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DAVID SCOBEY

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Quarterly Update

FROM THE TBMOPA FOUNDATION



David Scobey

David Scobey
Chairman TBMOPA

This is my last message as your chairman. It has been an honor to serve as your chairman for the last four years. In thinking back, the journey reminds me of a long simulator session – times when routine flying was the norm mixed with times of unexpected, difficult to solve situations, periods of good weather mixed with bad weather, periods of leveraging muscle memory skills and periods of being stretched and grown.

The journey started with hiring and onboarding a new executive director. Misty Stanistreet stepped into the role running. She brought a great mix of experiences and relationships into the role and has done a great job moving the organization forward. She and I have been supported by a great set of board members with diverse

skills and capabilities, a high level of engagement, and unlimited good ideas on how to improve the association. I would be remiss not to convey my thanks to Misty, our current and past board members, and the founders of TBMOPA.

One of the early challenges we faced in 2019 was a hurricane approaching West Virginia at the same time our convention was set to begin. After much watching, waiting, and conversation we decided the only safe decision was to cancel the convention. We were able to negotiate a resolution with the hotel so we weren't left holding a big bag of debt. And all of our partners allowed us to keep their sponsorship money – Daher being the biggest investor/donor to the cause. All of our sponsors and most notably Daher have been incredible to work with. I believe we have the most

unique and balanced relationship of all OPAs with our manufacturer. With the leadership of Nicholas Chabbert, the entire Daher team has been wonderful to work with beside. There is the appropriate balance with them supporting our efforts juxtaposed against TBMOPA exerting strong advocacy on behalf of our members. It works well and is envied by many other associations. So, thanks to all our supporters and especially the Daher team!

Two years after the hurricane cancelled the convention, we were faced with having to cancel another convention – this time due to Covid-19. We shifted plans quickly and had a very successful and well-attended online convention. And finally, this year we got to meet in person once again – something we have all anxiously longed for.

"IT HAS BEEN AN HONOR TO SERVE AS YOUR CHAIRMAN FOR THE LAST FOUR YEARS."

In between these bouts of turbulence, we managed to accomplish much, including reinvigorating our safety committee, hiring a part time safety advisor pilot (thanks Jim Tuley), encouraging Daher to hire a safety director (welcome Wayman Luy). The safety committee is very active and engaged in new approaches to training and standard operating practices and much, much more. We have developed member recruiting and retention programs, established an insurance committee, laid the groundwork for a new maintenance committee, revamped the regional safety seminars, offered more online seminars, grown our membership - all while maintaining a healthy and growing balance sheet.

At the end of every job, including volunteer jobs like this one, I have looked back. I always see things I could have done better and try to learn from any mistakes made. I also try to acknowledge what the team has accomplished. I have tried to leave the association in even better shape than the good shape I found it. I've tried to operate with the professional decorum the association deserves. And I've tried to promote safety for us all and comraderie and fun as well. Thanks for allowing me to lead our association for these last few years. Happy and safe flying to you all.





TBM

OWNERS AND PILOTS MAGAZINE

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**MEET
THE
MEMBER**



BRANDON

DURBIN



What airplane do you currently fly and how many hours do you have in it?

I fly a 2015 TBM900 that I bought “gently” used in 2018. I have flown it 700hrs. I previously had a 2010 TBM850 that I flew 1200hrs.

What is your favorite vacation spot(s)?

Not really one spot, we like to explore new destinations with the TBM. We have taken the TBM all over the US, as far south as Ecuador, a couple times in the Caribbean, and across the North Atlantic to Europe first, then all the way to Cape Town, Africa.

What was your favorite things about flying to Europe?

Wearing the Gumby suit... Not really, but it is the fun of learning something new.

What are your procedures for getting around foreign countries?

Ask people who have been there before. We normally go on Air Journey’s escorted journeys and they handle the details; we get to enjoy the flying and learning new things.

Favorite flying experience?

Flying just above a smooth layer of clouds and skimming over that layer. Every time I do it, it is magical. But one time we saw the sunrise flying over Greenland lighting up the ice and mountains, incredible view...

