This controls the route overlay that you will see on the charts. Select the "Plan Flight" button that appears in a dropdown after you have touched the Route icon. This takes you to the DUATS flight planner. Enter your proposed flight details and it will plan your flight and show the route over the chart.
4. Airport Lookup - To locate a airport quickly, enter the identifier or name/partial name. It will then center the chart to the airport you selected.
5. Split - This puts the display in split screen mode allowing you access to all functions on the top part of the split screen while viewing either Charts or Plates on the bottom part.
6. The blue dot will show your present location if you had enabled the app to use your current location during the first time your ran the app.
7. DUATS - This gives you access to all the main CSC DUATS functions available on the website. This includes the Flight Planner, all the official weather briefing types such as Standard , Outlook and Abbreviated. You can also file your Domestic Flight Plan (ICAO will be added shortly), Cancel a Flight plan (if it still exists in the CSC system) or Close a VFR flight plan (you can close a VFR flight plan with CSC DUATS regardless of who or where you initially filed your VFR flight plan.) From this screen you can also look up Preferred routes, encode any name to an identifier, and get an extended decode of any valid identifier.
8. Airport Info - This allows you to quickly access the following information about any airport:
   - Extended Decode
   - METARS and TAFS for a 25nm radius (selectable in settings)
   - NOTAMS for the Location
   - FDC NOTAMS for a 25nm radius (selectable in settings)
   - Plates
9. Plates - Allows you quick access to plates
10. History - Allows access to past DUATS functions including flight plans, weather briefings and other requests.
11. WX Graphics - View DUATS graphic maps including NexRad Radar, Surface Graphics, Forecast Charts, Constant Pressure Charts, Hi/Lo Altitude Prog Charts and Winds aloft forecast charts.
12. Settings—Allows you to modify your personal profile and modify/add aircraft profiles. Also allows you to download charts and store them locally on you iPad. HINT: This greatly improves chart drawing times and allows you to use them when you do not have access to the Internet.

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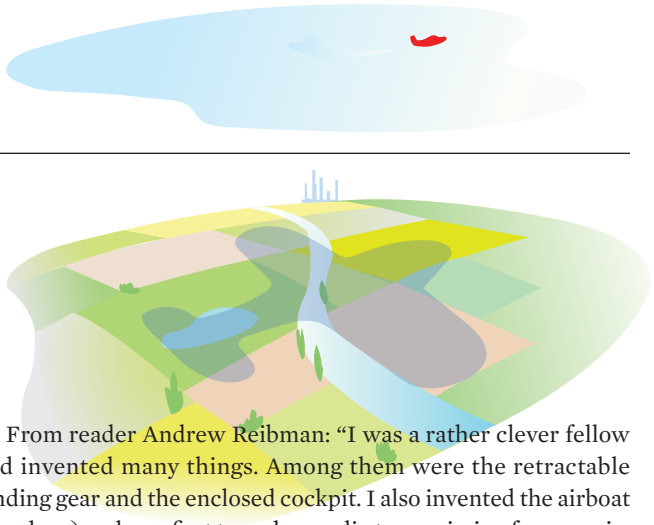

TEST PILOT | BY BARRY SCHIFF

1. From reader Gerald McKibben: During flight, a pilot observes that the size of the shadow of his airplane moving across the ground is

a. larger than the size of his airplane.
b. smaller than the size of his airplane.
c. the same as the size of his airplane.
d. The answer depends on the time of day and the height of the airplane above the ground.

2. A pilot is holding a magnetic heading of 185 degrees while on a VFR cross-country flight. To be legal, his cruising altitude must be

a. 2,500 feet agl.
b. 3,500 feet agl.
c. 4,500 feet msl.
d. 5,500 feet msl.

3. Why should automotive oil not be used in an aircraft engine?

4. When the pilot of a Lockheed SR–71 Blackbird performed a preflight inspection, he usually noted fuel leaking incessantly from all six fuel tanks. Why was this considered normal?

5. From reader Andrew Reibman: "I was a rather clever fellow and invented many things. Among them were the retractable landing gear and the enclosed cockpit. I also invented the airboat (seaplane) and was first to make a radio transmission from an airplane in flight. Who am I?"

6. True or False? The word, virga, which means rain or ice particles that evaporate(s) before reaching the ground, is an acronym (a word formed from the initial letters of other words, such as scuba and laser).

7. What was the first airline to provide passenger service in a jetliner?

8. Assume that it is currently 2359 (local time or UTC) on August 10, 2014. What will be the time a minute later at exactly midnight, 2400 or 0000?

JOHN HOLMS

ANSWERS on page 62

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WANT TO KNOW MORE?
AOPA's Guide to Starting a Flying Club is a helpful new tool that steers members through the critical steps of starting a club (download.aopa.org/pic/AOPAGuideToFlyingClubs.pdf).

FLYING CLUBS

Club appeal

Flight training with a flying club

BY BENÉT J. WILSON

PHIL WESSELL is an architect in the Washington, D.C., area. He joined the TSS Flying Club at the Montgomery County Airpark (GAI) in Gaithersburg, Maryland, in August 2013 specifically to start flight training toward his private pilot certificate.

Wessell, an AOPA member since 2011, recalls his eighth grade history teacher gave him a stack of old issues of *AOPA Pilot* magazine. "I think I read those magazines cover to cover over the summer while pestering my parents, unsuccessfully, to let me take flying lessons," he said.

The TSS Flying Club appealed to Wessell because of the benefits it offers to someone starting flight training. "Joining a club connected me with a community of other pilots and instructors with a wide variety of flying experience. I'm not sure you'd get the same social experience through a flight school," he said.

Cost was another big factor, he said. "The club charges for aircraft use based on tach time instead of Hobbs time," he said. "The club rates for a Cessna 172 are $129 per tach hour wet, which is already significantly below the cost at several of the local flight schools."

Wessell calculates he has already saved about $800 in his first 20 hours of flying when compared to what his expenses would have been at one of the local flight schools.

Wessell offered advice for those considering a path similar to his. "Make sure you do your research. In addition to running the numbers to make sure the club makes financial sense, spend some time talking to club members and going to a few club meetings to make sure the atmosphere is what you're looking for," he said. "Not all clubs are created equal. As long as you go into it with realistic expectations, a flying club can be a great way to earn your certificate."

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Pilot, wife retrace 'Flight of Passage' journey

Same Cub that author, brother flew 48 years ago

BY MIKE COLLINS

CHRIS NESIN AND HIS WIFE, April, flew across the United States in a restored Piper Cub during late June and early July. What made their journey unique is that the 1949 Piper PA–11 is the same airplane that was flown across the country in 1966 by teenagers Kern and Rinker Buck. Later, Rinker Buck penned the book *Flight of Passage,* a memoir based on their trip.

So 48 years later, the Nesins flew N4971H from the East Coast to the West Coast, retracing the Bucks' route. After a visit to the Sentimental Journey Fly-In in Lock Haven, Pennsylvania, they flew 180 nautical miles east-northeast to Candlelight Farms Airport in New Milford, Connecticut—where they met, and flew with, both of the Bucks. "There was lots of flying, both literal and hangar," Chris Nesin said. "[And] both of the Buck brothers were impressed with the rebuild—and how it flew."

Rinker Buck doesn't consider *Flight of Passage* an aviation book. "I consider it a memoir in the truer sense. It's about life," he said in an August 2013 article in *Flight Training*.

The Nesins' journey also helped raise awareness for the Austin Hatcher Foundation for Pediatric Cancer (www.hatcherfoundation.org), an organization working to restore the spirit of children and families dealing with the effects of pediatric cancer. April Nesin works there as a clinical psychologist. Chris, who learned to fly in college, works as a Cessna Citation Sovereign pilot.

They traced the Bucks' route as closely as they could. However, they did not replicate that five-day schedule. "They actually did it in four days—they spent an extra day in El Paso," Nesin said. "They flew eight hours a day, but they were also 15 and 17." He flew the Cub a solid six hours to Lock Haven, and "that was about three hours too much," he laughed. They planned to fly three to four hours per day, about 250 miles. "That actually gets us there in eight days, but I'm planning to stop for weather a couple of days."

One difference between this trip and the Bucks' 48 years ago is the need for a communications radio. "Safety-wise, we were taught to use the radio more than

they were," Nesin observed. "Personally I like the ability to go into a towered airport, so I keep a handheld radio and an antenna." He said the Bucks flew into the tower-controlled El Paso airport using light-gun signals. "I don't think they flew into any other airports that were towered then."

Chris bought his first Cub in 2000. "I got hooked on them with a friend who gave me the book *Flight of Passage*," he said. "I looked at going to the West Coast, but the 65-horse [engine] wouldn't do it." He started looking for another airplane in the spring of 2011 and that October, he received an email that the *Flight of Passage* airplane was for sale. He called to find someone from Michigan had bought the airplane—and two other Cubs. But that buyer backed out and Nesin was able to purchase N4971H.

Restoration took two and a half years. "So many people have come out to help on this project, because they wanted to be involved," he said—generosity that helped to lower his cost for the restoration. The Nesins did a lot of the cleaning. "We saved almost all of the wing parts, but it was a lot of work. It may just be the romantic in me, but I felt like I was losing history every time I replaced a part." Some key parts were replaced; for example, he upgraded to new Univair wing struts.

APRIL AND CHRIS NESIN with their Piper Cub—and dog Lenny.

Chris' "wonderful, crazy 73-year-old mother" drove a camper along the route. She carried bags and their dog Lenny, who loves to fly. His mom is "the unsung hero," Chris said.

See photos, videos, and a trip blog online (www.supercub.org/cms).

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PILOT PRODUCTS

Birds, begone

Flock Buster repels with bad taste and smell

BY JILL W. TALLMAN

FEW THINGS are more annoying than finding telltale signs that birds have moved into your hangar—or your airplane. And it's not just the annoyance factor of cleaning up. Nesting materials in engine compartments can block airflow to cylinders or the oil cooler. You can put out rubber snakes and plastic owls and hope for the best, or you can try an environmentally friendly product used at airports, marinas, and parks.

Flock Buster's recipe, which includes plant extracts and oils, is designed to repel birds through its taste and smell. You mix the solution with water and apply it with a hand or backpack sprayer to areas where birds nest, congregate, or feed. For a hangar, you may need a ladder or even a bucket lift to reach beams. For aircraft kept outside, you can apply it to the ground, or even directly to the airplane—it won't harm paint. The manufacturer recommends that you avoid getting the product on static ports, windows and glare screens, and air vents.

I had noticed increased bird activity near my hangar this year, and discovered evidence that birds had taken up residence. I sprayed Flock Buster inside the hangar with a hand sprayer using a recommended 50:1 concentration, and reapplied a week later. The product seems to have had an effect: No new splotches, feathers, or other signs yet. The pigeons and starlings that brazenly fly into my hangar every time I open the door haven't reappeared, either. I plan to continue applying Flock Buster throughout the fall and start up again in the spring—and with a two-year shelf life, Flock Buster will be ready when the birds return.

Flock Buster proved effective against large numbers of geese and seagulls when used in conjunction with harassment techniques at an airport in Devils Lake, North Dakota. Birds had been nesting and feeding within the approach zones to Devils Lake Regional Airport (DVL). Their numbers were reduced dramatically over a three-year period, to the point that there were so few geese in certain areas that airport personnel had begun to name them. Flock Buster is said to be effective on pigeons, starlings, crows, geese, swallows, blackbirds, woodpeckers, and other birds. Additionally, the formula includes a deer and rodent control additive.

EMAIL jill.tallman@aopa.org

PRICE: $23.50 (8 ounces)
CONTACT: www.flockbuster.com

'Dragon Lady' stops traffic

FAA says computer problem identified, resolved

BY JIM MOORE

SHE MAY BE PUSHING 60, but the "Dragon Lady" can still stop traffic. The FAA's new air traffic control computers forced a temporary ground stop that affected thousands of travel plans last spring.

A U–2 flight plan caused the software glitch that affected air traffic in, and into, Southern California and Nevada, forcing a ground stop that affected flights around the country. The trouble was the most publicly visible snafu for a new system that has been set back by cost overruns and delays. The En Route Automation Modernization (ERAM) computer system, contracted originally at $2.1 billion, is a major upgrade to the FAA's 40-year-old routing system—and a critical component of the NextGen airspace modernization program.

Ironically, Lockheed Martin is both the primary contractor building the new computer system and the builder of the U–2. The U–2 first flew in 1955 and remains in service with the U.S. Air Force and NASA, which operates a civilian variant known as the ER–2. The U–2 is capable of flying above 70,000 feet (the actual service ceiling remains classified), and the April 30 flight plan was filed for 60,000 feet, well above the crowded air routes. The computer system interpreted the mission as a VFR flight with an altitude below 10,000 feet.

The Los Angeles Air Route Traffic Control Center computer system went down for nearly an hour, and halted flights in the region, along with flights destined for Southern California and Las Vegas. More than two dozen flights were canceled, more than 200 were delayed, and thousands of passengers were affected, along with an unknown number of general aviation flights.

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GA in China

Quicksilver signs Chinese distributor

BY ALTON K. MARSH

YET ANOTHER AMERICAN aviation firm has struck a deal with a Chinese company. Quicksilver Aeronautics says it has a distribution agreement resulting in an order for 77 Light Sport aircraft. The first two aircraft were completed at Quicksilver's Temecula, California, factory and will be shipped to China for final assembly, testing, and training of Chinese technicians.

The order includes 30 Sport 2SE models and 47 GT 500 models.

The deal was signed with the JH Nanning Group and the Provincial Government of Guangxi, on the border with Vietnam, for the development of GA in southern China. As part of the distribution agreement, JH Nanning Group is the exclusive distributor of Quicksilver in China. Negotiations were with Liang Ming, president and CEO of Guangxi Jihang General Aviation Company, and Quicksilver Aeronautics President and CEO Will Escutia.

There are plans to consider manufacturing aircraft components in China and to do research and development at a new China Aeronautical University under construction.

Quicksilver joins a growing list of American companies with connections to the People's Republic of China. Successful collaborations include Cirrus Aircraft and Continental Motors, although deals with Sherpa Aircraft and Liberty Aircraft failed. Zenith Aircraft has shipped 45 kits to China.

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THIS MONTH ON THE AOPA JAY

EAA AirVenture Oshkosh Fisk VFR arrival
Flying to AirVenture in Oshkosh is a bucket-list item for many pilots. Whether you want to practice for the real thing, or just try the arrival out for yourself, you can—even before the show—on your AOPA Jay.

You'll fly the Fisk VFR Arrival in a Cessna 172 with EAA's Hal Bryan in the right seat. He'll handle the radios, and help you out as you make your way to OSH.

The flight starts in the air, seven miles south of Ripon, headed north at 1,800 feet. You'll fly over photorealistic scenery provided by MegaScenery-Earth, and join the arrival at Ripon. Listen for the controllers at Fisk and follow their instructions. You'll be expected to land on the assigned runway on the assigned dot—just like the pilots flying into Oshkosh this year for real.

EXTRA

Don't have your AOPA Jay yet? Find out more online (www.aopa.org/Products-and-Services/About-the-Jay).

CIVIL AIR PATROL WINS CONGRESSIONAL GOLD MEDAL

THE CIVIL AIR PATROL has received a Congressional Gold Medal one year after it was first approved by the Senate. Sen. Tom Harkin (D-Iowa) introduced the legislation in February 2013.

The CAP was founded December 1, 1941, a week before the bombing of Pearl Harbor. Within three months, CAP members were using their own airplanes to fly anti-submarine missions off the East and Gulf coasts, where German U-boats were sinking American ships carrying oil and other vital supplies to the Allies.

By the time that mission ended August 31, 1943, CAP's coastal patrols had flown 86,685 missions totaling 244,600 hours. Seventy-four airplanes sent out from coastal patrol bases crashed into the water; 26 CAP members were killed.

Swearingen heads west

Renowned aircraft designer and engineer left lasting mark

BY JIM MOORE

EDWARD SWEARINGEN BEGAN dreaming about airplanes as a boy, and displayed an early genius as a mechanic and engineer, largely self-taught. He adapted Bill Lear's groundbreaking F-5 autopilot for general aviation piston aircraft—among many design contributions to GA aircraft from major manufacturers—and went on to design 30 original aircraft. His thirty-first design was on the drawing board when Swearingen died May 15 at age 88, following complications from surgery.

Swearingen launched his first company, Swearingen Aviation, in 1958, and quickly attracted a list of clients including Piper Aircraft Co., Bell Helicopter, Lycoming, and Pratt & Whitney, earning an international reputation as a go-to designer for innovative modifications and development.

Swearingen's own designs ranged from commercial airliners (including the Metroliner) to business jets. He sold a 90-percent share of his first company to Fairchild in 1972, and continued to serve as chairman of the board of the resulting subsidiary; in 1973 he founded a new firm to focus on aircraft modification; in 1986, he formed Swearingen Engineering and Technology to market a groundbreaking business jet design, the SJ30.

That design lives on and a new company aims to bring it to market. The SJ30, Swearingen's final completed design, offers performance that remains competitive with modern aircraft.

"The success of the SJ30 was all about getting the best possible balance of the wing shape, engines, aerodynamics, and overall design. Our performance isn't magic; it is simple, well-applied technology," he said.

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Mini-me plane nears Light Sport certification

AIRPLANES COST too much, most of us agree, so here is one that fits the original promise of a $60,000 Light Sport aircraft. The Czech-designed Skycraft SD-1 Minisport costs $54,850 ready to fly. All flight testing is complete and the FAA was expected to work it into its approval schedule as early as July.

Four have been ordered and a dozen are in production at the Orem, Utah, factory 40 minutes south of Salt Lake City. Charts showing the range of the tiny aircraft, with a 20-foot wingspan, indicate you could take off from Chicago and make it to anywhere in Kentucky, or leave New York and reach southern Virginia, or depart Los Angeles and arrive in Las Vegas with a comfortable fuel reserve.

There's only room for one person, so Skycraft officials are busy choosing a two-seat trainer of another model that most closely approximates the handling qualities of the Minisport. Also, that one person can't weigh more than 230 pounds, another reason to stay on that diet you ignore and activate the exercise plan that never quite got going. You can carry 23 pounds of baggage. The cabin is 20 inches wide and wings are removable. A 50-horsepower Hirth engine powers this 96-knot aircraft, which is limited to a 10-knot crosswind. *—Alton K. Marsh*

The DA62

Diamond 'rebrands' top-of-the-line twin

BY ALTON K. MARSH

EARLIER THIS YEAR Austrian-based Diamond Aircraft officials said they were headed for "preliminary" certification of the DA52, their top-of-the-line light twin, by the end of 2014 with full certification in 2015. However, when it is finally certified the name will be the DA62, rather than the DA52. A company official said it has been rebranded with the new model name to give it separation from the four-place DA42. Aircraft company officials want the five-place model to be seen as competition for the Beechcraft Baron. Sometime in the future the DA62 might be expanded to a six- or seven-seat aircraft, Diamond officials in Canada said. (The DA62 is in development in Austria.)

Certification in Europe is not expected until the first quarter of 2015, with FAA certification to follow under an international agreement.

It isn't the exact same model. Aerodynamic tweaking has allowed the airspeed claim to be increased from 190 knots true airspeed to 200 knots true airspeed. Part of that tweaking includes, according to a photo released by the company, a salmon-shaped tube in the center of the T-tail's horizontal stabilizer. It will still be equipped with 168-horsepower Austro AE300 diesel-fueled engines, modified to produce 180 horsepower—as was the case with the DA52. The company is in joint development of a 280-horsepower AE500 diesel engine. The Austro-Steyr AE500 is based on an automotive and marine engine designed by Steyr Motors, also located in Austria. That engine will require time to develop and won't be offered on the DA62.

Dealers in the United States were caught off-guard by the change in model number, one saying he was as surprised as the general public.

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TEST PILOT ANSWERS

from page 50

1. c.) The sun is so far from the Earth (93 million miles) that the rays of the sun defining the shadow are considered parallel to each other.

2. a.) Cruise altitude is determined by magnetic course. Because this aircraft has a magnetic heading of 185 degrees, and the amount of drift (wind correction) is unknown, there is no way to know if the magnetic course being flown requires an "even +500" or an "odd +500" altitude. Consequently, the only altitude listed that is guaranteed legal is the one below 3,000 feet agl, where the regulations do not require a relationship between altitude and direction of flight.

3. Aircraft engines operate at much higher cylinder-head temperatures than do automobile engines. As a result, the additives in automotive oil can form ash deposits in aircraft cylinders that can lead to hot spots, sticking valves, piston holes, and other problems.

4. Components of the SR-71 (including its fuel tanks) fit loosely when the aircraft was on the ground. At cruise speeds of 2,000 knots, air friction increased skin temperature to as much as 600 degrees Fahrenheit. Such heating caused components to expand, thereby sealing the fuel tanks and preventing in-flight leakage.

5. "I am aviation pioneer Glenn Curtiss. I did these things before retiring in 1920."

6. False. Virga is derived from a Latin word meaning spray. The notion that virga is an acronym derived from something like Variable Intensity Rain Gradient Aloft is a myth.

7. British Overseas Airways Corporation (BOAC) departed London for Johannesburg on May 2, 1952, using the world's first jetliner, the ill-fated de Havilland DH 106 Comet.

8. Either is correct as long as it is associated with the correct date. The time can be stated as 2400 on the day just ending (August 10) or 0000 on the day just beginning (August 11).

Colorado pilot earns spot in French air race

A PILOT FROM COLORADO who speaks three languages and recently became a flight instructor will soon be on her way to France to fly in the Tour Aérien Des Jeunes Pilotes, her expenses paid by the International Council of Aircraft Owner and Pilot Associations (IAOPA).