What drew you to flying?

I took my first lesson in college because of my roommate. It was in a Cessna 140 taildragger in Waco, TX, off a pasture. I got my pilot license when I was 29 and needed to learn to fly for work. I traded work on the farm for the first 10 hrs of flight time.

What is your career background?

I'm a CPA by education and only worked with hospitals and in healthcare since I was 26 years old. We are now in a special niche of consulting for hospitals and ended up owning homecares and hospices.

How many hours do you currently have?

A little over 3000hrs

What is the first plane you ever flew?

Cessna 140

What is the first plane you ever owned?

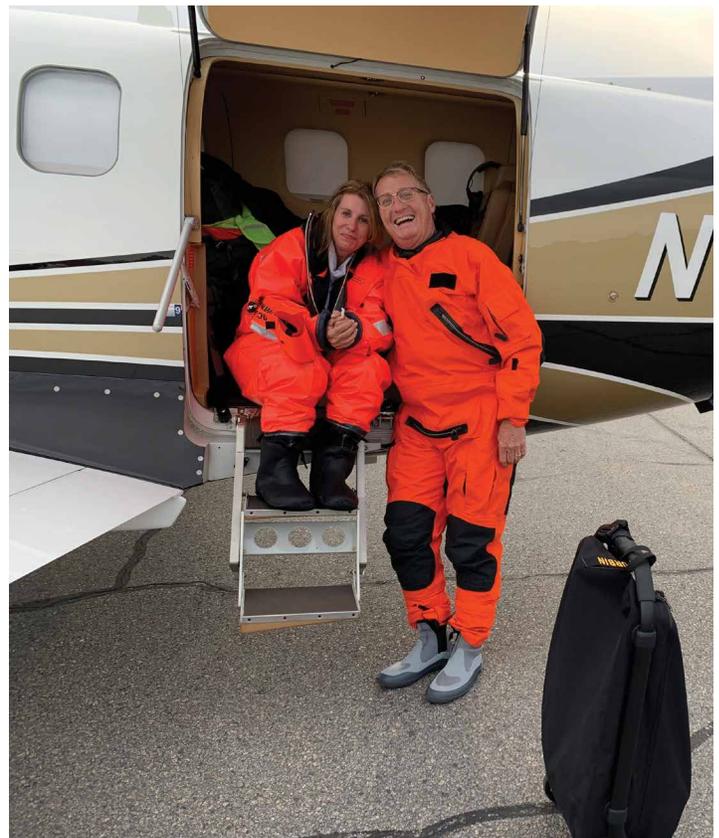
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Do you have any recommendations for pilots out there?

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PROUD MEMBER OF





WHITNEY HAMMOND,

TBM Pilot in Training
By Christine Sperduto



“I started flying in 2012, basically for safety,” said Whitney Hammond, Cessna 182 owner and TBM pilot in training.

“I went on a flight with somebody and realized that it would be a good idea to learn how to be a co-pilot. Then I went all the way to my instrument rating and purchased two different brand-new airplanes.”

The thrill she gets from flying is like none other. Learning how to fly was also a fun experience for her that stretched her to become a great student and keeps her constantly learning. She is now learning to fly the TBM 940. She’s having a blast and can’t stop bragging about how much she enjoys the aircraft.

“There is a big difference flying a Cessna 182 and flying a TBM 910 or 850,” she said. “I’d say that safety and range is number one.”

She specifically bragged about the built-in safety features: the deicing equipment, auto throttle, and oxygen masks. The best part though, is the comfort of flying the luxurious aircraft. “The plane just flies,” she said. “It literally flies by itself.”

The technology behind the yoke is also something to appreciate. “There’s a lot of technology working with the G3000,” said Hammond.



She is anxiously waiting for the auto land feature to make its debut and has enjoyed using the Me and My TBM app. She's always challenging herself to make a 100% perfect landing.

"It's really important to understand how to land the TBM because it's really easy to have a prop strike because of the length of the prop,"

said Hammond. "The Me and My TBM app is a fabulous tool to have precise landings and prevent yourself from having a prop strike – which is very expensive and ruins the engine."

She also appreciates the digital checklists with the Me and My TBM app. "I am not afraid of going down or having anything go wrong with the plane," she said. "We are trained with the equipment that we fly that if this goes wrong what to do. Have I been flying and things have happened? Absolutely."

When that happens, her training kicks in and she opens her checklist in ForeFlight, it tells her exactly what to do, and she completes the checklist. "There's no panicking," she said.

"I feel extra, extra safe in the TBM," she added.

She loves the thrill of flying but does wish she had a few more female pilots to bond with. Being a woman in the hobby of aviation can be a bit lonely, but Hammond said she is used to it because of the industry she works in. She wants to encourage more women to face their fears and learn to fly.

"I'd like to see more women in aviation," she said. "Not so much as a career – career is one thing, that's fine – but as a hobby! The people you meet, the lifelong friends you meet, the places you go, the awesome trips you get to go on, the high you get to feel when you're up in the sky – it's euphoric."

"I think it's really important for women to reach out and do all the things that they think they cannot do," she said. "There's a big fear factor around flying, and there's a huge achievement to fly that airplane, get it up in the sky, and once you're up in the sky, you have to be able to bring that plane back down."

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"As women, we feel like we need to know 100% before we run for office, before we think we can fly an airplane, before we think we can own and operate a company," she said. "This is not the case."

"The carefulness that we have [as women] make us awesome pilots," she explained. "We need to know all the information so we study all the pieces and we're actually really, really, really good at flying."

She described learning about engines and having different learning curves than typical male pilots, but it was not impossible.

She encouraged any woman that could to go out and get flying lessons. "I highly recommend all women, if they can, to give it a try," she said. "You have one life to live. It's not a dress rehearsal folks, it's one life. Do everything that you can."

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PROPELLER TLC: HOW TO TAKE BETTER CARE OF YOUR PROP

The propeller is one of the hardest working components of your airplane. During normal operation, the typical general aviation aircraft propeller will endure high torque and thrust levels, as well as vibration from the engine. Each blade alone withstands between 10 and 25 tons of centrifugal force, which is literally trying to pull the blades from the hub and the propeller from the aircraft.

Like any aircraft component, propellers experience wear, tear, and fatigue over time. If proactive inspections and preventative maintenance tasks are neglected, propellers are subject to dangerous corrosion and erosion. Propeller failure is rare, but if it happens, it's usually catastrophic. If a blade is lost or the hub breaks, the imbalance is so great that it can pull the engine right off the mount, often rendering the airplane uncontrollable.

Your propeller deserves your utmost respect and attention. Here's how to keep your prop in tip-top shape:

CONDUCT PRE-FLIGHT INSPECTIONS

Before any flight, perform a comprehensive inspection of the propeller blades and hub. You should be looking for signs of obvious damage, such as nicks, gouges, cracks, missing hardware, leaks, corrosion, and erosion. At HartzellProp.com, we have several maintenance videos to guide you through the steps of proper pre-flight inspections for both our aluminum and structural composite propeller blades.

If you see any issues, don't fly. Even seemingly minor damage could start a growing crack that leads to blade failure. Always have any problems addressed by a reliable prop shop.

MIND THE GRAVEL

Before starting up, try to clear away any debris within four to six feet of your airplane. Loose gravel will fly up into the air when the propeller blades rotate, even at slow speeds. Any prop strike is serious — whether on the ground or in the air. If your propeller hits something, discontinue the flight and conduct a thorough investigation for damage.

If you frequently use unpaved runways, consider upgrading to a more rugged structural composite propeller. Composite blades are specifically engineered to withstand the demanding environments of backcountry flying.

KEEP UP WITH REGULAR OIL CHANGES

Regular oil changes are one of the best ways to prolong engine life and help protect the propeller system. After 25 to 50 flight hours, aircraft engine oil gets contaminated with sludge, acids, and moisture, which



can lead to harmful corrosion. Following the engine manufacturer's recommendations, pilots can perform DIY oil changes. It's a great way to save money and keep a close eye on the health of your engine.