Kayla Graham, 23, of Centennial, Colorado, was selected from a pool of 34 qualified applicants by AOPA, IAOPA, and the Fédération Française Aéronautique. The organizations had sought applications from American pilots interested in flying in the 2014 race. Graham's roundtrip airfare to France, airplane rental for the race, and other expenses will be covered. She will fly with an English-speaking French flight instructor.Forty pilots between ages 18 and 24 will take part in the Tour Aérien Des Jeunes Pilotes July 19 to August 3. The event, in its fifty-seventh year, seeks to inspire the next generation of pilots and promote general aviation in France. Representatives of the Fédération Française Aéronautique visited AOPA in May 2013 to discuss the history of the race, which is made possible by volunteers, experienced pilots, and flying clubs.

Graham works for Jeppesen, maintaining terminal approach charts (in the Australia quadrant), A language major in college, Graham has conversational command of French and Spanish. As "a language nerd before I ever got into aviation," she sees the trip as a rare opportunity to combine her twin passions for linguistics and aviation in a single activity.

In May she earned her flight instructor's certificate and joined the instructors' ranks of the Aspen Flying Club flying from Centennial Airport in Englewood, and Front Range Airport in Denver.

"It is the proudest I have felt yet with my flight accomplishments," she said of becoming a CFI. "I really love instructing."

—Dan Namowitz

Electric power

An auspicious time for quiet aircraft

BY JIM MOORE

WITH THE PIONEER AGE of electric aircraft now well under way, attention has turned to practical applications.

Solar Flight is testing the Sunseeker Duo, a two-seater powered by the sun. It was flown by Eric Raymond, who has been working on solar aircraft for 25 years with his wife, Irena Raymond.

In Bordeaux, France, Airbus Group (the new name for Airbus parent EADS, pending final approval of the change) is also testing an electric aircraft. The E-Fan has motors, two seats, and runs entirely on batteries, testing concepts that will pave the way for short-haul airliners able to run on swappable batteries that can be changed out at the gate in about as much time as it takes to unload luggage. Advanced materials and systems also power *Solar Impulse 2*, the around-the-world successor to *Solar Impulse,* which captured attention on a high-profile mission across the United States in 2013.

CAFE Foundation President Brien Seeley said in Santa Rosa, California, his organization hopes to replicate its 2011 Green Flight Challenge in the near future, leveraging another cash prize (or prizes) to stimulate a fresh wave of electric aircraft development. Seeley said the CAFE Foundation founders did not imagine that electric aircraft would fly so far, so soon.

"It's been fortuitous to be riding this tsunami," Seeley said.

For now, the endurance limit remains around an hour for various light aircraft designs currently flying on battery power. The Sunseeker Duo can cruise up

to 12 hours with two people on board, the Raymonds announced, relying on a combination of 1,510 solar cells and batteries that boast 23-percent efficiency for power.

"The lithium batteries today have seven times more capacity than the nickel cadmium batteries we used in Sunseeker I," Eric Raymond said in a press release. "When we first sketched the concept for this airplane, we couldn't imagine solar cells with greater than 20-percent efficiency. These technologies are a dream comes true."

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Second launch

Swearingen design gets update

BY JIM MOORE

THE ELUSIVE SYBERJET SJ30, a sleek, fast, high-flying light jet with long range and distinctively bowlegged mains, may soon make believers of those made skeptical by the two-decade wait. Only four have ever been sold, one to actor Morgan Freeman, who joined SyberJet Aircraft officials in May for a groundbreaking ceremony in Cedar City, Utah, where a completion and delivery center—the first phase of a factory master plan—is scheduled to be online by year's end.

Freeman will be the launch customer (or re-launch customer, arguably) for an updated version of the SJ30 being prepared for certification of significant updates to the design that Freeman purchased in 2009. Deliveries of the SJ30i, equipped with Honeywell-designed SyberVision avionics—including synthetic vision and other modern features—and a new interior, are expected in 2015 with an engine update to follow in 2017.

Those stand to be milestones in an aircraft history that stands out for long endurance in the absence of significant success.

The SJ30—previously known as the SA–30, the Gulfstream Gulfjet (Gulfstream's involvement ended in 1989), the SJ–30 and the SJ30–2—was conceived by the late Ed Swearingen (see page 60), and was rolled out at the 1991 Paris Air Show. It remained in the prototype stage for the remainder of the decade, and suffered the loss of test pilot Carroll Beeler in 2003. The NTSB determined in 2005 that the probable cause was the manufacturer's incomplete research on high-speed

SET A REMINDER

As a part of its year-long fly-in schedule, AOPA is again hosting visitors at its Frederick, Maryland, headquarters October 4, 2014. AOPA's "Homecoming" Fly-In will feature all of the events that are taking place at regional fly-ins this summer—seminars, guest speakers, aircraft displays, great food, and family fun.

stability. Changes had been made, and in October 2005, the office of Sen. Jay Rockefeller (D-W.Va.) celebrated FAA certification of the "first new American corporate jet manufactured and designed from scratch in 45 years."

The type certificate and other assets that became SyberJet Aircraft were purchased out of bankruptcy in 2011 by MSC Aerospace, a company created for the purpose by Metalcraft Technologies, which has supplied the majority of the SJ30's parts and assemblies since 1997.

Mark Fairchild, general manager of SyberJet Aircraft, declined to name a price for the updated design, which retains the 2,500-nautical mile range, seating for seven (including the pilot), and 12-psi cabin pressurization system able to maintain sea-level pressure up to 41,000 feet. The SJ30 can cruise at Mach 0.83 (486 knots), throttling back to Mach 0.76 to reach its range potential. Media coverage of the National Business Aviation Association convention in 2013 included a fresh wave of SJ30 anticipation, with an expected price tag of the updated model reported at $7.25 million.

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For more information on Frederick's Homecoming fly-in and all of this summer's regional fly-ins, visit the website (www.aopa.org/fly-ins).

Fly-Ins

VIDEO EXTRA
See the action in Indy in this online video.

INDIANAPOLIS BY THE NUMBERS	
2,300	Attendees
539	Aircraft
160	Volunteers
38	Campers
37	Exhibit booths
36	Aircraft display
2,400	Pork tenderloins cooked
94	Rusty pilots learning how to get back into aviation

Indianapolis Fly-In

'It doesn't get any better than this'

BY ALYSSA J. MILLER

THREE DOZEN pilots camped under their wings at Indianapolis Regional Airport the evening before the second AOPA Regional Fly-In of the year. Another 500 aircraft and more than 2,000 attendees joined May 31, including students pilots; families with generations of pilots; and area pilots, EAA chapters, and Civil Air Patrol members who volunteered to cook, direct traffic, and park airplanes. "I like to be with my airplane, kick back, and enjoy the flying experience," AOPA member and fly-in volunteer Michael Pastore said of camping with his Cessna 140. "It doesn't get any better than this."

The busy arrival on Saturday was "like a mini-Oshkosh," tweeted Sporty's Vice President John Zimmerman, who led a seminar about flying with the iPad. The arrival wasn't the only part of the fly-in reminiscent of Oshkosh—so were the attractions. Attendees took in a static display, exhibit hall, warbird rides, and educational seminars. The Trojan Horsemen performed a three-ship T–28 Trojan formation flyover, while airshow pilot Billy Werth wowed the crowd during an aerobatic performance in a Birchler Boyd Eagle 540.

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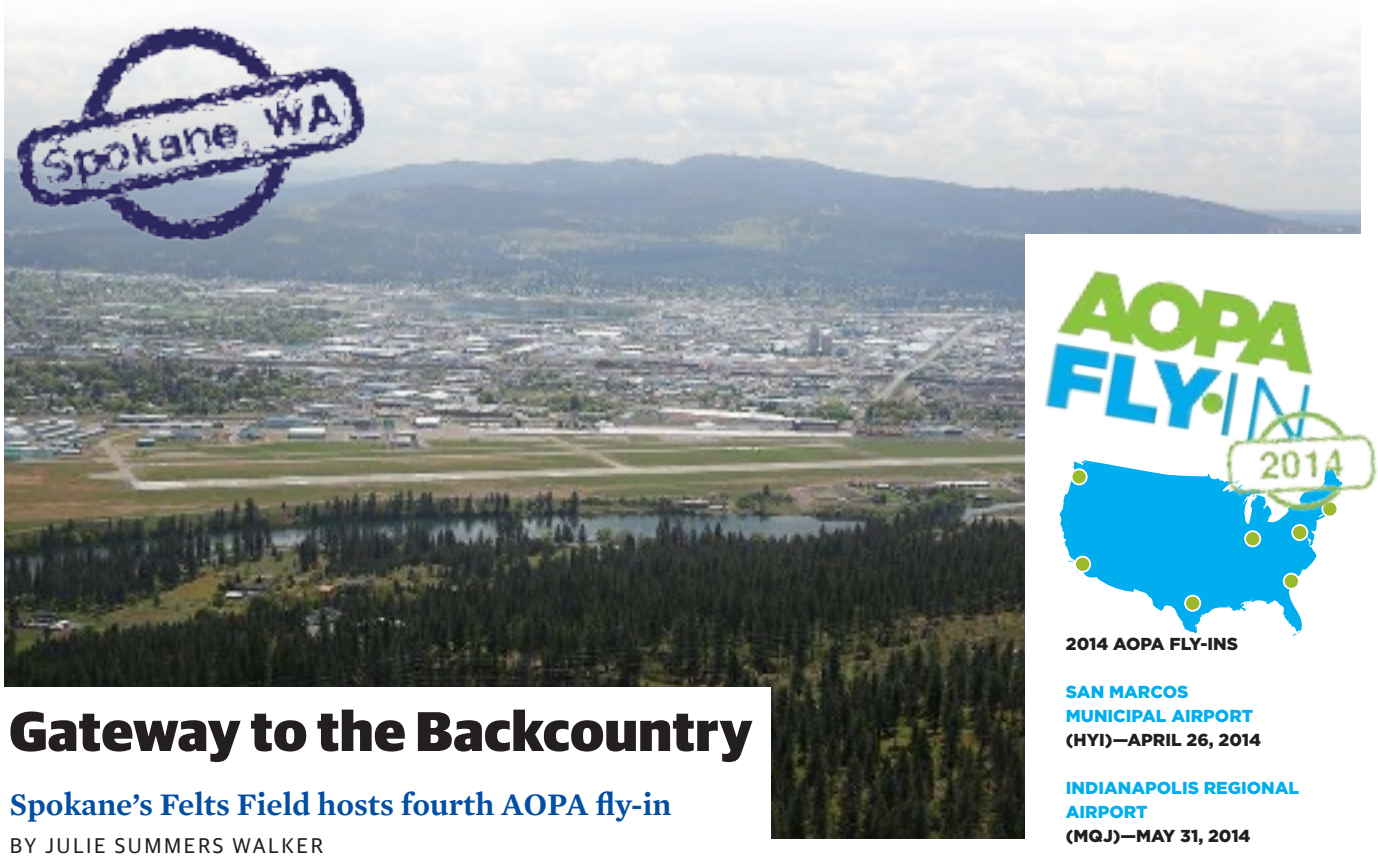

Gateway to the Backcountry

Spokane's Felts Field hosts fourth AOPA fly-in

BY JULIE SUMMERS WALKER

AVIATION in the West started at places such as Spokane's Felts Field (SFF). The historic airfield was once known as Parkwater because it is situated along the south bank of the Spokane River. In 1927, Charles Lindbergh visited the field and inspired the organization of the National Air Races, which were held in Spokane that summer. Jimmy Doolittle started the event with an aerobatic display.

The Northwest's largest theme park is located just 47 miles from Spokane. Silverwood Theme Park is on the site of the former Henley Aerodrome. Spokane businessman Gary Norton bought the airstrip in 1981 and kept his antique and vintage aircraft collection there. When he opened a theme park in 1988, he hosted daily airshows. One of the performers was aerobatic pilot Bob Heale, who was a flight instructor based at Felts Field. He was killed when his CAP-10B crashed at an airshow at nearly Fairchild Air Force Base. His aircraft is part of a memorial to him near the Felts Field terminal building. Silverwood stopped its airshows soon after. The park has 70 rides, slides, and attractions, including four roller coasters.

If you're visiting here for AOPA's fourth 2014 fly-in, you'll delight in the beauty of the area. Crystal-clear rivers and rugged landscape define the great Northwest. Spokane is just 25 miles from Lake Coeur d'Alene in Idaho. The Spokane River is a 111-mile tributary of the Columbia River, which originates from 25-mile-long Lake Coeur d'Alene.

Coeur d'Alene Airport (COE) is also known as Pappy Boyington Field, named for World War II ace Gregory "Pappy" Boyington, who was born in Coeur d'Alene.

The Spokane River, which runs behind Felts Field, is overlooked by the Minnehaha Rocks and nearby Centennial Trail. Mt. Spokane—at 5,883 feet—also overlooks the field. Spokane is named for the Native Americans here, known as Children of the Sun. They fished and lived along the Spokane River and caught salmon in the Spokane River Falls; in Riverfront Park, the falls are spectacular.

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WWW.AOPA.ORG/FLY-INS
AOPA Fly-In takes place August 16 at Felts Field in Spokane, Washington.

2014 AOPA FLY-INS

SAN MARCOS MUNICIPAL AIRPORT (HYI)—APRIL 26, 2014

INDIANAPOLIS REGIONAL AIRPORT (MQJ)—MAY 31, 2014

PLYMOUTH MUNICIPAL AIRPORT (PYM)—JULY 12, 2014

FELTS FIELD, SPOKANE (SFF)—AUGUST 16, 2014

CHINO AIRPORT (CNO)—SEPTEMBER 20, 2014

FREDERICK MUNICIPAL AIRPORT (FDK)—OCTOBER 4, 2014

MALCOLM MCKINNON AIRPORT, ST. SIMONS ISLAND (SSI)—NOVEMBER 8, 2014

FELTS FIELD runways border the Spokane River (top). A memorial to aerobatic pilot Bob Heale (above).

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AOPA AVIATION FINANCE

'We fly the old stuff'

Pemberton & Sons Aviation bring aircraft back to life

BY JULIE SUMMERS WALKER

PHOTOGRAPHY BY CHRIS ROSE

WE STUMBLED upon Addison Pemberton at Spokane's Felts Field on a sunny May afternoon. Scouting for stories about the historic field for AOPA's preview of the Washington airport before the association's fourth 2014 fly-in, there was Pemberton climbing into a 1931 Laird Commercial for a test flight with his friend Larry Howard. Howard had just finished the restoration and Pemberton was happy to test-fly it with him. This is a little unusual—usually it's Pemberton who has done the restoration.

Pemberton & Sons Aviation has been restoring very, very old aircraft at Felts Field for more than 20 years. Sons Jay and Ryan, along with wife and mother Wendy, support Pemberton—an engineer—in his labors of love. Jay and Ryan's wives also participate. Hangars 65 and 66 at Felts Field contain an amazing collection of memorabilia, works in progress, fabric, gear, signage, wheels, tires, engines—you name it—to help in the family projects. There's even a couple of double beds for when the work lasts into the night.

Pemberton is probably most famous for the restoration of a 1928 Boeing 40, an airmail carrier that crashed in Oregon in 1928. The aircraft had been left derelict in the Oregon mountains for more than 80 years when Pemberton bought its parts and frame from the Oregon Aviation Historical Society for $5,000 and a propeller. Wife Wendy said he didn't buy a project, he "brought home DNA."

The seven-year, 60-volunteer restoration resulted in the oldest flying Boeing airplane and the only flying Boeing 40. Pemberton has restored more than 16 aircraft, including a Beechcraft D–17, 1942 Grumman Goose, Travelair 4000, Waco EQC–6, and 1929 Stearman 4DM Sr. Speedmail. The company's motto is "We fly the old stuff."

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LARRY HOWARD restored a 1931 Laird Commercial (top left and right). Addison Pemberton (center right). Pemberton & Sons Aviation hangar (bottom right).

Spokane

AOPA FLY-IN Spokane, WA

Rolling out the welcome mat

Welcome to the blue skies and green forests of the central Pacific Northwest. Spokane's Felts Field is situated along the Spokane River and flanked by rolling hills dotted with pine and fir trees. This historic airfield opened in 1910, welcomed Charles Lindbergh in 1927, once served as the city's municipal airport, and is now home to an active general aviation community that is anxious to welcome visitors to AOPA's fourth 2014 fly-in on August 16.

AN HISTORIC Chevron sign greets vistors to Felts Field.

Event Schedule

A variety of events and activities will be available for AOPA members, pilots, and aviation enthusiasts. Airport camping is available.

FRIDAY
6:30 P.M. TO 9 P.M.—Rusty Pilot Program

SATURDAY
8:30 TO 10 A.M.—Pancake Breakfast
9 A.M. TO 4 P.M.—Exhibits and Aircraft Display open
10:30-11:30 A.M.—Seminars, Safety Briefings
11:30 A.M.—Lunch begins
1:30 TO 2:30 P.M.—Seminars, Safety Briefings
2:45-3:30 P.M.—Pilot Town Hall with AOPA President Mark Baker
4 P.M.—Fly-In concludes

RSVP and reserve your lunch tickets (www.aopa.org/fly-ins).

Spokane

A river runs through it

EAA CHAPTER 79 has a welcoming clubhouse in its hangar on Felts Field. Expect to enjoy great hospitality here and a lot of hangar flying and storytelling time. In addition to the clubhouse, there's lots of memorabilia, fun aviation collections, and working restoration bays in the hangar.

SPOKANE'S FELTS FIELD (SFF) has a little bit of everything for the aviation enthusiast. The historic airstrip features beautifully renovated terminal and hangar buildings, a 4,500-foot-long runway, 6,000-foot seaplane landing area, a delightful diner serving breakfast and lunch, and is home to renovators and collectors of historic aircraft.

AT HOME WITH HISTORY

Felts Field is one of the first airstrips established in the West. Aviation started here in 1910 with Curtiss biplanes flying, including a Pusher flown by Cromwell Dixon, who was the nation's youngest pilot at that time. He was the first to fly across the Continental Divide and died in a crash in Spokane in 1911. The first air mail and commercial flights began here, and Felts Field was distinguished as the home of the 116th Observation Squad of the Washington Air National Guard.

Most of the airfield's original buildings have been restored. The hangar that once served the 116th Squadron is owned by the Spokane Turbine Center and leased to Moody Aviation's maintenance training school. You can see the squadron's insignia—an ace of spades with a dagger through the center—still on the outside of the building.

The airport terminal building was constructed in 1932 and is listed on the National Historic Register. A 40-foot-tall art deco clock tower sits on a 14-square-foot base near the terminal building. It is dedicated to Lt. Nick Mamer, who set a world record for nonstop distance in *Spokane Sun-God*, a Buhl Sesquiplane—and developed practices that established the basic technique used in today's in-flight refueling procedures.

NATURAL WONDERS

On the south bank of the Spokane River, four miles from the city center, Felts Field sits comfortably amid the Pacific Northwest's natural wonders. Across the river from Runway 4L/22R is the 300-foot tall Minnehaha Rocks, frequented by rock climbers and hikers.

Spokane is named for its Native American tribe, "Children of the Sun," who made their home along the Spokane River. The Spokane Falls offered abundant salmon runs. The majestic Spokane River Falls today are spectacular, especially in the spring as runoff and high water crash over the indigenous basalt rock

formations. Gondola rides are offered along the falls.

AT THE FLY-IN

EAA Chapter 79 is an active group at Felts Field. Its recently refurbished hangar will be open to visitors and the chapter will host the fly-in breakfast. Food trucks from the Spokane area are expected to feed hungry fly-in attendees at lunch.

Hangar talks

AOPA President Mark Baker will host a Pilot Town Hall, providing updates on the association's many efforts to keep flying affordable, safe, and fun.

VOLUNTEERS NEEDED!

Contact www.aopa.org/fly-ins/volunteers

EVENT SPEAKERS

Mark Baker, AOPA President and CEO
Pilot Town Hall
Mark took office as AOPA's fifth president in 2013. An accomplished general aviation pilot, he began flying at the age of 16. He has owned numerous aircraft over the years, including a Beech 18 on floats. A native of Minnesota, he is an avid seaplane pilot. He has more than 7,500 hours and holds multiple ratings.

Bruce Landsberg, AOPA Foundation President
"Weather Challenge"
Bruce leads the AOPA Foundation, which funds the work of the Air Safety Institute. The organization is nationally recognized, with numerous awards on aviation safety leadership and educational program excellence. He writes the monthly "Safety Pilot" column in *AOPA Pilot* magazine, has a weekly blog, and is a frequent seminar and webinar presenter.

Mike Busch, CEO of Savvy Maintenance Management, Inc.; A&P/IA
"How Healthy is Your Engine?"
Mike is arguably the best-known A&P/IA in general aviation. In 2008 he was honored by the FAA as National Maintenance Technician of the Year. He writes a monthly "Savvy Aviator" column on maintenance-related subjects on the AOPA Opinion Leaders Blog.

Rod Machado, AOPA's National CFI Spokesman
"Yoke and Pedal—The Lost Art of Flying an Airplane"
Rod is on a one-man mission to keep the fun in learning. He wrote and co-anchored *ABC's Wide World of Flying.* He is a columnist for AOPA Pilot and Flight Training magazines and is the flight instructor on *Microsoft Flight Simulator* and has written several books, including *Rod Machado's Private Pilot Handbook* and *Plane Talk.* Rod has an ATP and all fixed-wing flight instructor ratings.

Tom George, AOPA Alaska Regional Manager
"Flying to Alaska"
Tom works with government agencies and industry groups to promote GA on behalf of AOPA members in Alaska. He serves on the governor's Alaska Aviation Advisory Board, the Denali National Park Overflights council, and a number of other advisory groups. He owns a small business that acquires aerial photography for scientific and industrial applications with his Cessna 185.

TOP 10 REASONS TO VISIT SPOKANE

1 **FELTS FIELD—**Named for Lt. James Buell Felts, who was killed in an accident near what was then Parkwater Airport (on the south bank of the Spokane River). It served as the municipal airport in the 1930s and '40s and is now on the National Register of Historic Places.

2 **SPOKANE FALLS AT RIVERFRONT PARK—**Paths follow the country's second largest urban waterfalls. Spectacular views of water crashing over indigenous basalt rock formations.

3 **GONDOLA RIDES—**View the Spokane Falls from a gondola that swoops down to the edge of the falls.

4 **SPOKANE TURBINE CENTER—**Provides training to pilots and mechanics in technologically advanced turbine-powered aircraft, in an historic 1930s building restored in 2009.

5 **MOODY AVIATION MAINTENANCE TRAINING SCHOOL—**Headquartered in one of the largest steel and brick hangars in the U.S. built in 1934 for the National Guard.

6 **MAMER MEMORIAL CLOCK—**This 40-foot-tall art-deco clock structure was built in 1939 to honor Spokane aviator Lt. Nick Mamer.

7 **EAA CHAPTER 79 CLUBHOUSE—**Recently renovated hangar houses EAA Chapter 79 clubhouse and meeting area. Historic memorabilia, restoration facilities, and charming game room.

8 **SKYWAY CAFÉ—**Heaping plates of delicious diner food served in a perfect plane-watching café attached to the terminal building.

9 **ARBOR CREST WINE CELLARS—**Historic Cliff House Estate overlooks Felts Field and now home to an award-winning wine cellar.

10 **SPOKANE CENTENNIAL TRAIL—**Bike, walk, or jog on a smooth paved trail along the Spokane River 14 miles east to the Idaho state line.

On a mission

Spokane Turbine Center trains missionaries

DENNIS ELROD SPENT FIVE YEARS AS A MISSIONARY PILOT OVERSEAS, flying in desolate areas in Indonesia, providing critical services for missionaries serving in remote areas. He then trained missionaries at Moody Aviation. The rugged Pratt & Whitney PT6-powered Quest Kodiak proved to be a trusted steed for missionary pilots and so it has become the new breed of bush aircraft. The Spokane Turbine Center was established in 2007 as a training center for Kodiak turboprop aircraft equipped with the Garmin G1000. Elrod is the center's chief executive officer.

"These airplanes are a tool; they bring precious cargo of missionaries, supplies, government workers, health workers, and needed supplies to isolated people in remote locations," says Elrod. The mission of the Spokane Turbine Center is to provide high-quality, cost-effective turbine training in technologically advanced aircraft to the mission aviation community.

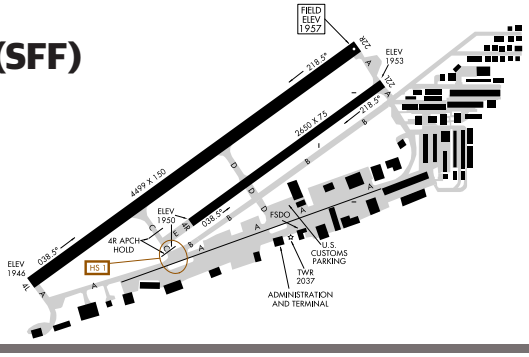
STC offers interactive G1000 training, hands-on PT6 training, Kodiak full-motion simulator training, and flight training in its Kodiak 100.

Spokane Turbine Center is located in one of two original hangars on Felts Field. The hangars were constructed in three different phases between 1926 and 1934. The center building has STC's offices, the G1000 classroom, simulator bay, and library. The hardwood floor in the library is original. When renovations were started in 2009, these rooms all were in their original state.

The National Guard hangar was built in 1934 and was then described as "the most modern hangar in the country." It was one of the largest steel-and-brick hangars in the United States. It was remodeled in 2011/2012 for the Moody Aviation's maintenance training school.

Spokane Felts Field (SFF)

Location: Four miles northeast of the city
Pattern altitude: 2,953 msl all aircraft
Runways: 4L/22R 4,500 feet by 150 feet; 4R/22L 2,650 feet by 75 feet; Seaplane 3W/21W 6,000 feet by 100 feet



FLY-IN TIPS

- **Watch for tall towers on the mountain.** If you are flying in from the west, you may be routed over Cheney and you're headed for Tower Mountain.
- **Be aware of overflying the Class C airspace.** Spokane Approach is very helpful and eager to provide radar services to Felts Field during the event.
- **Beacon Hill is located just north of the airport, and obscures the airport from aircraft arriving from the north.** Pilots are strongly encouraged to be in communication with ATC in advance of arrival.
- **Special Flight Procedures** will be available two weeks prior to the event. Download the link (www.aopa.org/fly-ins).

AOPA FLY-IN 2014

Find an AOPA Fly-In near you!
aopa.org/fly-ins

It's about the thrill of **Flying**...checking out aircraft displays...riding in a vintage plane

enjoying an aerial demonstration...catching up with old **Friends**...meeting new ones

getting to know AOPA's president Mark Baker...

enjoying good **Food** like a stack of pancakes and a burger hot off the grill...

the **Fun** of shopping for the latest new products

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Soul-stirring airplane

Carbon Cub splashes in

LIKE A DUCK that switches from sitting placidly atop the water to a furiously splashing, flapping, quacking master of flight, the Amphibious Carbon Cub leaps into air with a burst of raw energy.

A typical water takeoff goes like this: Add full power with the stick aft and count to two. Now you're "on the step," so relax the back pressure and count to three. Now you're flying. There's hardly enough time to mess it up.

BY DAVE HIRSCHMAN
PHOTOGRAPHY BY CHRIS ROSE

VIDEO EXTRA
Fly along with the author in this online video.

A GARMIN aera 796 is the heart of this Carbon Cub's VFR panel (above). Gary Lickle (right) beaches his airplane on a rocky shore.

The conditions for my introduction to the Carbon Cub on floats are poetic. Last year, at the fortieth annual International Seaplane Fly-In on central Maine's picturesque Moosehead Lake in Greenville on a cool, autumn-like afternoon, I meet owner Gary Lickle for a lap around the gorgeous region. Lickle is a serial Carbon Cub owner who flies on amphibious floats from his home in South Florida throughout the Everglades as well as the Bahamas. He bought this airplane, N711, a 2013 model, at the factory in Yakima, Washington, and has logged more than 300 hours in it since bringing it home in early 2013. He flew 1,600 miles just to attend the storied event for the first time.

We taxi from the ramp at the Greenville seaplane base and slide into the clear blue water that's textured by a 10-knot northwesterly breeze with gusts to 15. The wheels on the Baumann floats come up, the water rudders go down (and up before takeoff), and the manual flaps are set to the 20-degree takeoff position. Even though the diminutive yellow airplane is loaded with two adults and stuffed with photo and video gear, it surges ahead and vaults off the water in five seconds. Pitching up to climb at V_Y nets a sustained climb rate of 1,800 fpm at 71 mph.

We level off at 2,500 feet and leave the throttle wide open. The Carbon Cub reaches a maximum speed of 120 mph IAS at 2,700 rpm and 13 gph. Throttling back to 2,250 rpm, the fuel flow drops to 5.8 gph while the airspeed indicator settles on 110 mph.

"The cruise performance is exactly the same with amphibious floats as it is with [26-inch] tundra tires," said Lickle, who two days later won the fly-in's short-takeoff, grapefruit bombing, and spot landing competitions in the same aircraft. "The ground roll on floats is slightly longer because of the additional weight, but there's no penalty once you get in the air."

NOT FAIR. The Carbon Cub stands out from other Light Sport aircraft for its muscular, adrenaline-inducing excitement. It's doing exceptionally well in an otherwise moribund LSA marketplace—and it is a lightning rod for controversy.

Maybe it's the shape of the cowl that gives the Carbon Cub what appears to be a permanent smile.

The debate centers on the fact that the airplane is so capable. The 180-horsepower ECi engine, for example, with dual electronic ignition and other modern features, would be perfectly happy turning 2,700 rpm (or more) for its entire service life, yet the Carbon Cub POH limits full power to five minutes and 80 horsepower at cruise. At that cruise setting, the engine is loafing at 45-percent power.

Likewise, the LSA Carbon Cub's useful load is 420 pounds, yet identical airframes licensed under Experimental/Amateur-Built rules are approved for payloads of 1,000 pounds, and the company has tested the airplane to even higher limits. So does anyone really expect the pilots of Carbon Cubs licensed as LSAs to strictly observe these restrictive limitations once they fly away from the factory? I didn't think so.

And the idea that Carbon Cub pilots may not actually fly in perfect accordance with LSA rules mostly demonstrates the folly of current regulations. In fact, the Carbon Cub would make a persuasive Exhibit A in support of the AOPA/EAA petition to allow pilots to fly simple, fixed-gear airplanes in day VFR conditions recreationally without FAA medicals.

So the criticism of the Carbon Cub is essentially that it complies with the letter of the LSA rules—not the spirit. That's only true, however, if you accept that the spirit of the LSA category has to be dull and boring—and the Carbon Cub emphatically rejects any such notion.

CUBCRAFTERS. Cubcrafters had been rebuilding and modifying Super Cubs for many years when it decided to launch the Carbon Cub, and the design incorporates many of its most popular upgrades.

Chief among them, the cockpit is four inches wider at the shoulders; the panel is shifted forward; the flap handle is high on the left side of the cockpit (instead of the floor); and hydraulic toe brakes replace the old, failure prone, heel-operated expander tubes.

Up front, a two-blade Catto composite prop with a broad metal leading edge translates power from the ECi engine into

VIRTUALLY ALL OF THE Carbon Cub parts—such as the control column fittings (far left)—are made at the Yakima, Washington, factory. Vortex generators make the Carbon Cub wing exceptionally stable at high angles of attack. Flying with open doors and windows isn't just allowed in Carbon Cubs—it's encouraged. Note the tinted skylight and the high position of the flap handle.

thrust. The engine is far lighter than FAA-approved models of similar horsepower, and it's easier to start and smoother running, too. If electrical power is ever lost, the Lightspeed Engineering dual electronic ignition system is designed to continue to run for at least 30 minutes on standby power.

The Carbon Cub holds 25 gallons (24 usable) of fuel in two wing tanks, and both drain to a header tank that feeds the engine. Twenty-four gallons isn't a huge amount of fuel, particularly for a

EARNING WATER WINGS

A new rating can be yours in a fast-paced weekend

Surreal. Backing up in a Cessna 172. And I don't mean flying really slowly on a windy day. With the engine stopped, flaps down, and doors open, the Skyhawk on floats drifted backward across the Florida lake, helping to reposition us to a point where we could take off without having to make a turn on the water that might tip over the airplane. Sailing is just one trick seaplane pilots must learn in order to safely operate a craft that is at times an airplane and at times a boat. As soon as a seaplane touches down on the water, it is considered a boat and, interestingly, the craft that must give way to real boats—despite the fact that a seaplane is about the least maneuverable vehicle on the water.

With the sailing demonstration over, instructor Dave Young wanted to see my best confined-area takeoff. With the water rudders up, yoke back, and full power traveling crosswind, the airplane climbed up on the step. I relaxed back pressure and backed off the rpm a little to keep it there and then turned upwind. With full throttle and the addition of 20 degrees of flaps, the airplane popped into the air. I kept the airplane in a climbing turn, circling my way up to a safe altitude. With the right water and wind conditions, we could get the airplane out of a very small lake. Fortunately the one we were practicing on had plenty of leeway.

Young is a former corporate pilot who now oversees an aircraft management company in Lakeland, Florida, but on the side he instructs for Adventure Seaplanes and Brown's Seaplane Base. It's clear he enjoys getting out of the office and onto the water.

THE AUTHOR with CFI Dave Young.

I'm spending a February weekend in the Sunshine State getting a single-engine seaplane rating from Adventure Seaplanes, which operates out of the Cherry Pocket community on Lake Pierce, just south of Orlando. In the summer, Adventure Seaplanes owner Brian Schanche migrates his fleet of floatplanes north to Surfside Seaplane Base, north of Minneapolis. Students with good planning can join the migration north or south each year and get some great experiences along the way, landing on the Mississippi River and numerous lakes in Kentucky, Alabama, and Florida—the sort of practical training that goes well beyond splashing from lake to lake within a few miles of home base.

While the rating can be earned in about five or six hours of flying, I quickly learn how much I don't know about seaplane operations. In the air, a floatplane flies about like any airplane, but on or near the surface, it's a whole new ballgame. For one thing, if the engine is running, you're moving, so before engine start you'd better know the direction of the wind, where the nose is pointed, and what's nearby—because you can't stop. Did I mention that watercraft sometimes get in the way—or that watercraft sometimes challenge you on the water, and without a clue as to how unmaneuverable you are on the water?

The hours and the weekend literally and figuratively flew by, and Young declared me ready for the checkride after about five hours. Examiner Jon Brown from Brown's Seaplane Base agreed, because I passed, but only with a new appreciation for all it takes to safely fly a seaplane—and a big desire to go do it some more.

—Thomas B. Haines

WANT TO KNOW MORE?
Adventure Seaplanes (www.adventureseaplanes.com) and the Seaplane Pilots Association (http://seaplanes.org).

AMBASSADORS TO ADVENTURE

Seaplane-friendly Mainers host fly-in

At a time when airports are hemmed in by high fences, barbed wire, and security gates, seaplanes provide increasingly rare direct public access. When seaplanes land on lakes and water taxi to beaches, docks, or marinas, people can see them up close, talk to pilots and passengers, and get inspired about aviation.

"As seaplane pilots, we have some unique and positive things to offer general aviation," said Steve McCaughey, executive director of the Seaplane Pilots Association (SPA). "We have unfiltered access to the public. Our airplanes are people magnets, and we can be ambassadors to adventure."

Nowhere are these attributes more visible than at Greenville, Maine, a town of 1,700 people on Moosehead Lake, which hosted its fortieth annual International Seaplane Fly-In in 2013 (the forty-first annual event is September 4 through 7, 2014). The fly-in is the biggest event of the year on the picturesque lake and typically draws about 100 seaplanes and 20,000 visitors. The only traffic light in Greenville is temporary, and it's installed for fly-in weekend.

A cove at the southwestern tip of the expansive lake is center for seaplane activity during the three-day event, and final approach brings aircraft swooping low over the town's waterfront buildings. Instead of complaining about airplane noise, residents cheer new arrivals and watch the spirited group's contests—which include grapefruit bombing, short takeoffs, spot landings, and canoe pickups and transports.

"We decided a long time ago that this event was going to be about having fun and flying airplanes," said David Quam, a founder of both the fly-in and the Seaplane Pilots Association. "We don't do a lot of speeches or formal presentations and all that."

Greenville hotels fill up well in advance of fly-in weekend, and scores of recreational vehicles fill camping areas. Many airplanes land at the Greenville Municipal Airport (3B1) about three miles away and take shuttles to the seaplane base (52B).

Just 3 percent of U.S. pilots are rated to fly seaplanes, even though it's widely recognized as one of the most enjoyable and affordable add-ons. The Seaplane Pilots Association has 6,700 members, well more than 65 percent of the 10,000 active U.S. seaplane pilots.

AOPA and the Seaplane Pilots Association have worked together to defeat a proposed seaplane ban in New Mexico, and to create online training courses for pilots on how to avoid spreading invasive species via airplanes.

McCaughey, an accomplished pilot rated in the Grumman Albatross—among other rare aircraft—says seaplane flying is poised for growth through amphibious Light Sport aircraft and other areas.

"There are some exciting new seaplanes to fly," he said, "and we're pushing to open even more areas to recreational seaplane flying. Events like the International Seaplane Fly-In provide a model for how seaplane pilots and communities can pull together and work cooperatively." *—Dave Hirschman*

WEB www.seaplanefly-in.org

LOBSTER DINNERS, idyllic conditions, and enthusiastic participants and observers are hallmarks of this annual Maine event.

floatplane made to operate in remote areas where avgas can be scarce. But it's enough for about four hours of flying at economy cruise. For longer trips Lickle carries 10 additional gallons in plastic cans in the float storage compartments. That's good for two extra hours in flight, or 200 statute miles in no-wind conditions.

This aircraft is equipped with metal Baumann 1500 floats that have two storage compartments on each float. The wheel retraction system is manual. Lickle regularly operates in saltwater and the floats show no corrosion whatsoever. But Baumann went out of business in 2011 and those who own their products must make their own arrangements for parts and service. Fortunately for Carbon Cub owners, several other firms—including Aerocet, Claymar, Mead, and Wipline—have stepped in with their own products.

IMPRESSIONS. Stepping into the Carbon Cub, the additional space in the cockpit is immediately apparent. Lickle is 6 feet 7 inches tall, and he fits comfortably in either seat without yoga contortions.

The Oregon Aero seats are both firm and extraordinarily comfortable. Engine start is normal for a carbureted powerplant, and preflight procedures are standard with the exception of the magneto check, which is actually an ignition check. Moving the key position shifts between left and right ignitions, and the resulting drop of about 30 rpm is far less than the 100 or so you'd expect with magnetos.

Once in the water, the wheels are retracted with a single pull of the floor-mounted Johnson

HOT-ROD-INSPIRED flames next to the wing fuel gauges (below) are purely decorative. A well-traveled Carbon Cub in its natural habitat (bottom).

bar, and the water rudders are extended. Steering is conventional from the front or rear seat, and we deploy lift flaps.

The takeoff is exhilarating and brief, and the stall warning horn chirps as we leave the rippled surface. A V_X climb at 51 mph results in an absurdly steep climb angle that I estimate at 35 degrees (there's no attitude indicator) and the Garmin 796 on the panel shows a climb rate of 1,700 fpm.

Level at 3,000 feet, I let the airplane accelerate and am surprised by the relatively heavy stick forces. The stick itself is short, so perhaps the stiffness is partially the result of a lack of mechanical advantage. The control feel is pleasant and well balanced, however, and gives a big-airplane feel to what is assuredly a very small aircraft.

Power-off stalls are preceded by mild aerodynamic buffeting and take place at 35 mph IAS clean and 25 mph IAS with full flaps. (There are three flap settings: 20, 35, and 50 degrees.) The roll rate with full aileron deflection is about 60 degrees per second, and steep turns at an estimated 2 Gs result in 180 degrees of heading change in about seven seconds.

It's rugged, rowdy, extremely well-designed, beautifully crafted, and a pure joy to fly from water or land.

A normal approach to a water landing is made at 50 mph IAS, and touchdown in an estimated 6-degree nose-up attitude takes place at 38 mph. Deceleration is rapid because there's relatively little mass to bring to a stop.

Lickle uses the acronym CRUMP in preparation for landing: Carburetor heat; Rudders; Undercarriage; Mixture; and Peek—as in, look at the gear position indicators and watch for obstacles.

Simulated engine-out water landings are made at the best glide speed of 70 mph IAS and result in a descent rate of 830 fpm with the wings level and flaps up. Adding flaps near the top of the white arc on the airspeed indicator (80 mph) creates a significant nose-up pitching moment that must be trimmed away using the rocker switch atop the stick, but the nose-up moment is far less when the flaps are lowered at a reduced speed. Control of the electric elevator trim can be shifted to the front- or rear-seat pilot via a switch on the electrical panel. (There is no manual trim.)

The back seat is a clever and featherlight sling that can be easily removed or shifted for easy access to the main baggage area, which has a 100-pound limit.

A separate rear baggage area holds up to 60 additional pounds and has an external access door.

The back seat is made of a mesh material that's cool and comfortable, but even wearing a four-point harness with inertial reel shoulder belts, the bar beneath the passenger's thighs wobbles in turbulence, and uncoordinated turns bounce the rider from side to side like a pinball. We take a leisurely aerial tour of the expansive lake before heading back to the seaplane base for a last splash.

CONCLUSIONS. The attributes that have made the Carbon Cub such a winner in the LSA marketplace also make it a superlative seaplane.

It's rugged, rowdy, extremely well-designed, beautifully crafted, and a pure joy to fly from water or land. Its incredibly smooth power gives it brilliant short-field capability, yet it's quite obedient and not particularly demanding from a ground-handling standpoint. P-factor on takeoff is easily countered by an authoritative rudder, and the forgiving Cub airfoil (aided by vortex generators) makes inadvertent stalls unlikely.

The powerful engine and electronic ignition give Carbon Cub pilots tremendous operational flexibility. They can burn lots of fuel making impossibly short takeoffs and steep climbs, or they can sip fuel and cover long distances economically.

There's also something about the Carbon Cub's appearance that makes it less intimidating than other hardcore bush airplanes. Perhaps it's the Carbon Cub's shorter stature, or its flatter deck angle, or that anything based on a Cub is pleasantly familiar. Maybe it's the shape of the cowl that gives the Carbon Cub what appears to be a permanent smile.

Finally, the resentment other aircraft manufacturers feel toward the Carbon Cub's being licensed as an LSA is totally understandable. The Carbon Cub competes directly with FAA-certified airplanes such as Aviat Aircraft's Husky and American Champion's Scout and Adventurer—models that must live with far more onerous and burdensome regulations, which increase costs and present obstacles to innovation.

But instead of blaming Cubcrafters for building an exciting, soul-stirring airplane that fits, however awkwardly, into existing LSA standards, perhaps we should focus on making those standards more inclusive. Looking ahead, there's an excellent chance that the FAA's ossified Part 23 certification standards will be revised in a way that levels the playing field and enables all aircraft manufacturers to put forward their own very best work.

Regardless of what happens on the regulatory front, however, count on Carbon Cub to lead the way to an adventurous future on land, water, and air. **AOPA**

EMAIL dave.hirschman@aopa.org

| CONSOLIDATED PBY-5A CATALINA |

STAND UP AND SALUTE

Downed airmen owe their lives to the PBY

AIRPLANES GIVEN THE MOST CREDIT for winning World War II include such famous warriors as the P–51 Mustang, the B–29 Superfortress, and the Supermarine Spitfire. A not-so-glamorous airplane, the Consolidated PBY–5A Catalina, also deserves inclusion in this elite group—not because it had single-purpose supremacy, but because it had such multifaceted utility.