USE A TOW BAR

Propeller blades might be strong, but they should never be pushed or pulled to move or park a light aircraft. Applying manual force may cause the blades to come out of track with one another. Always use a quality tow bar — it's worth the extra effort! And don't forget to check that you've removed the tow bar before starting the engine. More than one pilot has made this embarrassing and potentially dangerous mistake.

CLEAN THE BLADES

Cleaning the propeller after every flight helps to keep corrosion at bay and ensures your prop always looks its best. At Hartzell, we recommend using a gentle cloth and simple cleaning solvent of dish soap and water to remove dirt, dust, pollutants, and insects from the propeller blades. Never use acidic cleaning products,

steel wool, harsh sponges, or a power washer on your prop. Wipe the blades in a downward motion to prevent water from running back into the hub and damaging internal seals.

PROTECT THE PAINT

Your propeller's paint is about more than aesthetics; it's also the first line of defense against dangerous corrosion and erosion. When paint is removed from the surface of the blades, it exposes the material underneath to the elements. Moisture and debris, as well as bug shells and bird droppings, can seriously damage your propeller and lead to safety concerns.

Over time, any propeller is subject to some degree of paint wear and tear. Paint will erode even faster depending on your flying environment. Rain, sand, dust, gravel, and water spray from float operations can all take a toll on your propeller's paint.

If you notice minor damage to your propeller's paint, such as chipping or flaking, a paint touch-up may be required. Be careful about the paint you use—regular spray paint won't do. Propeller paint is a very specific formula that's made to be extremely durable and resistant to abrasion. Your propeller manufacturer will recommend approved paint and primers you can use to address any small issues.

The touch-up process is fairly straightforward, but it's important to coat each blade with the same amount of paint. Uneven paint layers can put your propeller out of balance, so keep track as you go. Also, never try to paint over cracks or corrosion on the surface of your propeller blades—it will only make matters worse. These issues need to be addressed by a professional before flying.

Taking your prop to an authorized propeller repair station for a "dress and paint" is something you can do as needed, but if your propeller is due for an overhaul, it will also be repainted and balanced during the service.

COMPLY WITH RECOMMENDED OVERHAUL TIMES

Propeller overhauls are an essential way to maintain the safety and performance of your aircraft. It's highly recommended that owners/operators follow the propeller manufacturer's published overhaul limits to help ensure that any issues that may be developing within the propeller are detected and addressed early on, ideally while they can still be easily repaired.

While your propeller may appear to be operable past its overhaul limits in a visual inspection, it's not always easy to detect problems like corrosion or seal aging that can occur within the propeller's components. Some levels of damage are often only identified during a full propeller disassembly and overhaul at a certified propeller repair facility. Neglecting the propeller can lead to much larger, more expensive issues such as reduced reliability, propeller malfunction, component replacement, and potentially unsafe operating conditions.

MAINTENANCE MATTERS

Your aircraft propeller represents a significant investment in your aircraft's performance and overall aesthetics. It only makes sense to do everything you can to care for your prop and extend its lifespan.

If you have any questions for the Hartzell Propeller technical team, please contact us at techsupport@hartzellprop.com.

The logo for Daher, featuring the word "DAHER" in a bold, white, sans-serif font. To the left of the text is a small red square icon with two white dots inside, resembling a stylized 'D' or a signal indicator.

Photo: Chris Rose

Redefining Flight Safety and Performance

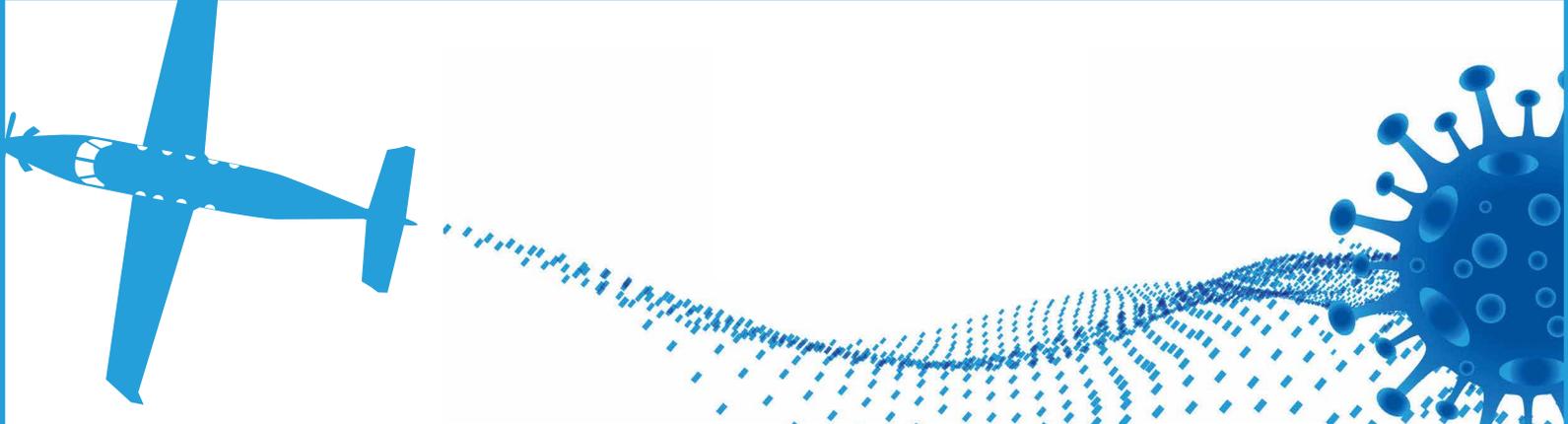
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The logo for the TBM 940, with "TBM" in a large, bold, white sans-serif font and "940" in a smaller, bold, red sans-serif font below it.The logo for HomeSafe, featuring the word "HOME" in a white sans-serif font and "SAFE" in an orange sans-serif font. A stylized orange and white propeller icon is positioned between the two words.



How is the Industry Adapting to COVID-19

By Adam Meredith

The world response to the COVID-19 pandemic radically shifted markets, from the mundane—sundries and dry goods—to the more esoteric, like silicon chip manufacturing. What might be the lasting effects that COVID has had on the airplane market?

Similar to potential homebuyers and white-collar office workers, COVID has forced a re-examination of air travel by business executives, business owners, and GA pilots. Industry professionals seem to agree that beginning mid-pandemic, COVID really pushed a lot of people to seek the means to do their own thing however they could, and especially those who could afford it, to buy and fly.

Now as the pandemic seems to be on the wane and COVID restrictions are lifted, will that trend continue? And if so, how will that affect the different aircraft markets?

The industry already has had several years of strong economies, which has led to tightening of quality supply. Now AOPA is seeing that more businesses realize it's prudent to keep their execs off commercial airlines and instead seek alternatives like buying a company airplane.

First-time buyers are going to look at the lower end of the market: the owner-flown segment. That puts increasing upward pressure on pricing. AOPA is seeing a lot of demand on very thin supply, particularly in the turboprop and light jet spaces. In those two categories, the pace of sales has accelerated.

That's led to further appreciation in the value of a lot of aircraft, particularly in the single-engine piston space. And because demand has far outstripped supply of quality, issue-free aircraft, people are more willing to buy problematic assets: airplanes with damage history, or a cloudy title or incomplete logs. Buyers are even investing in project aircraft, the kind that need avionics upgrades or new paint and interior, or all the above.

On the financing side, people who don't have their finances in order are often losing out to those who are more financially nimble—those who can make offers without financing contingencies or who have financing already lined up. If the stock market is any measure of strong consumer confidence, it's fair to say this will persist.

Our work environments have changed, and with more of us working remotely full- or part-time, people have more flexibility and time to travel. We see that those who can afford to own an airplane are more likely to justify and complete the purchase.

Any number of things could cause that to change, but the biggest foreseeable impediment to a sustained seller's market could be major tax reform as currently proposed by the Biden administration. On the other hand, with the government continuing to spend, inflation could become a problem. If there is inflation, you'll want your money in assets. That will only make airplane inventory worse. Tough to know for sure which way things will go, but given it seems far more challenging for consensus on tax reform than consensus on some form of spending package, it will likely be some time before we see values dropping drastically.