The PBY is heralded for its yeoman work in search-and-rescue operations, especially by the thousands of sailors and downed airmen who owe their lives to one.

A heavy cruiser, the *USS Indianapolis*, was sunk by Japanese torpedoes in the Philippine Sea on July 30, 1945, leaving 900 men struggling to survive in shark-infested waters without food, drinking water, or rafts. A scream piercing the air meant that another sailor had been taken down by shark.

BY BARRY SCHIFF
PHOTOGRAPHY BY MIKE FIZER

The ship was not missed, and when the survivors were accidentally discovered four days later, only 316 remained alive. First to arrive on the scene was Lt. Adrian Marks, flying a PBY. His landing in the churning sea was so hard that rivets popped from the hull. Throughout that night, he and his crew valiantly pulled 56 sailors from the bloodied water. When the fuselage was full, survivors were hauled onto the wings. Men were prevented from falling off by tying them in place with parachute cord. All were rescued the next day by a destroyer escort; the PBY had to be scuttled.

An Army pilot rescued by a PBY on a different occasion said, "When I see a PBY, I stand up and salute."

The Catalina's remarkable range made it effective for patrol, enabling PBY pilots to discover the Japanese strike and invasion forces approaching Midway Island in June 1942. A PBY was first to torpedo a Japanese ship at the onset of the Battle of Midway. This was the turning point of the Pacific War, and resulted in the sinking of four of the six Japanese aircraft carriers responsible for the attack on Pearl Harbor six months earlier.

Later in the war, a group of PBYs was painted flat black, dubbed the *Black Cats,* and used to locate and attack Japanese shipping at night. They were effective in attacking ships attempting to land reinforcements at Guadalcanal. In the European theater, a PBY crew found the German battleship, *Bismarck*, leading to its destruction.

Originally intended for defending the coasts of the United States, PBYs also served as bombers, sub killers, recon platforms, convoy escorts, and liaison transports. Pilots affectionately referred to them as Cats, P-boats, Pig Boats, and Dumbos.

The designation PBY meant that the aircraft was a patrol bomber built by Consolidated Aircraft. The final letter of Navy aircraft designations represented the manufacturer. Y stood for Consolidated, F for Grumman, and so forth. Consolidated merged with Vultee Aircraft in 1943 to form Consolidated Vultee, or Convair.

Most PBYs were built in San Diego, but the Catalina on these pages, N427CV, was manufactured under license by Canadian Vickers in 1945. It served in the Royal Canadian Air Force and eventually became a fire bomber. It worked its way to Europe and then South Africa, where it wound up dilapidated and parked in the weeds at Johannesburg's Rand Airport.

The airplane was discovered and rescued by James Slattery, a self-described "aviation enthusiast" from Fort Lauderdale, Florida, who financed a meticulous restoration. "I wanted the airplane for our museum, the Greatest Generation Naval Museum at Gillespie Field in San Diego."

The airplane was certified for civilian use and flown to San Diego by Bob Franicola and Mike Castillo. The 12,000-mile journey began Christmas Day 2012, took 125 hours of flight time, and ended 16 days later. Franicola said that the airplane performed flawlessly. San Diego seems an appropriate home for a PBY. Most were built near the edge of San Diego's Lindbergh Field, and Naval Base San Diego is home of the Pacific Fleet.

Slattery's PBY–5A is painted in prewar colors. Even though a 1930s design, it presents an intriguing and appealing appearance. The hull and rear fuselage are an artful blend of nautical and aeronautical form and function. It is all metal, except that the aft portions of the wings and all control surfaces are fabric-covered.

You board a PBY from land or water by climbing a small ladder and entering through a waist blister. The fuselage has five compartments separated by bulkheads with watertight doors. A military PBY had a crew of eight: two pilots, a flight engineer, a bow gunner/bombardier, two waist gunners, a navigator, and a radio operator. This PBY, though, accommodates 15—two pilots and 13 passengers. Seats of choice in the cabin are by the blisters, which may be open in flight and are wonderful places from which to cast a rod when on water.

AS ON ALMOST ALL flying boats, the throttles (far left) are mounted on the cockpit ceiling to simplify routing the throttle cables to the engines. Numerous switches (including the magneto switches) are on the crossbar connecting the control wheels.

The airplane seems to have a mind of its own and doesn't always do what you expect, as though a sadistic simulator instructor is messing with you.

Like most flying boats, throttles and propeller controls are overhead to simplify routing control cables to the engines. A large button for each engine on the overhead panel is depressed to feather a "useless propeller."

The engines are mounted unusually close to one another. The good news is that this eases directional control following an engine failure. The bad news is that it reduces the effectiveness of differential power for steering on water. When desired, one main landing-gear leg may be lowered in the water to help tighten a turn in that direction. The hydraulically operated landing gear also is extended in the water for taxiing up a ramp onto land. Like most multiengine seaplanes, the PBY does not have a water rudder. Differential power instead is used for steering.

Wing flaps? There are none. Systems-wise, the PBY is a relatively simple airplane. Cowl flaps are operated with hand cranks.

You steer the Cat onto the runway using differential braking. Differential power is then used initially to track the centerline during takeoff while advancing the throttles to 48 inches and 2,700 rpm. (The 1,200-horsepower Pratt & Whitney R-1830-92 radial engines are supercharged.) The rudder soon becomes effective and the big boat lifts off at a surprisingly low 70 knots.

The airplane goes from looking almost ungainly on the ground to somewhat graceful in the air, which belies its handling qualities. The PBY has heavy flight controls. To fly it, you use muscles you never knew you had. The control wheel rotates 1.5 full turns from one limit to the other, or three-fourths of a turn from neutral to full. You don't just move the wheel; you wrestle with it. Castillo says, "It is like driving a cement truck in soft sand without power steering."

It's not bad in smooth air, but in turbulence the Cat wallows all over the sky. It seems that if you're not always moving the controls, you're doing something wrong. At times, the airplane inexplicably yaws one way or the other, and you admonishingly shove a rudder pedal as if to say, "Don't do that!" The airplane seems to have a mind of its own and doesn't always do what you expect, as though a sadistic simulator instructor is messing with you. You anticipate that because the ailerons are so far outboard there would be lots of adverse yaw effect, and there is. Other than being oddly unstable at times, a beast to maneuver, and underpowered, it is marvelously capable and, strange as it may seem, fun to fly. It puts a smile on your face. It is difficult, though, to imagine young men going to war in these aircraft.

An approach to stall is signaled by a slight tail shake, which increases as the stall deepens. The humongous wing makes the stall benign—typically a nose-high, mushing descent from which recovery requires only releasing back pressure.

The parasol wing is high above the fuselage. This provides outstanding cockpit visibility and makes the P-boat particularly effective for search and patrol missions. Such a high wing also helps to protect the propellers from damaging sea spray.

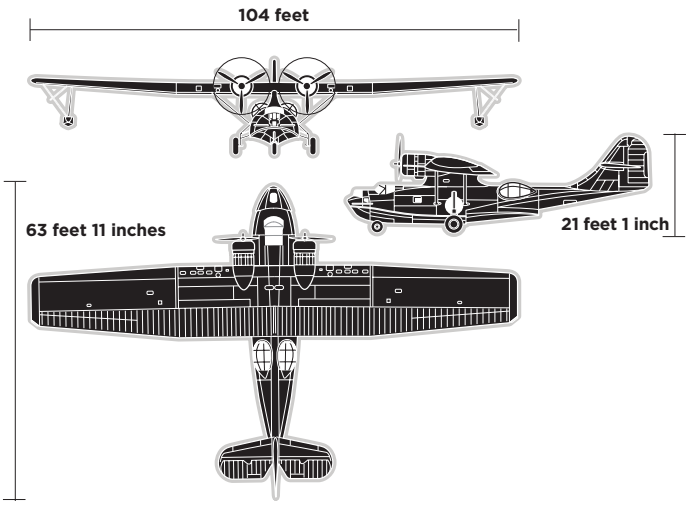
The pylon supporting the wing was where the flight engineer sat. He operated the engines, propellers, floats, and landing gear. Sight gauges indicated fuel quantity. Civilian PBYs are modified to eliminate the engineer by relocating his controls and instruments to the cockpit. His seat is still there, and riding in the pylon and peering out the small side windows offers a unique perspective.

When retracted, the electrically operated floats form the wing tips, and their struts blend into the undersides of the wings. A Land-Sea switch is used to ensure that a warning light indicates correctly prior to landing. With the switch in the Land position, the light glows red unless the landing gear has been extended and the floats are retracted, and vice-versa with the switch in the Sea position.

Some say that the Pig Boat was so slow that navigators needed calendars more than they did chronographs. Typical true airspeed is 115 knots with a fuel burn of 86 gph at 5,000 feet. Maximum endurance is more than 20 hours. The Navy described the PBY as "breathlessly hot in the tropics and achingly cold in the Arctic, and at once hated and loved. In spite of her shortcomings, the rugged PBY rarely failed to bring her crew home despite all that the enemy or the weather could muster to bring her down."

The PBY was the first production airplane with wet wings and has remarkable range, 2,338 nm on a no-reserve fuel capacity of 1,750 gallons. In the war, Qantas Empire Airways operated

THE LEFT WAIST blister (far right) as well as the one on the right side may be opened and closed during flight. They provide marvelous vantage points for sightseeing (or searching for enemy subs).



"Double Sunrise Flights," so-called for the obvious reason. These PBYs carried VIPs and mail nonstop between Perth, Australia, and Galle, Ceylon—3,592 nm that required 33 hours, a record for an airline flight using an airplane. Average flight time was 28 hours.

The design leading to the PBY was the Consolidated XPY-1, which had four open cockpits and first flew in 1929. The prototype PBY first flew on March 28, 1935. The PBY–1, –2, –3, –4, and –5 were long-range flying boats that operated strictly from water. Beaching gear was needed to roll them ashore and back into the water. The primary difference between the PBY–5 and its predecessors is that waist-gun blisters replaced sliding hatches. The PBY–5 morphed into the PBY-5A with the addition of tricycle landing gear. This amphibious flying boat first flew in 1939 and was the largest of its day. The PBY also became the world's most successful flying boat. More were built (3,272) than all others combined, a standing record. Almost half of these were amphibians.

ILLUSTRATION STEVE KARP

The mere sight of a PBY can evoke a visceral sensation and cause us to fantasize about roaming the world in a Catalina and splashing or touching down wherever our wanderlust leads. It was this romanticized notion of an airborne yacht that inspired Southern California Aircraft to develop a postwar conversion of the PBY called the Landseaire. This luxuriously appointed amphibian comfortably slept eight—surely this included a mechanic—and had a full galley. Two 14-foot dinghies (for getting ashore) fit snugly under the wings (where bombs and torpedoes had hung) and were raised and lowered by a built-in electric hoist.

A pilot since he was 16, Slattery is fascinated with history, especially World War II in general and the Pacific Theater in particular. He founded the Greatest Generation Naval Museum with the intention of "humanizing the Greatest Generation in a way that inspires young people to rise above whatever obstacles they might encounter during whatever pursuits they might undertake."

The museum thus far has 42 warbirds that have been or are being restored. Some are quite rare, and all are kept airworthy.

With respect to the PBY, Slattery likens it to a hit song. "You throw hundreds of tunes against a wall, and one becomes a hit. It's the same in aviation. There can be hundreds or thousands of designs, and once in a while the magic happens. You have a P–51, a Spitfire, or something else very special, like a PBY." **AOPA**

WEB www.barryschiff.com

SPEC SHEET
Consolidated PBY-5A Catalina

SPECIFICATIONS

Powerplants | **Two 14-cylinder Pratt & Whitney R-1830-92 Twin Wasp 1,200-hp ea**
Recommended TBO | **1,200 hr**
Propeller | **Hamilton Standard Hydromatic constant speed, 11 ft 6 in diameter**
Length | **63 ft 11 in**
Height | **21 ft 1 in**
Wingspan | **104 ft 0 in**
Wing area | **1,400 sq ft**
Wing loading | **25.3 lb/sq ft**
Power loading | **14.8 lb/hp**
Lift-to-drag ratio | **11.9 to 1**
Crew (wartime) | **7-9**
Empty weight, as tested | **21,000 lb**
Max gross weight | **35,420 lb**
Max gross weight (Standard category) | **28,500 lb**
Useful load, as tested | **14,420 lb**
Payload w/full fuel, as tested | **3,920 lb**
Max takeoff weight | **35,420 lb**
Max takeoff weight (Standard category) | **28,500 lb**
Max landing weight | **35,420 lb**
Max landing weight (Standard category) | **28,500 lb**
Fuel capacity | **1,750 gal (all usable)**
Oil capacity, ea engine | **76 gal**

PERFORMANCE

Takeoff distance, ground roll, land | **1,750 ft**
Takeoff distance over 50-ft obstacle, land | **3,590 ft**
Rate of climb, sea level | **610 fpm**
Max level speed, sea level | **157 kt**
Cruise speed/endurance w/45-min rsv, std fuel (fuel consumption, both engines) 7,000 ft @ 68% power, best economy | **109 kt/18.5 hr (516 pph/86 gph)**
Service ceiling | **15,800 ft**
Landing distance over 50-ft obstacle, land | **1,290 ft**
Landing distance, ground roll, land | **2,800 ft**

LIMITING AND RECOMMENDED AIRSPEEDS

V_{MC} (min control w/one engine inoperative, unofficial) | **80 KIAS**
V_X (best angle of climb) | **70 KIAS**
V_Y (best rate of climb) | **85 KIAS**
$V_{TURBULENCE}$ (max in extreme turbulence) | **110 KIAS**
V_{LE} (max gear extended) | **120 KIAS**
V_{LO} (max gear operating)
Extend | **120 KIAS**
Retract | **120 KIAS**
V_{FLOATS} (max operate) | **120 KIAS**
V_{NO} (max structural cruising) | **121 KIAS**
V_{NE} (never exceed) | **173 KIAS**
V_{S1} (stall, clean) | **58 KIAS**
V_{S1} (stall, floats and gear down) | **63 KIAS**

All specifications are based on manufacturer's calculations. All performance figures are based on standard day, standard atmosphere, sea level, military gross weight conditions unless otherwise noted.

EXTRA

The Pratt & Whitney R-1830 engines are the most produced aviation engines ever built. These twin-row, 14-cylinder radial engines were also used on the B–24 Liberator, the Douglas DC–3, the Grumman F4F Wildcat, and others.

BIG CITY seaplanes

Summer starts here

BY JAMIE BECKETT

THE TRAFFIC ON FDR DRIVE snakes north along the eastern shore of Manhattan at a snail's pace. It's early on a Friday afternoon in August. It's hot in the city. It's sticky and loud, too. In a matter of hours the work week will wind down for many of this island's workforce. But as Old Blue Eyes so famously crooned, this is the city that never sleeps. People, on the other hand, must grab a little down time now and then. For those who have the means, or the connections, an idyllic summer haven known as the Hamptons waits on the far end of Long Island. That sanctuary of green lawns and lapping waves offers a weekend respite from the noise and heat of the city. And best of all, it's located just a hop, skip, and a jump away—allegedly.

PHOTOGRAPHY BY CHRIS ROSE

In a concrete waiting room that is attached to a parking garage and adorned with unattractive blue corrugated steel sheathing, Chris Mitchell waits. Despite his decidedly shabby surroundings, he's sharply dressed in bright red slacks, deep brown shoes, and a well-tailored gray sport coat. His fashion sense might be out of step with the crowd in Des Moines or Abilene, but he's the height of fashion in New York. Mitchell is a magazine publisher.

The youthful and patient Mitchell taps out messages on his iPhone while waiting for his flight to board. His reason for showing up at the seaplane base to wing his way out of town on a Cessna Caravan—operated by a company with the unlikely name of "Fly the Whale"—may be the most succinct rationale for availing themselves of the service that anyone has offered up. "It's forty minutes [in the Caravan], as opposed to three hours in the car."

Sold! Saving that much time adds four and a half hours to the weekend. The appeal of the 23rd Street seaplane base is obvious.

The official name of the facility is New York Skyports Inc. Seaplane Base, or as seaplane pilots know it, 6N7. Owned and operated by the New York City Bureau of Maritime and General Aviation, the base officially opened for business in December 1946. Its history goes back somewhat further, however. *The New York Times* maintains an article in its archives that details the seaplanes base's birth as early as February 1936. It was then that the city's illustrious mayor, Fiorello La Guardia, wrote to the New York Chamber of Commerce to announce preliminary work had begun on the base, which was originally little more than a ramp dedicated to the use of seaplanes.

Sandwiched between the Williamsburg Bridge to the south and Roosevelt Island to the north, flying into and out of 6N7 is a feat worthy of a veteran bush pilot who maintains the crackerjack skills of a seasoned

BIG CITY SEAPLANES

Fly the Whale and Tailwind Air Service
www.flythewhale.com
212-221-1203
www.flytailwind.com
844-824-5963

Shoreline Aviation
www.shorelineaviation.com
781-834-4928

FLY THE WHALE COO Michael Siegel and President Melissa Tomkiel at the East River dock (left). Passengers board Whale Force One (far right).

airline jock. To function here you have to be comfortable in densely populated airspace. John F. Kennedy International is only 10 nautical miles to the southeast, while Newark, Teterboro, and La Guardia airports all are closer still. And that considerable crush of traffic is just the airborne half of the equation.

The published landing lane at 6N7 is sizable, at 10,000 feet by 1,000 feet. Yet the water's surface is thick with tour boats, tugs, barges, water taxis, and kayakers—none of which seem to have any interest in giving way to seaplanes. To call the environment "challenging" is an understatement. Pilots are required to taxi at least 1,000 feet into the East River from the Manhattan side before initiating a takeoff run. All seaplanes are mandated to use three-blade props, and their pilots have to successfully complete a proving flight with an authorized member of the New England Seaplane Pilots Association before they can operate out of the seaplane base. And to top it all off, the current in the East River is moving at better than 2.5 miles per hour.

As John Kelly, owner of Shoreline Aviation, points out, "We're [operating] in some of the busiest airspace in the world." That challenge appeals to a certain type of pilot. With the insight of a man who has been doing this work for decades, Kelly adds dryly, "It's a pretty demanding situation."

For all its convenience and flair, 6N7 isn't exactly well known, even among long-time Manhattanites. To combat the anonymity, Kelly provides instructions that are concise and accurate. "Tell your cab driver to get on East 23rd and keep going until you can't go any farther without getting wet."

"It's one of New York's best-kept secrets," adds Kelly. He has been operating seaplanes out of the 23rd Street base since 1981, building up a clientele that is both appreciative and loyal. His business doesn't limit itself to seaplanes entirely, however. Shoreline operates other aircraft as well, ranging from a Cessna 172 up to a Gulfstream III. "We operate five Caravan amphibians," Kelly acknowledges. "That's the bulk of the business."

Sharing the same dock space with Kelly is a newer provider known as Fly the Whale. Mitchell is flying with them this afternoon. Like Shoreline, Fly the Whale also operates land airplanes for charter work that doesn't involve water operations. Melissa Tomkiel and Andrew Clark began providing seaplane service from Manhattan in 2010. Their aircraft of choice also is a Cessna Caravan on amphibious floats.

"We were all frustrated with the commute from New York to the Hamptons," says Tomkiel, an attorney, of the impulse that got her into the aviation business. Having the ability to take off from the East River and land on wheels at the destination became appealing. "East Hampton Airport is so convenient."

That amphibious option makes the ground transportation portion of any flight more convenient for travelers and their

hosts. The ability to land back in the city, even in inclement weather, transforms this mode of transportation from a mere pleasantry to a genuinely expedient and efficient service. While the preference is to fly off the water under VFR, the aircraft can transition to IFR if the conditions call for it. There are no instrument approaches to the river, however. Yet with multiple airports on terra firma, several nearby options exist.

"We shot several approaches yesterday," says Kelly, who is justifiably proud of his company's ability to serve its clients even in weather that wouldn't normally allow seaplanes to operate. The flexibility to file and fly IFR allows the carriers to deliver their passengers directly into La Guardia or Teterboro if the conditions close down the river to air traffic—although the convenience can go the other way, too. Kelly's company recently picked up a family from La Guardia and delivered them directly to the beach in front of their waterfront home on Martha's Vineyard.

In direct contrast to the panache and adventure the seaplanes themselves can deliver, the seaplane base itself is dowdy. Chain link fence and razor wire surround the perimeter along the waterfront. The amenities of the waiting area in no way match the quality or the convenience of the service being offered. If anything, it bears a striking resemblance to an underappreciated bus station or a medium-security prison.

The poor condition of the facility is something that both Kelly and Tomkiel acknowledge, but plans have been approved for future improvements. The more use the seaplane base gets, the more incentive the city has to improve the facility. And use is on the upswing. Tomkiel reports that Fly the Whale is seeing an uptick in its business. "This year we've just about doubled our passenger count. Our flights have at least doubled."

Kelly sees a bright future, too. Although after more than 30 years of providing

IT'S A DOG'S LIFE as this passenger readies to fly to East Hampton (left). A pilot for Shoreline Aviation prepares for takeoff (right). Taxiing on the East River (far right).

“We’re operating in some of the busiest airspace in the world,” says John Kelly, owner of Shoreline Aviation. “It’s a pretty demanding situation.”

service from the base on 23rd Street, he acknowledges, “It’s not the kind of thing that’s going to be a mass market [appeal].” With a seat to East Hampton costing $500 or more (bulk discounts are available from both companies), the average consumer is not likely to consider seaplane service to be favorably competitive in terms of price when compared to the traditional alternatives of buses, trains, and automobiles. But there are real advantages to traveling by air from Manhattan.

“The biggest attraction is the accessibility,” says Kelly. Whether you’re headed for a weekend in the Hamptons, a sales presentation in Boston, or a committee meeting in Washington, D.C., having the ability to get there quickly—and get directly back into midtown Manhattan—can make all the difference.

Tomkiel echoes that point. “Our most popular time is Monday morning at 7:15 a.m., to get back to Manhattan.” That flight allows businessmen and -women the option of spending the full weekend relaxing and luxuriating at the far reaches of Long Island, yet still get back to the office in time for the start of a new workweek.

That logic works, as evidenced by publisher Mitchell sauntering casually along the slender dock toward his waiting Caravan. The whine of a Pratt & Whitney PT6 emanates from the river, winds around the building, and mixes with the sounds of traffic until it is lost in the cacophony of the city. The Caravan taxis away from the dock, runs into the wind, and lifts off. Another satisfied customer has just gotten his money’s worth. As anyone who has ever flown as a pilot or a passenger in a seaplane knows, the vacation starts immediately.

Summer is short in the Northeast. Eventually winter will come, cold winds will blow, and ice may form in the river. That’s alright. Shoreline Aviation will relocate to Florida for the cold-weather months, running charters to the Bahamas—or wherever its passengers want to go. Fly the Whale will pull up stakes from the big city and move to the British Virgin Islands for the winter months. Their crews will keep flying, their amphibs will keep putting smiles on passengers’ faces, and New York can expect another round of weekend trips by air—as soon as the weather warms up and the vacation bug hits its residents again. **AOPA**

JAMIE BECKETT is a freelance writer from Winter Haven, Florida.

VIDEO EXTRA See Edwards Ranch in this online video.

Rare warbirds to depart Edwards Ranch

TALL TALE

[that's true]

HANG AROUND AIRCRAFT RESTORERS and you'll inevitably hear tales of priceless historical relics hidden in barns, buried in shrink wrap, or otherwise stuck in time awaiting discovery.

These stories are almost always wild exaggerations or outright fiction. But if you've ever heard of the cache of iconic warbirds at Wilson Connell "Connie" Edwards' west Texas ranch, it's absolutely real.

The irascible former movie pilot who made a fortune in the oil business has added to his vast inventory of mostly World War II-era fighters, seaplanes, and surplus parts for more than a half century. Now, he's decided to sell many of them—but only on his own nonnegotiable terms.

BY DAVE HIRSCHMAN
PHOTOGRAPHY BY MIKE FIZER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CONNIE EDWARDS (left) was the aerial coordinator for the 1969 movie *Battle of Britain* and took a Spitfire (preceding page) and a group of Bf 109s in exchange for his services. They have been stored at his West Texas ranch ever since.

"People can either pay my price or go to hell, I really don't care which," says Edwards, 80, who is perhaps best known for choreographing and flying many of the aerial scenes in *Battle of Britain*, a 1969 movie that starred Michael Caine and Sir Lawrence Olivier and featured more than a dozen Messerschmitt Bf 109s (technically Spanish-built HA-1112 Buchons), Heinkel He 111 (CASA 2.111) bombers—and, of course, British Spitfires and Hurricanes. "I know the value of what I've got, and I don't haggle. Pay my price, or don't waste my time," Edwards says.

A Spitfire that actually flew in the real Battle of Britain is the jewel of Edwards' fleet, as well as a half-dozen Buchons (including a rare two-seat model) that he took in partial payment for his work on the film. There's also a P–51 Mustang that looks exactly as it did when imported from Guatemala in the early 1970s, and two PBY Catalinas. Edwards flew one of the PBYs to England and back in 1986, and a second—known as the *Green Turtle*—has a Calypso paint scheme and plush yacht-like interior. (There also are two shipping containers full of surplus PBY parts and specialized tools.)

A recently polished Grumman Mallard is tied down outside. So are several Piaggio Gull airframes, and parts for many more.

The impetus for the sale is the tragic 2013 death of Edwards' son Wilson Connell "Tex" Edwards Jr., an accomplished warbird and agricultural pilot. Tex was killed in a car accident near the family's ranch about 60 miles east of Midland/Odessa. He's

Edwards says he doesn't regard his many airplanes as a "collection,"

buried in a family plot on the ranch, which is located in the arid, cotton-growing portion of the state.

"I was going to give it all to Tex," Edwards says. "He was a fantastic pilot and absolutely excelled at everything he did in aviation. But now that he's gone, there's no sense keeping it."

In the 1980s Edwards donated two highly coveted aircraft to the Experimental Aviation Association—a P–38 Lightning and an F–4U Corsair—and both are on display at the EAA museum in Oshkosh. He also helped found the Commemorative Air Force (then the Confederate Air Force) but had a bitter split with the Texas-based organization. He has been an AOPA member for more than 60 years.

Edwards says he doesn't regard his many airplanes as a "collection," just unrelated objects he bought or

just unrelated objects he bought or traded for because they interested him.

THESE SPANISH AIRCRAFT were painted in German colors for the *Battle of Britain* movie. They are equipped with Rolls-Royce Merlin engines.

“I’m not interested in hearing other pilots’ war stories or telling them mine,” says Edwards.

traded for because they interested him. Logistically, the ongoing acquisitions required building an ever-expanding hangar complex (more than 100,000 square feet) in which to store them. He’s never offered public tours, and his out-of-the-way runway, hangars, and castle-themed home are strictly private.

“I’m not interested in hearing other pilots’ war stories or telling them mine,” says Edwards, who soloed when he was 16 years old and later flew throughout Central America and the Caribbean in his twenties for a series of shadowy firms he prefers not to discuss. “I’m really not in the airplane business at all. I’m in the oil, ranching, and stone business. I only own airplanes for fun.”

Edwards’ favorite airplane is a blue-and-white Piper Super Cub with an oversized 180-horsepower engine that isn’t part of the sale. He’s unsentimental about the rest. Many of his aircraft haven’t flown in years, and the hangars and their contents are constantly subject to the region’s unrelenting wind, heat, and dust.

Tall shelves are piled with seemingly forgotten tools, parts, hardware, and solvents. The airplanes sit just as they were at the conclusion of their last flights, sometimes with headsets on glareshields, long-expired aeronautical charts unfolded on the seats, and empty cups and drink cans in cabins.

An entire hangar is filled with a treasure trove of warbird engines. Two never-used, right- and left-turning Allisons for a P–38 are bolted on stands; dozens of Rolls-Royce Merlins are in various states; and an overhauled Pratt & Whitney R-985 is wrapped in plastic sheeting.

Aircraft aren't the only motorized vehicles in the hangars. There are cars, too, including a 1964 Corvette, a 1958 Cadillac El Dorado Brougham, an original VW Thing, a police Harley-Davidson motorcycle, and a half-dozen aged mini-bikes

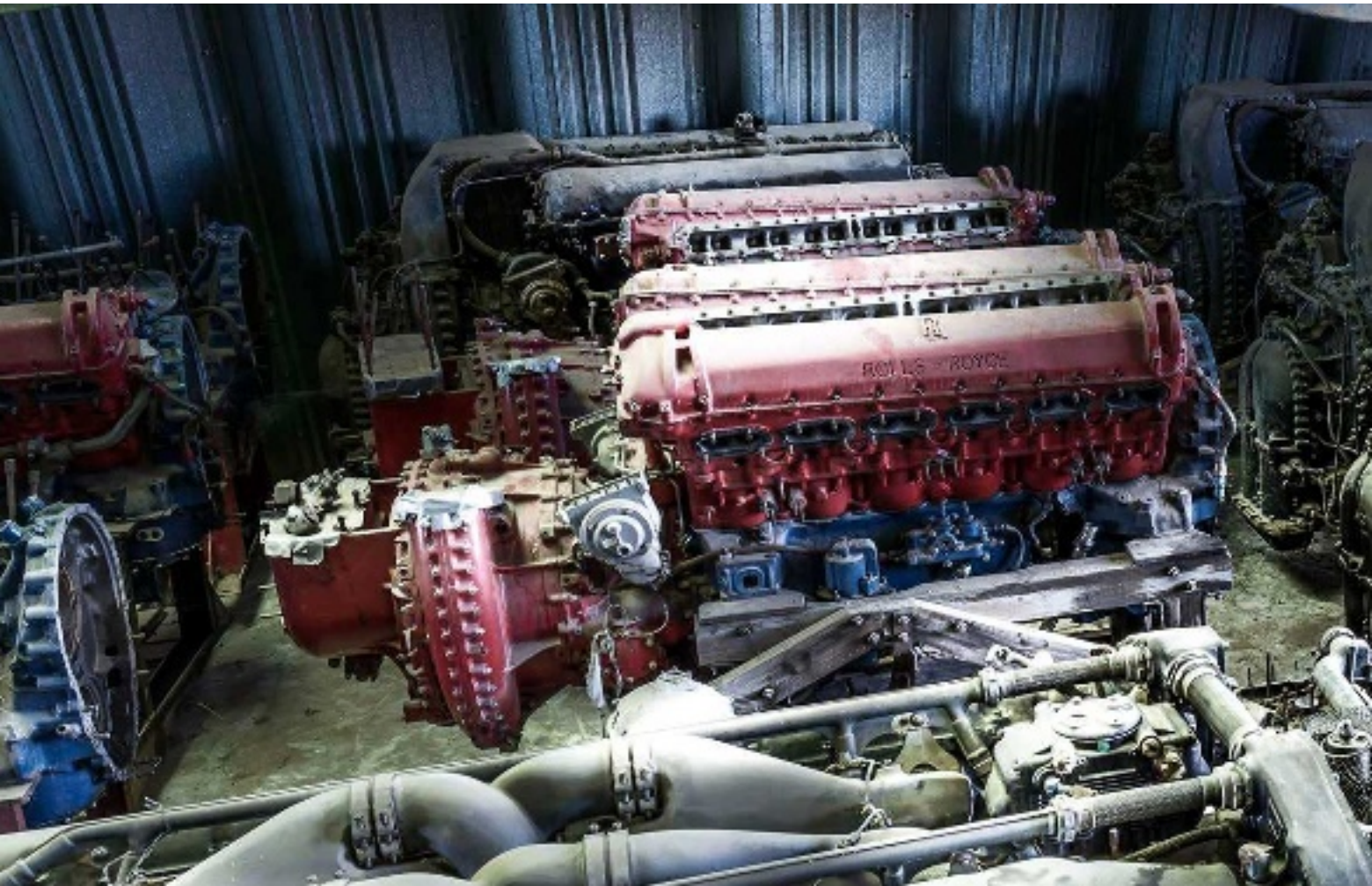
Edwards says he really doesn't care what happens to the airplanes after they leave—although he assumes that anyone willing to pay premium prices for them likely will restore them to flying condition. But if not, that's the new owners' concern, not his.

"If they can afford to buy them, they probably have enough money to restore them," he said. "If not, they're better off not even trying."

A HALF DOZEN P–51 Mustang canopies are placed against a hangar wall (right) and an entire hangar is filled with rare engines such as these Allison and Rolls-Royce V–12s (below).

Edwards has been exceptionally successful in business, and he attributes his wins to "dumb luck" and being in the right place at the right time. His family's vast land holdings sit atop huge amounts of oil and natural gas, and new drilling techniques have dramatically increased their output at a time of high commodity prices. Another mineral discovery here, Texas stone, is in demand among high-end home builders. (Edwards is a self-taught stone carver whose grounds are decorated with elaborate stone artwork of his own creation.)

"If they can afford to buy them, they probably have enough money to restore



A fly-in guest to the Edwards ranch in the late 1970s came to hunt quail and became a family friend. That was Sam Walton, founder of Walmart, and Edwards was an early investor in what became the world's biggest retail chain.

Edwards once owned more than a dozen P–51 Mustangs, many of them bought from military boneyards. He says he never paid more than $15,000 for a Mustang, and now such aircraft sell for $1.5 million or more.

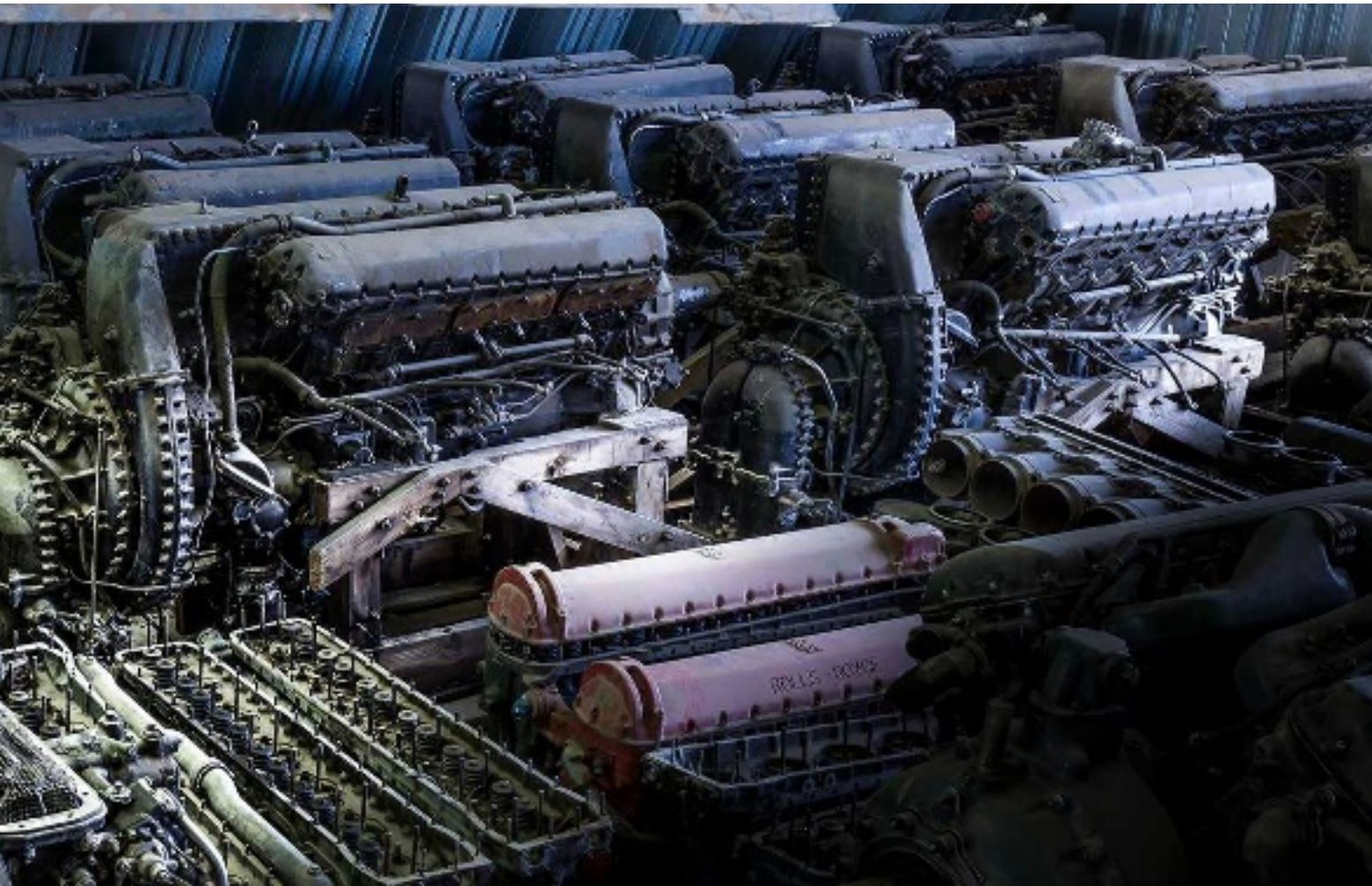
Edwards has long been a controversial figure in historical aircraft circles, and he is full of contradictions. He's at once flamboyant and reclusive, worldly and profane.

Terry Adams, a T–6 pilot and restorer who was a close friend of Tex, is preparing Edwards' exotic aircraft for sale. Adams is a retired Snap-On Tools executive, and he lives in San Antonio and comes to the Edwards ranch for days at a time to help get things inventoried and organized.

While Adams is at the hangar complex, Edwards stops by each morning in a Ford pickup with his dog Hunter, a miniature Australian shepherd, to plan the day's activities. He swings by in the evenings, too, to barbeque and drink Texas-brewed Shiner Bock beer from long-neck bottles.

Edwards speaks in off-color colloquialisms delivered with a flinty drawl. Something conspicuous, he says, "shines like a ruby in a goat's ass." A person of low intelligence "doesn't have the sense to pour piss out of a boot with directions printed on the heel."

them," Edwards says. "If not, they're better off not even trying."

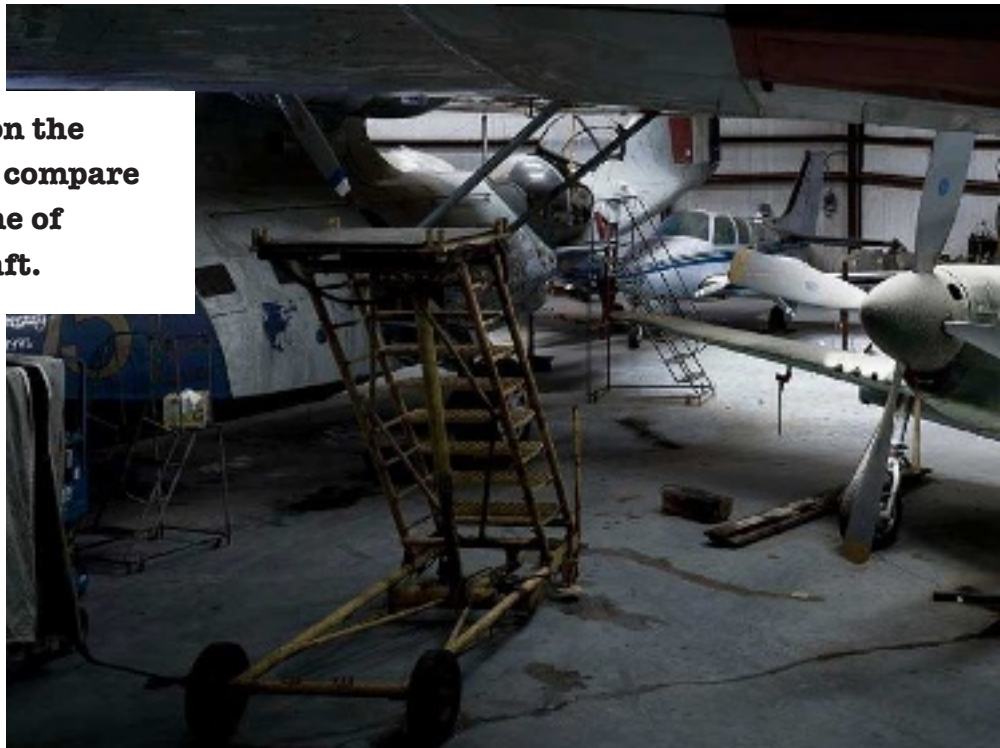


He's especially scornful of politicians with Democratic presidents Carter, Clinton, and Obama drawing venomous ridicule, and not-conservative-enough Republicans don't fare much better. Provocative bumper stickers; torn-out tabloid covers; photocopied political cartoons; and scrawled, handwritten messages are posted on hangar walls and metal lockers.

He also is one of the few pilots on the planet who can authoritatively compare the flight characteristics of some of history's most renowned aircraft.

Edwards can be charming, engaging, and funny when telling stories of the times he spent flying with English, Spanish, and German pilots in Europe filming *Battle of Britain*. He also is one of the few pilots on the planet who can authoritatively compare the flight characteristics of some of history's most renowned aircraft.

With many hundreds of hours in both the P–51 and Bf 109/Buchon, for example, he says the German-designed aircraft is far and away the more nimble fighter. "It's not even a close contest," he says. "In the hands of a similarly trained and experienced pilot, the 109 wins hands-down." Edwards recounts a truism by Luftwaffe fighter ace Adolf Galland: "Most pilots expect their



TIME AND DISUSE have taken a toll on the many varied aircraft Edwards has acquired over the years, including this Spitfire (above and on right) he imported from England. For sales information, contact Terry Adams (tdadams@gvtc.com).

THIS P–51 MUSTANG (below) isthe last of a group Edwards imported from Central America. Its guns are removed, but otherwise it's unchanged from its last day on a military flight line.

airplanes to perform. The Me 109 expects its pilot to perform."

Among seaplanes, he says the Grumman Albatross is head and shoulders above the Consolidated PBY, although there's a great deal of variation in quality, performance, and flying characteristics of individual PBYs.

Edwards also inspires lifelong loyalty from some of the people who know him best. A foreman who has worked on the family ranch more than 40 years says the Edwards family's steadfastness makes him want to stay forever.

And Edwards' generous actions don't always align with his incendiary words. For example, Adams recently sought to acquire a rare 1932 Ford Coupe that had been sitting idle in one of the Edwards hangars for decades.

"They said Connie would never sell that car because it belonged to his [late] brother [William Prior "Budo" Edwards]," Adams recalled. "So I asked Connie if he'd ever let it go, and he said he would, for the right price. I told him that I wanted to buy it, and I'd pay anything he asked. I'd write him a check on the spot."

Then Edwards surprised Adams by turning down what could have been a tidy profit. "Connie just looked at me, smiled, and said 'Merry Christmas, Terry. The car's all yours,'" Adams said. "He wouldn't take a cent for it." **AOPA**

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WV
MARLYN WOODS

VIDEO EXTRA Fly along with the athletes in this online video.

Airlift provides lift

BY JULIE SUMMERS WALKER
PHOTOGRAPHY BY CHRIS ROSE

Cessnas deliver Special Olympians to games

IT'S 8:30 A.M. ON A SUNNY SATURDAY and Trenton Mercer County Airport in New Jersey is very busy. In a large hangar at one end of the field, hundreds of people have gathered to welcome Special Olympics athletes. Since very early in the morning, Cessna Citation pilots from all over the East Coast have flown into general aviation airports large and small to pick up the athletes, many of whom have never flown in an airliner—let alone a business aircraft. More than 100 Cessna jets will deliver hundreds of athletes to the start of the USA Special Olympics games in the seventh Citation Special Olympics Airlift. Operators will donate their aircraft—from Mustangs to CJ3s to Citation Xs. They will donate their time—in flights as long as to three hours. And they will donate their fuel—not for one day, but for two, to the athletes' home bases to Trenton and back home again. It has been called the largest peacetime airlift in the world.

THE TORCH OF HOPE also arrived at Trenton Mercer County Airport on Saturday. Law enforcement officers and Special Olympians ran the torch throughout the state and in New York City prior to the opening of the games Sunday, June 15. More than 700 athletes and their coaches arrived at Trenton (center). FlightAware tracks the aircraft inbound to Trenton (below).

WELCOME TO THE GAMES

Music is blasting, cheerleaders are cheering, volunteers are greeting, and parents are bursting with pride. If the arriving athletes were overwhelmed by their flights on the jets that had delivered them there, they didn't have time to catch their breaths. Scores of volunteers, family, friends, and coaches greeted them with open arms.

It was a lot to take in for the six athletes and their coaches who flew in on N4GA, AOPA's Citation CJ3, which had picked them up early that morning at Yeager Airport in Charleston, West Virginia. On the hour-long flight to Trenton, the athletes and their coaches took in their first trip in a jet. For Olympian Chris Snodgrass it was his first flight ever, and he loved it. He gave it a high-five and said he's already looking forward to his return flight home after the games end. His sport is swimming.

Some 700 of the 3,500 U.S. athletes and their coaches and sponsors who participate in the national games were transported in the airlift. The athletes will compete in 16 individual and team sports—from swimming to bowling to baseball.

The aircraft traveled to 28 locations in 22 states to pick up the athletes and their coaches. Aircraft began arriving at 8:30 a.m. at Trenton; N4GA arrived at 9:45 a.m. Aircraft landed approximately every 90 seconds all day long. "This is an inspiring display of aircraft and the spirit of the

- **Seventh Citation Special Olympics Airlift** coordinated by the Cessna Aircraft Co. Cessna transported the Special Olympics Kansas delegation to the International Winter Games in Salt Lake City for the first time in 1985.
- **Passengers onboard vary from three to seven athletes plus coaches and sponsors.** First airlift to South Bend, Indiana, in 1987 transported 1,000 athletes on 165 aircraft.
- **Trip times range from one to three hours.** In 1999, 260 aircraft transported 2,000 athletes and coaches.
- **Games are held at several sites around the greater Princeton, New Jersey, area.** The first U.S. national games were held in Des Moines, Iowa.

CHRIS SNODGRASS (above) waves to greeters after deplaning from N4GA. AOPA President Mark Baker (center) flew the West Virginia athletes to Trenton, New Jersey, for the games. More than 100 aircraft flew in with athletes on board beginning at 8:30 a.m. and ending at 5 p.m. A jet landed or took off approximately every two minutes for eight hours.

general aviation community," said Kriya Shortt, senior vice president of sales and marketing for Cessna parent company Textron Aviation.

The first Citation Special Olympics Airlift took place in 1987 and since then, more than 10,000 athletes have received flights. With the merger of Cessna and Beechcraft under Textron, this year marks the first time Beechcraft and Hawker aircraft participated. More than 250 Textron Aviation employees volunteer their time for the event. It takes two years of planning; the national games are held every four years. This is the third time the national games have been held in the United States.

HOMEBOUND

Aircraft are given the call sign of DOVE; N4GA's call sign was DOVE 21. At week's end, the jubilant but weary athletes boarded N4GA with 10 medals among them. Chris Snodgrass medaled in two of his three events—a bronze in the 50 backstroke, a silver in the 50 freestroke, and he placed fourth in the 100-meter free.

Waiting at home at Yeager Airport were friends and family—and lots of "Welcome Home signs." **AOPA**

EMAIL julie.walker@aopa.org

P&E

CONTROLLED AIRSPACE

Airspace of defined dimensions within which air traffic control service is provided.

Class A: 18,000 feet msl up to and including FL 600.

Class B: Generally, surface up to 10,000 feet msl.

Class C: Surface to 4,000 feet above the airport elevation.

Class D: Surface to 2,500 feet above the airport elevation.

Class E: All other controlled airspace.

PROFICIENCY

Bulk up

Flying to an airport in Class B

BY JILL W. TALLMAN

BARRY DOWNARD

MANY PILOTS CONSIDER Class B the exclusive domain of bigger, faster aircraft. If you're one of them, I understand your trepidation—but landing at a big airport is something every pilot should do (see "Proficient Pilot: In the Thick of It," July 2014 *AOPA Pilot*). It requires a bit more planning than flying to the next county for pancakes, but, as Chicago pilot Grant Prellwitz said, "Let's remember that these airports are for all—not just the airlines."

ARE YOU QUALIFIED?

Let's start with FAR 91.131. Private pilots can operate civil aircraft at almost all airports in Class B airspace (which we'll henceforth call "a Class B airport"). So can recreational pilots and sport pilots, if they have received appropriate ground and flight training and received an instructor sign-off. For student pilots flying solo, it gets a little more specific:

Grant and Leslie Prellwitz have landed a Cessna 172 at Chicago O'Hare International (ORD), a notoriously not-so-GA-friendly airport—but they filed IFR and planned their arrival for around 10 p.m., after the main "push" of commercial traffic. It's a smart idea to avoid those high-traffic, high-stress times. You can find out when that is for your destination by contacting the local approach control facility.

DIAGRAMS, CHARTS, FEES

Prep work on the ground will prevent perspiration in the air. Review a current terminal area chart and a taxiway diagram, paying close attention to any hot spots, or areas that present a potential risk of collision or runway incursion. These are designated on Jeppesen diagrams and also described in the Airport/Facility Directory and on government charts.

"I've always expected to hear a 'You want to land a Cessna 172 there?' reply from ATC, but it never came."

The ground and flight training has to be specific to the intended destination airport, and the instructor endorsement must have been within 90 days prior to the date of the flight.

Twelve Class B airports, listed in *Aeronautical Information Manual* Chapter 3-2-3, require the pilot in command to be at least a private pilot.

Unless authorized by air traffic control, the airplane must be equipped with a two-way radio plus a transponder with altitude encoding. For IFR operations, there needs to be an operable VOR or TACAN receiver.

WHERE WILL YOU GO?

Which airport will you choose? That's up to you, but some airports in Class B are known to be more GA friendly than others.

While he was living in Arizona, Neil Bradon flew VFR in a Cessna 172 to Phoenix Sky Harbor (PHX) five times. Each time, he says, he received good service and friendly treatment from the air traffic controllers. "I've always expected to hear a 'You want to land a Cessna 172 there?' reply from ATC, but it never came," he said.

While you're reviewing the diagram, note the location of the FBO you plan to visit. Is there a landing fee? (Probably.) Take time to brush up on airport signs (see "Resources," page 114). Check to see whether the airport has specific VFR procedures, found in notices to airmen and the AF/D.

MOTHER, MAY I?

In the air, remember that VFR aircraft cannot enter Class B airspace without a clearance from approach control. Keep radio communications brief and professional, and one ear tuned for your N number. Do not enter unless you have been cleared to enter. Ask for clarification if unsure.

As you approach the airport, your situational awareness needs to be on high alert. ATC may be sequencing you amongst bigger, heavier traffic, which means wake turbulence is a real concern. Where are you in relation to those jets? Keep your approach higher and faster.

You may be directed to a 10,000-foot runway. Land long to prevent a situation

in which you touch down on the numbers and then taxi for a long, long time. The Prellwitzes discovered that "even though we had said we would land long and didn't pull back the power until the numbers, we were down on the first third of the runway, because a 172 slows down pretty well," said Grant Prellwitz. Stay high, fly halfway down the runway, and then reduce power to idle to be above turbulence from the heavies, he recommended.

Once on the ground, keep that taxiway diagram out, write down taxi instructions, and ask for progressive taxi instructions if you need them. As you taxi, be cognizant that "not [every sign] you see on the airport side is meant for airplanes," Prellwitz says, referring to service roads.

When it's time to leave, you'll contact clearance delivery for a departure clearance, then ground control for a taxi clearance. Again, keep that diagram out and write down all clearances for a good readback unless ATIS directs otherwise.

Big airports aren't everybody's idea of a good time, but mixing it up with the big boys and girls is undeniably a confidence builder. "Nothing beats landing at a Bravo and seeing all those jets waiting in line!" said Bradon. **AOPA**

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RESOURCES

Air Safety Institute Runway Safety Flash Cards (www.aopa.org/-/media/Files/AOPA/Home/Online%20Education/Flash%20Cards/RWcards_lo.pdf)

AOPA Airport Directory www.aopa.org/airports/

Air Safety Institute online course: *Know Before You Go: Navigating Today's Airspace* (http://flash.aopa.org/asf/kbyg/swf/flash.cfm?)

Air Safety Institute online course: *Say It Right: Mastering Radio Communication* (http://flash.aopa.org/asf/radiocomm/swf/flash.cfm?)

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How low can you go?

IFR altitude awareness for VFR pilots

BY THOMAS A. HORNE

"ALTITUDE IS YOUR FRIEND." That's probably what all instructors drum into the heads of their students—especially those working toward the private pilot certificate. Typically, the context is that of an engine failure. Sure, more altitude gives you more time and distance to glide to safer landing sites should an engine quit. And this is sound, if overly generalized, advice. There are plenty of other reasons why altitude awareness is key to sound decision-making, and there are plenty of regulatory guidelines to help give you a more focused altitude mindset.

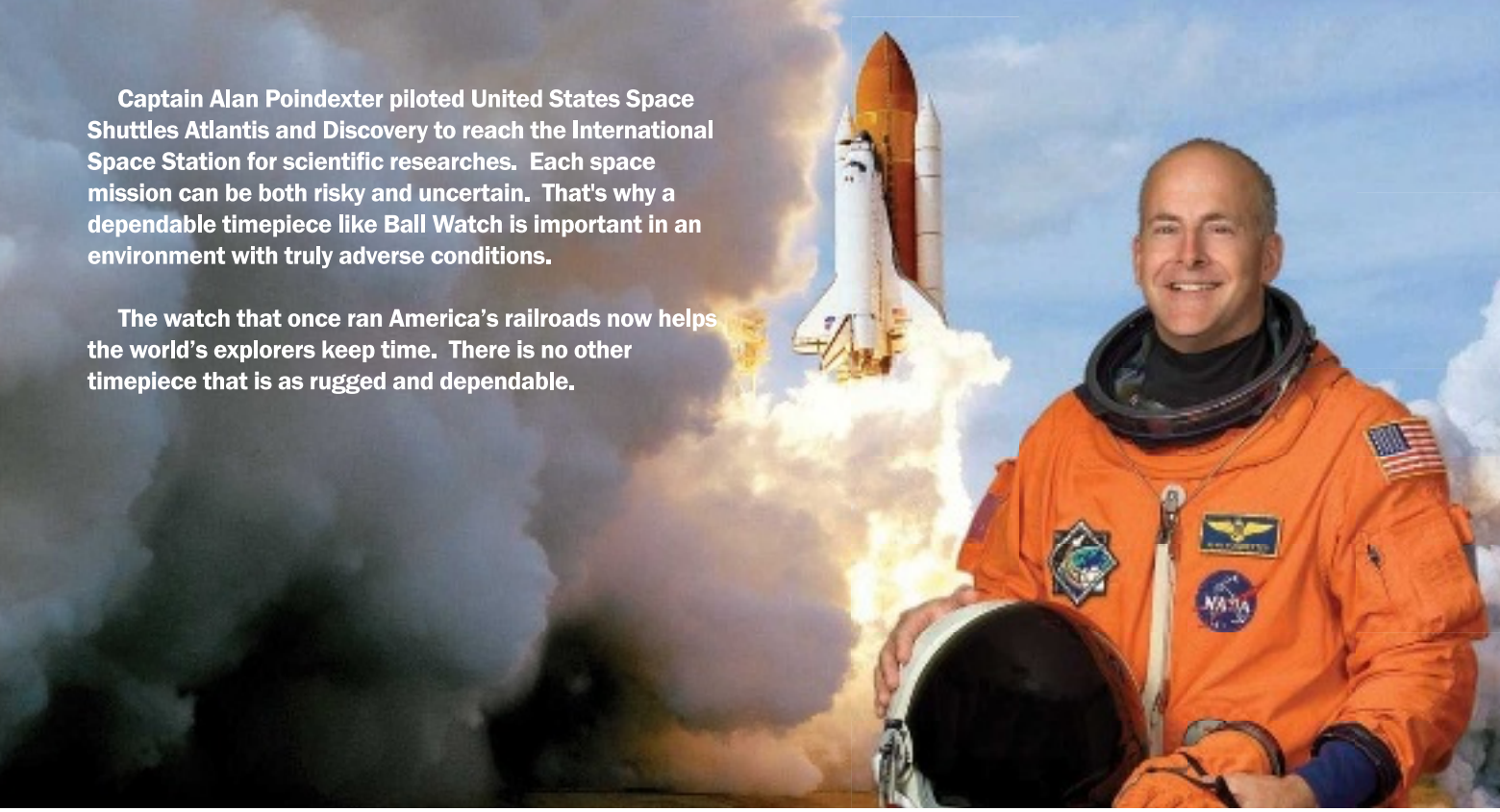
Most of the altitude-related rules amount to common sense. For example, there's the rule that says you must always be at an altitude that allows for an emergency landing without causing "undue harm" to people or property below (FAR 91.119)—except when taking off or landing. The same rule says that in congested areas you must stay at least 1,000 feet above the highest obstacle within a 2,000-foot radius of your airplane's position. In non-congested areas, you must stay 500 feet above the surface. Over open water and sparsely-populated areas, you can't fly closer than 500 feet to any person, boat, vehicle, or structure. Sound fair?

Direct-to is a very convenient way to get around, but don't let that blind you to the dangers below.

VFR pilots, you have information on high terrain and obstacles on sectional, WAC, and terminal area charts. Maximum elevation number symbols—represented by two numerals, one upper case (for thousands of feet) and one lower case (for hundreds of feet)—are printed within each grid defined by a latitude and longitude line. The highest elevation anywhere on these charts, along with its latitude and longitude coordinates, is published on the color code elevation legend.

This information is great for knowing the highest terrain or obstructions, as are the colorized terrain elevations. It's intuitive and extremely helpful in picking safe cruising altitudes. But it can be hard to pinpoint those max elevations to learn if they'll be factors. Sure, they're somewhere within the grid or on the chart, but you have to scout around for them.

Instrument-rated pilots face more, and more complicated, minimum-altitude requirements. While these are tailored for flight on IFR flight plans, they carry relevance to VFR-only pilots as well. Take



Captain Alan Poindexter piloted United States Space Shuttles Atlantis and Discovery to reach the International Space Station for scientific researches. Each space mission can be both risky and uncertain. That's why a dependable timepiece like Ball Watch is important in an environment with truly adverse conditions.

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T-ROUTES

Don't look now, but in the past eight years the FAA has been establishing a new type of airway structure, one that's based on GPS or inertial-reference systems. Dubbed RNAV Terminal Routes (T-routes, or Tango routes), they are designed like the VFR flyways set up over and around the nation's busiest airspace. T-routes run from 1,200 feet agl up to 18,000 feet msl, and instrument-rated pilots can file for them on IFR flight plans.

The idea is to take advantage of GPS RNAV navigation to avoid the circuitous routings and inefficiencies—associated with the use of ground-based navaids—that used to plague GA pilots wanting to navigate in or around Class B and Class C airspace. T-routes are depicted on IFR en route low altitude charts and terminal charts, identified with a "T" prefix, and provide minimum en route altitudes (MEAs). Sometimes, a maximum authorized altitude (MAA) also is published for route segments where overlying airspace is controlled by a different air traffic control facility. Incidentally, Q-routes also have been established for flights at higher altitudes.

AOPA took the lead in the T-route initiative, beginning in 2004. Today, T-routes are in place at airspace in Charlotte, Cincinnati, Jacksonville, Outer Banks (North Carolina), Los Angeles, Augusta (Georgia), St. Louis, southwest Oregon, southwest Washington, Houston, Washington-Dulles, and San Francisco. More T-routes are scheduled for gradual implementation in the years ahead. *—TAH*

minimum en route altitudes (MEAs), minimum obstruction clearance altitudes (MOCAs), minimum crossing altitudes (MCAs), and minimum sector altitudes (MSAs), to name a few.

These are found along the airways on IFR en route; terminal; and instrument arrival, approach, and departure charts. Next time you're planning a cross-country flight—especially one that takes you over unfamiliar high terrain—it's worth going the extra mile to check these valuable sources of information. As instrument pilots well know, you'll find them on just about every route segment between navaids and other fixes.

SECTIONAL CHART (TOP) gives maximum elevations (the 11 ^{3}) and other terrain information, but low-altitude en route charts (above) add extra safety margins for each route segment of an airway, reflecting the rising and falling terrain below. Minimum en route altitudes (MEA) in mountainous terrain give 2,000 feet of terrain clearance.

MEAs keep you at least 1,000 feet above the highest obstacle along a four-nm-wide path on either side of an airway. They also are set high enough to permit communicating with ATC; in mountainous areas, MEAs provide 2,000 feet of separation from terra firma. MOCAs, posted along with MEAs, often are lower but provide similar protection from terrain and obstacles. However, you may be too low to receive accurate VOR transmissions (if beyond 22 nm from a station), or for ATC to see your transponder returns. MCAs tell you when to climb to higher altitudes when rising terrain is ahead.

Compared to the data on VFR charts, IFR charts give much more specific advice you can apply to your route planning. You'll have published safe minimum cruising altitudes along defined airways, not just warnings about the highest obstacles or terrain. And where truly high terrain may exist along your route, you may well discover that one or more airways offer MEAs that let you fly well below those maximum elevation figures on VFR charts. Yes, some airways are published on VFR charts, but no minimum altitudes are provided, and they can be difficult to pick out of the clutter of surface features.

Ours is a GPS-based, "direct-to" world of navigation. Who needs anachronistic, VOR-based airways any more, you might ask? Direct-to is a very convenient way to get around, but don't let that blind you to the dangers below. Even if you do follow airways and stay above minimum altitudes, there are definite risks associated with losing an engine in the mountains, where friendly forced-landing sites are few. Orographic turbulence caused by air cascading over and around mountain ridges can make flight at minimum cruising altitudes anything but a pleasant experience—not to mention the severe turbulence in any rotors downwind of a mountain range.

To help minimize wind-related chaos, the higher you fly, the better. Because of a scarcity of Doppler weather radar sites in mountainous regions, there can be large gaps in radar coverage. Don't forget the need for oxygen at altitude! Some MEAs in the West go to 12,000 feet and beyond. **AOPA**

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Take the Pledge

No bugs and a lemon-fresh scent

BY DAVE HIRSCHMAN

THE HEIGHT OF BUG SEASON is a good time to review the best ways to remove their smashed remnants from aircraft windscreens and leading edges.

There are many specialized products that claim supremacy in this task—including Meguiar's Bug and Tar, Bug Off, and Rain-X. But for a single, inexpensive, widely available product that works on both windshields and airframes, it's tough to beat plain old Pledge.

The spray-on furniture polish softens up bug bodies, leaves a wax coating, and it doesn't streak or stain. You can apply it in direct sunlight, and—unlike Windex or other ammonia-based cleaners—it won't discolor Plexiglas. (And that lemon-fresh scent is a bonus.)

I was introduced to Pledge's aviation applications by a cropdusting service in the Mississippi Delta whose airplanes spent their entire working lives in the bug zone. A few hours of summer flying would have windshields nearly opaque from collisions with a bewildering variety of winged insects.

Every ag pilot carried a can of Pledge in the airplane. On fuel and/or chemical stops, the pilot would spray the windshield with a generous coating of furniture wax, service the airplane, and then wipe the windshield with a terry-cloth rag (definitely not paper towels, which can scratch Plexiglas). At the end of each flying day, the leading edges of the wings and tail would get washed with soapy water and a scrub brush, and then rinsed with pressurized water from a spray nozzle. Before the first flight the next morning, the aircraft leading edges would get another quick coating of Pledge to keep the first barrage of bug bodies from sticking.

There's no doubt that specialized windshield cleaners and polishes are superior to Pledge for that one purpose—and microfiber materials beat terry cloth (or old T-shirts, cotton socks, and shop rags) every time.

But for a single cleaning product that's easy to bring along on flying trips, Pledge is peerless.

The only airframe cleaner I've found that works as well for less is warm water and hand soap. It only takes a few minutes to get a bucket and a rag and wipe down the leading edges after the last flight of the day, and doing so can be a pleasant way to unwind. (Of course, soapy water will leave a filmy residue on the windshield, so keep it away from there.)

The old truism, "A clean airplane is a safe airplane," applies here, too. It simply means that discrepancies are likely to be found by pilots and technicians who touch every part of an airplane while washing it. That's common sense and, as such, it's free. **AOPA**

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Gusts and squalls

Frontal double-whammys

BY THOMAS A. HORNE

WHAT'S WORSE than dealing with a mean, fast-moving cold front? Dealing with two of them, one right after the other. This is a good conceptual model for understanding the dynamics behind gust fronts and squall lines, which often precede convective cold fronts or mesoscale convective complexes (MCCs).

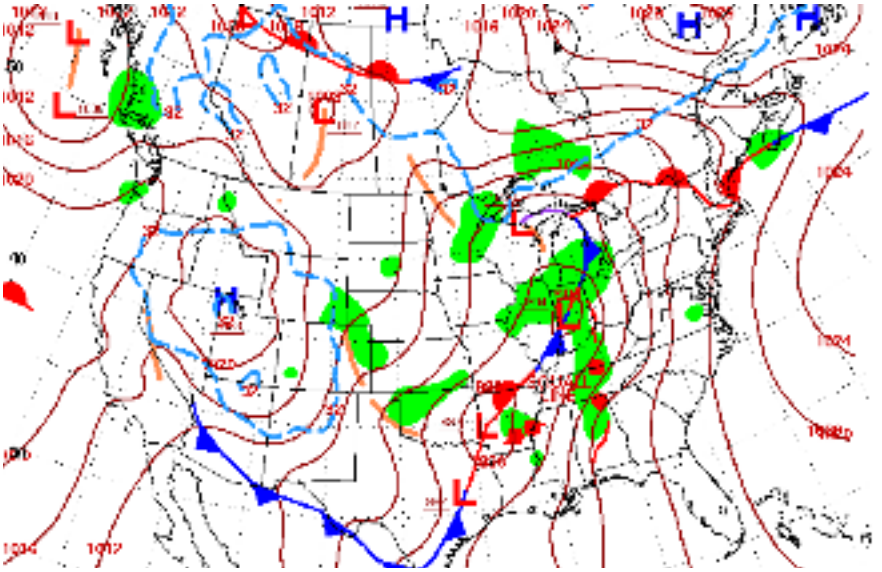
Think of gust fronts as not-so-subtle advance warnings of a thunderstorm or cold front to come. Cold, descending air from the parent storm or front hits the surface, and then this downdraft spreads out, forming what's called an outflow boundary. Think of aiming a garden hose at the ground, and the perimeter of water spreading ahead of the horizontal flow this creates. Warmer air ahead of this outrush of cold air is forced upwards, creating a mini-cold front of its own. Many times the rising warm air at the leading edge of this gust front cools to the point of saturation, creating ominous-looking arcus, or shelf, clouds. If there's enough lift and forward motion within it, the shelf cloud can form into a roll cloud.

Gust fronts are really bad news for several reasons. First of all, depending on the moisture and saturation levels within the boundary zone, the front may or may not contain enough precipitation or rainfall to be detectable by radar, so your in-cockpit datalink weather display may not show it (although Doppler radar can detect dust, dirt, and debris that's kicked up by a gust front). Even worse, in drier climates and low-dewpoint conditions—the western states come to mind—there may not be enough moisture to generate any clouds, making it difficult to visually identify and avoid them. In moisture-rich gust fronts, entire new lines of thunderstorm cells may crop up.

Then there's the scale of the event. Gust fronts can extend as far as 100 nm, or more. Sharp updrafts, downdrafts, heavy precipitation, violent shifts in wind speed and direction—as well as pressure spikes—all are features you can anticipate in a gust front encounter. (Weather geek that I am, I have a barograph at home, and once watched its needle oscillate up and down—like an electrocardiogram—as a gust front passed.) Obviously, you don't want to be anywhere near a gust front, especially if you're taking off or landing.

Same with squall lines. While gust fronts are primarily wind events that may or may not contain thunderstorms, squall lines are famous for aggressive convection. They are relatively easy to spot on radar, so avoidance is a simpler matter. Maybe. Squall lines are larger-scale events than gust fronts, and the lines have a

A GUST FRONT at EAA's AirVenture in 2011, about to attack AOPA's tent site. Although the gust reached 50 mph, there was no damage to our display area—but a lot of blowing dirt.



A SURFACE ANALYSIS CHART (above) shows two pre-frontal squall lines in action—one over Arkansas, the other running from Ohio to Alabama. A Nexrad radar image shows an especially aggressive squall line (below) containing the bulging leading edges indicative of bow echoes, which can produce winds as high as 100 knots. Be sure to do a preflight check of convective sigmets for mention of any squall lines.

much larger length-to-width ratio. The lines can consist of a single contiguous band of thunderstorms, or have convection-free breaks. Either way, circumnavigation can be a challenge. The line may increase its length and strength simultaneously, so outflanking a squall line isn't a good idea. Perhaps the best tactic for pilots of piston airplanes flying at lower altitudes is to turn around, land, and secure the airplane in preparation for the double whammy to come.

We can avoid all this by checking a few key sources of information during the preflight briefing. Convective Outlooks are great for describing the areas likeliest to be hit by angry cold fronts, gust fronts, or squall lines—and the outlooks extend up to eight days into the future. The model guidance used for the outlooks sometimes has a hard time predicting smaller-scale events like gust fronts and squall lines, but if they mention gusty winds, hail, or mesoscale convective complexes, sit up, take notice, and treat it as a warning that pre-frontal chaos could well be in the offing.

Surface analysis and low-level significant weather prog charts will plot gusty

outflow boundaries (as tan dashed lines, similar to the symbols used to depict troughs) and squall lines (as a broken red line interspersed with two dots—like the Morse code symbol for the letter X). TAFs will predict abrupt jumps and changes in wind speed and direction. Satellite imagery (the visual channel gives the best

resolution) can pinpoint thin lines of clouds ahead of a front, and this can be correlated by consulting Doppler radar imagery. Gust fronts—and especially squall lines—will show up as thin lines of reflectivity, frequently arranged in a curved signature called a bow echo.

All of the above information can be accessed on the Aviation Weather Center's Aviation Digital Data Service website (www.aviationweather.gov). Happy hunting, but here's hoping none of us has to deal with these pre-frontal monsters in what's left of the convective season. **AOPA**

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WEBSITE OF THE MONTH
TWISTERDATA

Want one-stop shopping for quick looks at three computer forecast models' ideas of atmospheric conditions? Then check out www.twisterdata.com; click on one of the three buttons at the top of the home page to select the models, which are RAP (Research Applications Program), NAM (North American Mesoscale), and GFS (Global Forecast System). After that, go to the vertical bar at the left to select the forecast time and the forecast product. Be very careful to check the valid time of the chart you select!

This site makes it easy for you to compare the models' different ideas of what weather variables to expect in the coming hours and days. You'll probably be most interested in the winds, precipitation, and instability screen views. You may be put off by some of the jargon—like CAPE (Convective Available Potential Energy, a measure of, well, convective potential)—but most of the legends and symbology are fairly intuitive.

And there's a bonus for fellow geeks who like to look at Skew-T Log-P charts: put the cursor over any point in the United States, click, then move the Skew-T marker symbol on the locator chart to the area you're interested in. A Skew-T chart then pops up. Again, check valid times. *—TAH*

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In touch with the newest Garmin displays

Garmin's GTN 750 leapfrogs the GNS 530W

BY THOMAS B. HAINES

WITH HUNDREDS of thousands shipped, the Garmin GNS 430/530 and their later WAAS-enabled versions dominate general aviation panels. The combined IFR WAAS GPS, moving map, and combination VHF nav/com became the backbone of many panels starting in the late 1990s, giving many pilots their first experience with a moving map—and one that in many ways also is a multifunction display. In addition to the now ubiquitous magenta line, the moving map can also display weather and traffic information from a variety of sources, and terrain.

But fast forward 15 years, and a lot has happened from a processor and display standpoint. Fully leveraging those changes, Garmin introduced the replacement models, the GTN 750 and the smaller 650 in 2011. Each has a screen larger than its older counterpart—and of much higher resolution. Garmin has discontinued the Garmin GNS 530W and will soon do the same for the 430W.

During a recent panel upgrade, I moved my still-capable 530W to the number two spot and installed a GTN 750 in the number one spot. The two communicate, so I can enter a flight plan through the GTN 750's touch screen and have it populate the 530W as well. The 750 does everything the 530 does and then some. Most noticeable are the larger screen size, 6.9 inches diagonal—up from the 530's 5 inches—and the higher resolution. With 600 X 708 pixels and full color available, the 750's screen runs circles around the 530's 320 X 324 pixel display with only eight colors available.

The GTN puts all that capability to work displaying high-resolution color terrain that greatly increases situational awareness. Nexrad images, whether from a satellite provider or ADS-B, also look much crisper. New processor horsepower makes the transition around the terrain and weather smooth and realistic.

When first introduced, the new products created controversy in the pilot community over the touch screens. Pilots feared turbulence would make data entry difficult or that gloves would be a problem. However, neither has turned out to be much of an issue. Raised bezels along the sides provide an anchor for your hand while entering data and the screens are compatible with many types of gloves.

THE TWO MOST frequently used screens on the GTN 750 are Home (top) and Map (above). The red and yellow areas on the Map page indicate terrain.

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By Daniel Steiger

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THE FLIGHT PLAN page shows waypoints and allows users to enter airways—a feature the GNS 430s and 530s don't offer.

For those who prefer the concentric knob solution, there is one—just one—on the lower right. But even those who prefer a knob for entering frequencies, for example, will quickly appreciate the ability to swipe left or right on the map to see information nearby, scroll up or down with the slide of a finger, or to touch a navaid or airport or airspace to obtain more information. It's much faster and more accurate than using a mouse pointer maneuvered by concentric knobs.

I've flown in moderate turbulence and found data entry not to be a problem. Grip the bezel and tap away.

A Home page, accessed by one of only two buttons on the bezel (the other is Direct To), uses icons for quick access to various subsystems. Garmin's goal was that no function was more than two taps away from the home page, and it works. If you do get lost, hold the Home button for a couple of seconds to return to the map page.

The all-new graphical flight plan entry system is a welcome improvement over the older models, which proved not to be very intuitive. Most notable, the GTNs allow flight planning via airways. Upon entering a waypoint, touching the waypoint in the list again brings up a menu for additional options, including entering an airway. Touch that to reveal a list of airways that intersect that waypoint. Choose the one you want and the next option is to choose the airway exit point. Scroll down to the correct one by sliding your finger up or down, or using the Up or Down soft keys on the

screen. Pick the exit point and then choose Load to enter the airway and all of its associated waypoints into the overall list. Editing a flight plan is quick and easy, with the ability to touch and delete a point, or use a menu for entering a new point before or after any point. Direct to is accessed by touching a waypoint, hitting the Direct To hard button, and touching the Activate softkey.

Similarly, any instrument procedure—arrivals, departures, approaches—is easily previewed and entered into the flight plan. Garmin's advice is to use the most logical transition to an approach from your direction of flight rather than Vectors to Final when loading a procedure. If ATC later begins vectoring you, you can always go back and choose VTF when activating the approach. But if you are instructed to fly the complete approach and have entered VTF as the transition, you will be required to reload the approach to fly it from an initial approach fix.

While the GTN 750 is taller than the GNS 530, by utilizing the ability to embed transponder and/or audio panel controls into the 750, it can take up less panel space than the older unit and the separate boxes for transponder and audio panel. A remote Garmin transponder and/or audio panel can be controlled through the 750 screens; the 650 can only control a remote transponder. In either case, the feature reduces the number of boxes in the panel.

Prices vary considerably depending on configuration and complexity of the installation, but numerous Garmin dealers were recently advertising GTN 750 prices between $14,600 and $18,000, some including installation at that price. That's about what the GNS 530W sold for in recent years. To help customers get the most out of the systems, Garmin hosts at its Kansas headquarters occasional two-and-a-half-day courses throughout the year that feature the G500/600 primary and multifunction displays as well as the GTN series. While most of the information discussed is available in the manuals, the courses focus on real-world flying techniques and benefit from the questions of others. The courses cost $595, including meals. **AOPA**

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Birth of a blade

VIDEO EXTRA Tour the MT-Propeller factory in this online video.

MT's modern props use a traditional material

BY MIKE COLLINS

THIS FIVE-BLADE MT propeller pulled Mike Laver's Mitsubishi MU-2 twin turboprop around the world.

MIKE COLLINS

WHEN DISCUSSING MT-Propeller's line of natural composite propellers, you might be tempted to say, "Everything old is new again." But you would be mistaken.

"Our natural composite propeller blades are based on wood," said Gerd Muehlbauer, founder, president, and CEO of the German propeller manufacturer. "We have a specially prepared blade root which is wood compressed under high pressure and temperature, with resin; it's a double-density beech veneer and it has the strength of steel. This is connected to the outside portion of the blade, the aerodynamic portion of the blade, which is made from spruce. The entire blade will be covered with either Fiberglas, carbon fiber, or Kevlar to provide the necessary stiffness and strength. The major load-carrying member is the wood."

These modern wood-core propellers can be used in any kind of weather, he added. "The way we process this wood and laminate everything together is different from what people usually think you can do with wood. It's a high-tech product and it has nothing in common with the old wooden propellers which were around since 1903, since the Wright brothers."

And they can take rapid temperature changes—descending, for example, from well below freezing at Flight Level 300 to a landing someplace like Phoenix, "where you have a temperature of plus 40 Centigrade—I'm a metric guy, you know," Muehlbauer laughed. "Our propellers are flying everywhere on earth, from the Arctic to China to the desert."

The concept behind the composite blades goes back to 1927, he said. "In World War II, many German airplanes flew with wooden blades," including many Junkers Ju 88s, Muehlbauer said. He's read many reports from people who did extensive research for aircraft manufacturer Focke-Wulf, which primarily used wood propellers. "The wooden blades outperformed the metal blades in those days. What's new and different is the materials we use today," he said. Then, the wood was covered with cloth fibers; now, it's modern Fiberglas or carbon fiber. Blade design also has improved, and now utilizes thicker airfoil sections developed in the 1970s.

And manufacturing is radically different. Wood veneers—basically, thin slices of wood—are alternated with resin or glue, and placed in a hydraulic press to laminate. After a heat treatment to relieve stresses, excess material is removed, then industrial computer numerical control (CNC) machines mill and smooth the blades to within 0.5 mm of final thickness. "There's still a little bit of hand work—the machines aren't perfect," Muehlbauer commented.

Steel or nickel leading-edge strips are fitted, then the Fiberglas or carbon fiber covering is applied by hand; orientation of the fibers—like that of the wood grain—is important to the strength of the final product. The Fiberglas is sanded; filled; primed; filled; and, finally, painted. After inspection, the blade is ready to be installed in a hub and shipped.

The company makes a small number of pure composite propellers, mainly for Red Bull, "because the pilots wanted it. We have it, and we have it certified—[but] it costs between two and three times a regular propeller and it provides no advantage."

Muehlbauer was hired in 1966 as a mechanical engineer at Hoffmann Propeller, headquartered at Rosenheim in Bavaria, Germany. "Ever since, I have been designing propellers. I'm not certain how many, probably at least 50, and most of them are certified."

He became the chief engineer and by 1980, decided to start his own business. "The owner of Hoffmann Propeller was no longer a Hoffmann. He was not enthusiastic about designing propellers—it was all about the cost." Muehlbauer launched MT Propeller on January 1, 1981, with five people; today the company employs more than 100. In addition to the factory and service center in Straubing, Germany, it operates a service center in Deland, Florida. More than 40 independent service centers also serve as distributors.

Muehlbauer also purchased a propeller company in Prague, Czech Republic, from Hamilton Standard and in 1999 changed its name to Avia Propeller. That company primarily makes metal propellers.

MT makes propellers for airplanes from ultralights, motorgliders, and LSAs up to large turboprops. The biggest prop currently in production is for the British Aerospace Jetstream 41 airliner, and is nearly 10 feet in diameter. Propellers also are made for hovercraft, wind tunnels, and other applications.

GERD MUEHLBAUER, founder of MT-Propeller, is the company's president and CEO (left). After wood veneer is laminated, milled, and sanded, craftsmen hand-apply Fiberglas, carbon fiber, or Kevlar (below).

Muehlbauer has been working since 1972 to reduce propeller noise, primarily by using multi-blade propellers. "Everybody was laughing at me—this idiot wants to make three-blade props, and I was already thinking about four blades." More blades allow a smaller diameter, which means less noise. "Now I'm talking about designing six or seven blades, just to see how far this can go. This principle works, and also reduced the blade loading. This means less vortexes, which means less noise. Four blades is not enough—but we don't know what is enough." He does not like even blade numbers because of vibration concerns.

The company originally focused on experimental and aerobatic airplanes, and Muehlbauer "did not necessarily foresee" the move into the turbine world that followed endurance testing on a Piper Cheyenne 400LS's Pratt & Whitney PT6s. "This was the basis for moving into the turboprop business with the five-bladed propellers," he said. Now the company offers propellers for many models of the Beech King Air, Cessna Caravan and 425, Mitsubishi MU–2, Pilatus PC–12, Piper Cheyenne and Meridian, and others.

And that five-blade turboprop propeller design is Muehlbauer's favorite. "They are really a nice design—and successful." **AOPA**

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Flying the beam

Near miss with a T–33

BY LESTER H. HOLLANS

ON AUGUST 21, 1961, I was making a night instrument flight into Birmingham, Alabama. My airplane was an Army de Havilland Beaver. With its 450-horsepower Pratt & Whitney R-985 radial engine and its long, high-aspect-ratio wings, flying on instruments in the clouds was not a challenge, but a joy. My logbook shows that the aircraft was a 1955 model with a tail number of 541706.

Birmingham still had its obsolete four-course low-frequency navigational beams in place. This archaic navigation system required aircraft to intercept one of four designated compass headings for approaches to or departures from the airport. In Army Instrument School we had been required to become skilled in flying this instrument approach, even though it would soon be replaced everywhere with VHF omni range facilities. Each of Birmingham's low-frequency navigational legs had a Morse code identifier. When a leg was intercepted, you heard a specific two-letter code for that leg. The signals you were listening for were either an "A" (dot-dash) or an "N" (dash-dot). When you were flying straight down the centerline, these signals merged into a steady, monotonous signal. Straying right or left of the center resulted in hearing an "A" or "N." Pilots affectionately called this crude flying technique "flying the beam." I was proud of my skill in following these old signals. I could navigate the old-fashioned way and make a safe low approach until I broke out of the clouds and made my landing.

About 25 miles south of the city, I planned to intercept the southbound leg and fly toward the low-frequency marker beacon. Upon reaching the beacon, I was required to turn left on that leg and go outbound to make a 180-degree procedure turn. This was a standard maneuver to maintain spacing of aircraft that were flying blind in the clouds. The procedure turn on the west leg would put me back on an easterly course toward the marker beacon, where I expected a call from approach control clearing me for a final approach into Birmingham. While still south of the city and in the clouds, I was turned over to the approach controller at Birmingham, who gave me these instructions:

"Army Five-Four-One-Seven-Zero-Six, intercept the south leg and proceed to the marker beacon. Do not turn west for a procedure turn. Report the marker beacon and turn right. Expect a clearance for a straight-in approach to Birmingham."

"Roger. Understand I am to turn right at the outer marker and expect a straight-in approach to Birmingham, over."

That seemed simple enough, not to mention how much time it would save me by not having to take five minutes to go left for the 180-degree procedure turn and come back to the marker beacon. Intercepting the southbound leg of the LF marker beacon was no problem. But before I reached the marker beacon, I heard another pilot make this call: "Birmingham Approach, this is Air Force jet One-Two-Three-Four-Five.

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I'm at the outer marker headed outbound for a procedure turn."

"Roger, Air Force jet. Report the marker beacon when you are inbound," replied the controller.

The Air Force jet had just flown across my flight path at nearly twice my airspeed. He was now headed west, and soon he would be roaring back to the east toward the beacon I had not yet reached. Would we both arrive at the beacon at the same time?

The FAA required all pilots flying blind in the soup to obey every ATC command without any deviation. The reason for this regulation was that we might collide with another airplane flying in the clouds. But the controller had just cleared us to fly to the same point at the very same time—to collide.

By now I had reached the outer marker. I keyed the mic and made my call. "Birmingham Approach Control, this is Army Five-Four-One-Seven-Zero-Six at the outer marker making a right turn for a straight-in approach to Birmingham."

"Roger, Army Five-Four-One-Seven-Zero-Six, proceed inbound."

I made the right turn, established an approach speed of 105 mph, and began a steady descent to the minimum altitude allowed. I expected to break out of the clouds when I reached that minimum altitude and see the runway ahead. If I did not see the runway, I would have to declare a missed approach and fly back to the beacon and try again. Just then the tranquility was shattered: "Birmingham Approach Control, this is Air Force jet One-Two-Three-Four-Five. I'm at the marker beacon inbound on my final approach."

He was likely still flying at 160 mph. This meant he was going to fly right up my tail end. Where was he?

Suddenly our radios blared out: "Army Five-Four-One-Seven-Zero-Six, break right! Air Force jet One-Two-Three-Four-Five, break left!"

WEB www.aopa.org/pilot/never_again

I slammed my control wheel hard right and racked the Beaver's wings to a vertical position. I hit the right rudder pedal as hard as I could to drop the nose as I banked the airplane to the right. Just as I started the right turn, I heard the jet's engine noise as it went whizzing by on my left while making a hard banking turn to the left.

The Air Force pilot and I never met—either in the air or on the ground. Nor did I ever meet the controller who almost caused a midair collision. **AOPA**

LESTER H. HOLLANS flew 26 different fixed- and rotary-wing aircraft for more than 2,000 hours and earned Senior Army Aviator wings. He retired from the Army Reserve in 1984 and lives in Alabama.

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WHAT AOPA IS DOING TO KEEP YOU FLYING

Third class medical reform

'Vitally important' to growing pilot population, Baker says

THIRD CLASS MEDICAL reform through the General Aviation Pilot Protection Act (GAPPA) is critical to growing general aviation, AOPA President Mark Baker told the House General Aviation Caucus during a briefing in June. The briefing focused on current aviation policy and included Baker and leaders of GAMA, HAI, NATA, and NBAA.

GAPPA is "vitally important" to growing the pilot community because it will save money and time, and free pilots from an outdated and cumbersome medical certification process, Baker said. He urged the GA Caucus members to sign up to co-sponsor the bill, which has 117 House co-sponsors. Under the act, pilots who make noncommercial VFR flights in aircraft weighing up to 6,000 pounds with no more than six seats would be exempt from the third class medical certification process. Pilots would be allowed to carry up to five passengers, fly at altitudes below 14,000 feet msl, and fly no faster than 250 knots. The FAA would be required to report on the safety consequences of the new rule after five years.

AOPA members Rep. Todd Rokita (R-Ind.) and Rep. Sam Graves (R-Mo.) introduced the bill in December 2013. Sens. John Boozman (R-Ark.), Pat Roberts (R-Kan.), and Jerry Moran (R-Kan.), all members of the Senate General Aviation Caucus, introduced an identical measure in the Senate in March. The Senate measure has 15 co-sponsors.

Baker also told the caucus that user fees are a major contributor to the high cost of flying in Europe and a primary reason why GA activity there is so much lower than in the United States. He added that the fuel tax system used in the United States is efficient and effective without stifling GA activity.

NOTICE OF ANNUAL MEETING OF MEMBERS. The annual meeting of the Members of the Aircraft Owners and Pilots Association will be held at 12 noon on Friday, September 5, 2014, at the headquarters of AOPA, 421 Aviation Way, Frederick, Maryland, 21701, located on the Frederick Municipal Airport (FDK), for the purpose of receiving reports and transacting such other business as may properly come before the meeting, specifically including the election of trustees.

ROBUST AIRPORT NETWORK NEEDED

"America's airports are the true backbone of aviation, and without a robust airport network, aviation cannot grow," AOPA President Mark Baker recently told the House Aviation Subcommittee. General aviation airports rely on federal money, making it important that Congress maintain Airport Improvement Program (AIP) funding at least at current levels, he said.

Baker said that the need is high for safety, expansion, improvement, and environmental projects at general aviation airports. According to the FAA's most recent National Plan of Integrated Airport Systems (NPIAS) report to Congress, airport infrastructure needs far exceed the funding available. From 2013 through 2017, the FAA estimates that airports will require some $42.5 billion to meet all AIP-eligible infrastructure development demands. That's significantly more than the roughly $3.35 billion annual allotment.

The availability of non-primary entitlement funds depends on maintaining at least $3.2 billion in annual AIP funding. Non-primary entitlement funds are available to GA airports and non-primary commercial service airports listed in the NPIAS that show a demonstrated need for airfield development. GA airports that qualify are eligible to receive up to $150,000, making the entitlement a significant funding source for many small airports.

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AS MANY STATE LEGISLATURES wind down their session for the year, here's a recap of some of the issues your state government affairs team has been working on across the country.

FLYING INTO SOMEONE'S BACKYARD

For many pilots, owning an airstrip is a dream. But letting other people use it can be a nightmare. One reason opening private property for public use can be such a headache is liability. All states have recreational use statutes (RU) that protect landowners when they allow the public to use their land for many recreational purposes. However, noncommercial aviation uses were rarely included in the definition of recreational activity. In a joint effort with the Recreational Aviation Foundation and many state aviation associations, AOPA regional managers Bob Minter (Southern Region), John Pfeifer (Western Pacific Region), and Bryan Budds (Great Lakes Region) have helped promote legislation so private airstrip owners in South Carolina, Georgia, California, and Wisconsin can breathe a little easier when allowing other pilots to use their land. Similar legislation has been passed by the Michigan House of Representatives and is waiting to be debated by the Senate. AOPA Regional Manager Yasmina Platt (Central Southwest) is also looking for recreational use statutes to be discussed in the Texas legislature next year. In all, more than 20 states have amended their RUs to include aviation.

SAFER AIRSPACE: BELOW 200 AGL

AOPA is working across the nation with state aviation agencies and agricultural aviation associations to pass legislation that would require towers below 200 feet to be marked according to FAA guidelines. Meteorological Evaluation Towers (MET) often are 198 feet or less and are used to measure wind speed and direction for the development of wind energy facilities. They can be erected quickly and, depending on their location, without notice. In 2011 the FAA issued guidance on the *voluntary* marking of METs but did not mandate MET marking. AOPA regional managers Dave Ulane and Yasmina Platt have helped state legislators in Colorado, Oklahoma, and Washington pass legislation *requiring* METs and other communications towers (including guy wires) to be marked in such a way as to be visible from 2,000 feet away. AOPA is set to promote similar legislation in Nebraska and Texas in 2015.

AOPA: WORKING DOWN TO THE WIRE

The last hours of a legislative session can be a whirlwind of excitement and chaos as legislators try to pass bills in the last few minutes they're allowed. For AOPA Regional Manager Bob Minter (Southern Region), representing AOPA members in these intense moments is a source of pride and excitement. In the Tennessee Senate, a last-minute floor amendment would have ended the Transportation Equity Fund, the state's dedicated aviation fund. Minter jumped into action by calling, emailing, and texting key aviation administrators across the state. "I have no idea how many contacts I really made but it was an action-packed 15 minutes," he said. As the senator proposing the amendment took the floor he stated, "The airports people are in the halls and are very upset." The senator withdrew his amendment and AOPA members across Tennessee let out a cheer—and a sigh of relief.

WEB www.aopa.org/advocacy

AIRPORT SUPPORT NETWORK

ASN VOLUNTEERS STEP UP FOR THIRD CLASS MEDICAL REFORM

FIGHTING FOR REFORM As AOPA continues to fight for reform of the FAA's medical certification system, the association's Airport Support Network volunteers have joined the fight. In mid-May, AOPA called on ASN volunteers to help gain support in Congress for the General Aviation Pilot Protection Act (GAPPA).

Since then, ASN volunteers have been contacting their members of Congress, asking them to co-sponsor GAPPA. They have also been reaching out to pilot friends and other aviation supporters to engage them in the effort as well. AOPA provided the ASNVs with background on the issue, which they could use and share with others. Volunteers reported they had talked with Congressional office staffs, and seen their representatives on district visits. AOPA's Congressional Affairs team was able to follow up with legislators to discuss the legislation. As a result of this effort, members of Congress are signing on to co-sponsor the bill.

ASN volunteers are among the most engaged pilots at their airports, and understand that third class medical reform addresses the number-one concern of pilots, will save pilots and the FAA time and money, will do a lot to keep current pilots flying, and help encourage others to get into aviation.

Have you told your member of Congress you want third class medical reform? And have you thought about becoming an ASN volunteer? It's a great way to help AOPA protect your freedom to fly.

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Real-world weather

What does it mean for me?

WEATHER IS THE SINGLE BIGGEST variable in flying. It can turn a long-awaited vacation into a long wait at the FBO, a quick two-hour flight into a tedious four-hour slog, or a stress-free jaunt into a skill-testing ordeal. The variations are infinite, but for pilots it all boils down to two questions: What's really going on out there, and what does it mean for me?

The day-to-day challenge of answering those questions is the focus of the Air Safety Institute's new fall seminar, Real World Weather. The seminar, which debuts on September 2, takes a no-nonsense look at how you can get better, more complete weather information—and make better, more informed decisions as a result. You'll examine:

- The best weather resources, and when to use them
- Situations that tempt smart pilots to make dumb choices
- Weather-related accidents and the factors that led to them
- Knowing what's safe and what isn't when things get "complicated"

Visit the website (www.airsafetyinstitute.org/seminars) for dates and locations near you.

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WHAT PILOTS ARE SAYING ABOUT ASI'S SAFETY SEMINARS

- "A very potent presentation. Left me with a few, but powerful, tools that I feel I could stick to in an emergency."
- "The best I have been to—this was extremely beneficial."
- "Good, fast-moving presentation—very practical with varied examples."
- "Very good presentation! The instructor had the audience thinking through the entire evening."

FLYING THE WEATHER: 'T-STORM TOOLBOX'

WHEN FLYING NEAR CONVECTIVE WEATHER it's best to not rely on just one source of information for steering clear of the dangerous forces of the storm. It could get you in serious trouble—and a potentially life-threatening situation—from which you may not be able to escape or recover. Instead, consider ahead of time what available resources you may have in the cockpit, and use them to paint a complete picture of what you're up against. Watch *T-storm Toolbox*, a recent installment of ASI's popular "Flying the Weather" video series (www.airsafetyinstitute.org/T-stormtoolbox). In the video, AOPA President Mark Baker and AOPA Foundation President Bruce Landsberg discuss the tools they had in their weather toolbox and on which they relied to get a good picture of where not to go—and keep themselves safe—while flying near some very active convective weather during a trip from St. Louis, Missouri, to Frederick, Maryland.

Take ASI's *IFR Insights: Cockpit Weather* online course (www.airsafetyinstitute.org/cockpitweather). It provides additional tips and a practical look at using cockpit weather products, and how they fit into your decision-making process.

FLYING THROUGH PRECIP? GET HELP FROM ATC

PILOTS SOMETIMES AVOID—or ignore—discussing inflight weather with ATC when it would be most helpful to them. For example, when precipitation is mercilessly pounding the airplane's windshield, and airframe, it would be a good time to check in with your air traffic controller for assistance. Watch *Ask ATC: Precipitation Intensity* to see how controllers can help in such situations, and learn how they will collaborate with you when you'd like to get out of the weather—fast (www.airsafetyinstitute.org/askatcprecip).

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HOW TO DONATE?

Donating your plane to the AOPA Foundation is easy and fast. Often, we can accept it within 72 hours. Certain restrictions may apply.

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As the nonprofit, charitable arm of the Aircraft Owners and Pilots Association, the AOPA Foundation works to improve aviation safety, preserve and improve community airports, and encourage learning to fly for career and personal benefit – all in the interest of ensuring the future of general aviation in America.

AOPA FOUNDATION

Listen up

The FAA demands your attention

BY MIKE YODICE
AOPA Pilot
Protection Services

ACCORDING TO FAR 91.183, pilots operating under IFR in controlled airspace must ensure that a continuous watch is maintained on the appropriate frequency. It's notable that many pilots are hearing from the FAA about lapses in radio contact. Often, a lapse is the result of a missed hand-off or a pilot's neglect to check in with the next controller after receiving a hand-off. The FAA gets pretty testy about these lost-communication-type events, especially if radio contact is lost for more than 20 minutes. If such an event occurs, ATC will catalogue it as a possible pilot deviation and you can expect to hear from an FAA inspector. It may not lead to certificate action, but we should work to avoid such issues in the first place.

Many of us have developed our own practices and procedures for switching radios. Your particular technique may depend on the type of radios or audio panel you use and your experience level. Whatever your method, be sure to remain vigilant. If it seems a little too quiet, go ahead and give ATC a call to verify contact. Although it's not a regulatory requirement, it's also a good idea to monitor 121.5 MHz during cruise operations and when otherwise practical. ATC will appreciate the ability to raise you on an alternate frequency, if needed, and you might appreciate not being the subject of an investigation.

In fairness to us pilots, lost-com issues are not always the result of our inattention. ATC makes mistakes, and radios and electrical systems fail. It's a good idea to review FAR 91.185, IFR operations: Two-way radio communications failure, as well as sections 6-4-1 to 6-4-3 in the *Aeronautical Information Manual* that address this subject. Remember, if two-way com is lost under IFR in VMC, the FAA wants us to continue the flight under VFR and land as soon as practicable. In such instances they don't want us to continue IFR and "unnecessarily as well as adversely affect other users of the airspace."

Mike Yodice counsels AOPA Pilot Protection Services members on such issues as FAA compliance and enforcement. He is an active pilot and regularly flies a Piper J-3 Cub and Cherokee 180.

WEB Learn more about AOPA Pilot Protection Services (www.aopa.org/pps)

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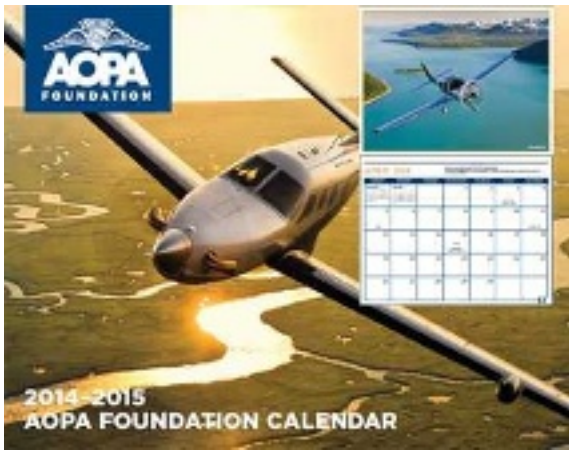

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Questions? Give the aviation specialists in AOPA's Pilot Information Center a call, Monday through Friday, 8:30 a.m. to 8 p.m. Eastern Time, 800-USA-AOPA (872-2672).

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INSURANCE FILE

Language decoder

BY BILL SNEAD
President,
AOPA Insurance Services

Here's what you need to know about renter's insurance

BUYING RENTER'S INSURANCE doesn't have to be complicated, but it helps to understand the insurance language and what it means to you.

Required coverage is the coverage you need to protect against claims for bodily injury and property damage that occur while you're operating a rented aircraft. It does not cover damage to the rented aircraft; that's covered under *optional coverage*.

Most insurers recommend that you should protect yourself with the highest amount of required coverage you can afford. The amount of optional coverage you need depends on the estimated value of the aircraft you typically fly, as well as your rental agreement and what that rental agreement says you are responsible for. Repair costs can be very high, so you really need your own coverage.

Let's say you make an emergency landing in your rented airplane on a golf course and, while landing, you tear up the turf, clip a golfer, and your passenger suffers a neck injury. Required coverage covers the damage to the course and the golfer, up to amount of chosen coverage, with your passenger's injuries covered by your per-passenger sub-limit amount. Your optional coverage covers damage to the rented airplane.

If you had a $1 million policy with a per-passenger sub-limit of $100,000 and optional coverage of $80,000, treatment of your passenger would be limited to $100,000. The remaining $900,000 could be used to cover damage to the course and medical care of the golfer. The $80,000 optional coverage would cover damage to your rented airplane, including loss of use.

Some policies have per-person sub-limits instead of per-passenger sub-limits. These policies are the most restrictive, as they consider any person involved in the accident to be under the required coverage sub-limits (in this case only $100,000)—instead of making the total policy amount available for anyone outside the plane. There are no related premium savings with this policy, so they should be avoided.

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American Champion Aircraft Corporation	44	www.amerchampionaircraft.com • 262-534-6315
America's Marketing iHS	148	www.ihs.com/aopaoffer •
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AOPA Aircraft Donation	141	www.aopafoundation.org/aircraft • 800-872-2672
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AOPA FlyQ EFB	83	www.aopa.org/flyqefb •
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AOPA Insurance Services	145	www.aopainsurance.org • 800-622-AOPA
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AVIATION'S MARKETPLACE

TIPS FROM PIC

SEARCHING FOR A MAINTENANCE SHOP?

BY CRAIG BROWN

ONE OF THE MORE COMMON questions asked of the AOPA Pilot Information Center comes from aircraft owners needing assistance in finding a maintenance shop. Specifically, the owners are seeking a recommendation. While that is certainly a valid request, it is important to know that AOPA does not recommend shops. AOPA has no system in place to evaluate or rate maintenance shops, and it is for this reason AOPA does not offer any recommendations.

We can help you in your search, however. Maintenance shops are detailed in our online searchable airport directory. Our directory includes a business/service information section, and it is in there that you can find contact information for maintenance shops, including websites, phone numbers, and email addresses. That works great if you know there is a shop at a particular airport. If you don't know that information, you can use our advanced search feature. It allows you to search by state, or to enter a radius search based on a zip code, airport ID, or latitude/longitude coordinates. The results returned will show all airports that meet your search criteria. You can then check each one for maintenance shops to find what you are looking for.

Manufacturer-approved service centers are another option for some owners and, although AOPA does have their contact information in its airport directory, you also could use the search feature on the manufacturer's website to find the shop closest to you. These shops typically specialize in certain aircraft still in production, and perform warranty work for the manufacturer.

Need help? Call the AOPA Pilot Information Center toll-free 800-872-2672.

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Craig Peyton

Giving up is not an option

BY MAYCAY BEELER

ONCE UPON A TIME, a Hudson Valley sky cowboy wrangled clouds. With the help of his trusty Mooney and a camera, he got so good at it that he was nicknamed "Cloudman," for the dreamy cloud images he captures on film. It's a labor of love for acclaimed musician and aerial cinematographer Craig Peyton, whose stunning cloud scenes regularly show up in movies, TV shows, and advertisements, including the Islands of the Bahamas.

About a decade ago, the clouds that comprise Peyton's remarkable career turned dark when he was diagnosed with Stage IV esophageal cancer. Given a two-percent chance to live, Peyton submitted to brutal experimental cancer treatments that nearly did him in. In addition to radical medical regimens, he explored alternatives from the holistic to the hellish, in a desperate attempt to save his life. That's when a healer told him he would die.

She was dead wrong.

Somehow, Peyton found the strength to endure the hideous chemo and radiation treatments (that initially burned his veins black), and lived to publish an eBook about it in 2012. *Cloudman—Surviving Stage IV Cancer: A New Beginning* inspires us to hold on in the toughest of times, proving that anything is possible—including a second shot at life. It is available on the Kindle. Baring his soul in this remarkable survival story, Peyton's story invokes tears, yet inspires hope. For anyone suffering from anything that seems insurmountable, who may be ready to throw in the towel, *Cloudman* empowers. It's a testament to why giving up is not an option, demonstrating how things sometimes can turn around.

At the same time Peyton was grounded for treatment, his Mooney was in the shop undergoing extensive reconditioning as well. New paint. Spruced-up interior. New windows. Interesting how both pilot and flying machine simultaneously underwent similar fates—a transformation, a rebirth of sorts.

Today, the sky cowboy is back in the saddle. Cancer-free and flying his treasured Mooney, Peyton, yet again, captures the cloud images found on the small and silver screens. His primary motivation to cheat death was, first, his son—and second, his desire to get back to the clouds, fueled by his love of aviation. Peyton says, "Live while you can. Carpe diem." **AOPA**

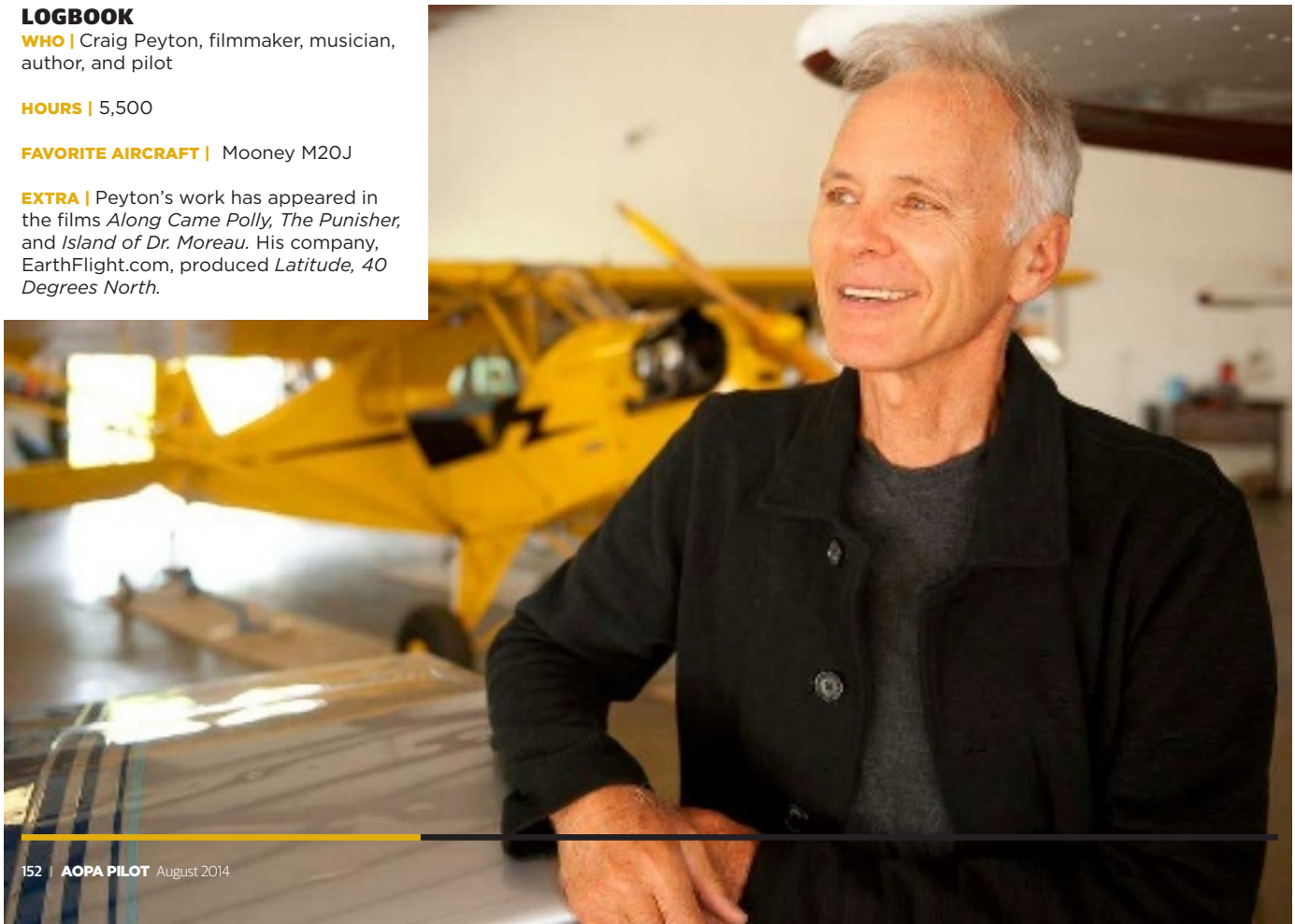
LOGBOOK

WHO | Craig Peyton, filmmaker, musician, author, and pilot

HOURS | 5,500

FAVORITE AIRCRAFT | Mooney M20J

EXTRA | Peyton's work has appeared in the films *Along Came Polly, The Punisher,* and *Island of Dr. Moreau.* His company, EarthFlight.com, produced *Latitude, 40 Degrees North.*



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[1]G600 is designed for most aircraft under 12,500 lbs; G500 is designed for most aircraft under 6,000 lbs. Check with your Garmin dealer for compatibility information.
[2]Initial U.S. FliteCharts® will disable when data is over 6 months out-of-date. Updates available on single-cycle or annual basis.
[3]SVT synthetic vision comes standard on G600; it's optionally available on G500.

G500/G600 Flight Displays

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