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Senior Vice President of DAHER-SOCATA's
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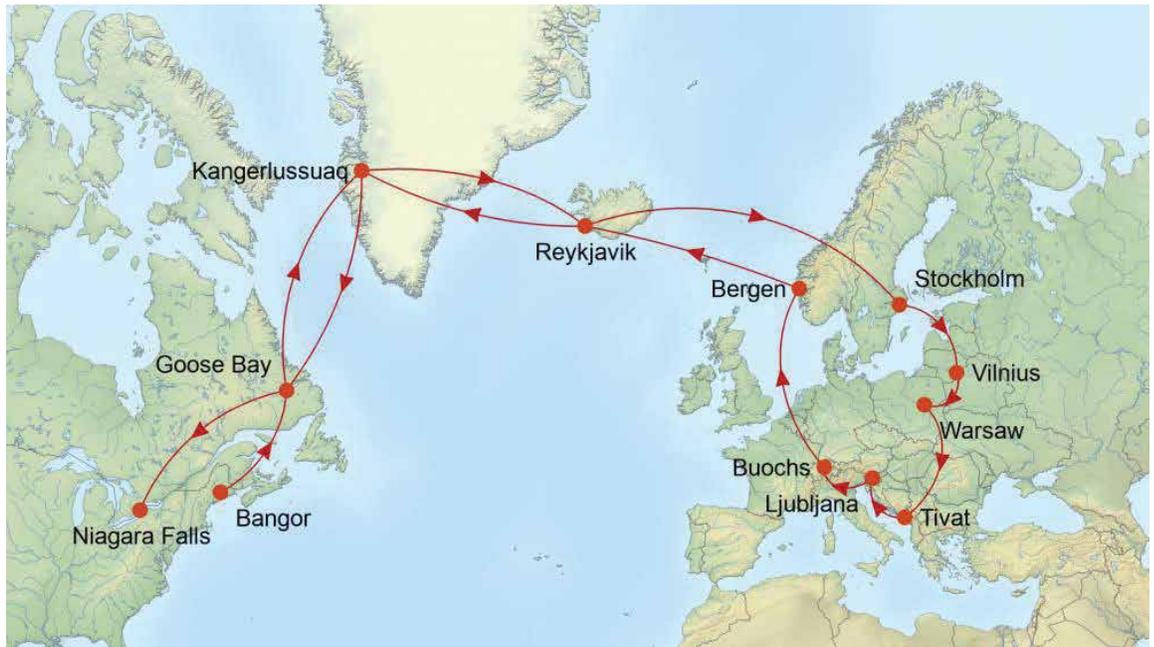
Shorter takeoff and landing | Faster cruise | Quieter in the cabin

By Guillaume Fabry

Bucket List Flying

An aerial photograph of a city at dusk or dawn. In the foreground, there are several modern, multi-story buildings with glass facades. A multi-lane highway curves through the middle ground. The background shows a dense urban area with many smaller buildings and houses, surrounded by green trees. In the upper right corner, a large, golden-brown hot air balloon is floating in the clear blue sky. A smaller, partially visible hot air balloon is also seen on the right edge of the frame.

I recently wrote about travelling during COVID times to non-crowded destinations to the Caribbean and Central America. Even as summer comes to a close, one of the nicest destinations to travel to is Europe. Flying your own airplane across the North Atlantic to Europe is a bucket list item for most pilots. Planning and doing it during COVID times has its pros and cons. The planning part is intensive: aside from preparing the flights and the land arrangements such as hotels, tours, activities, transportation, and restaurants, the COVID restrictions going from one country to another can be tricky to understand. They seem to be designed for passengers on commercial flight, but do they apply to us crew members? What if we are US citizens not coming straight from the US but coming from another EU Country to another EU country? Are we considered EU citizens for COVID restrictions or considered coming from the USA? Or do we have to wait 14 days?

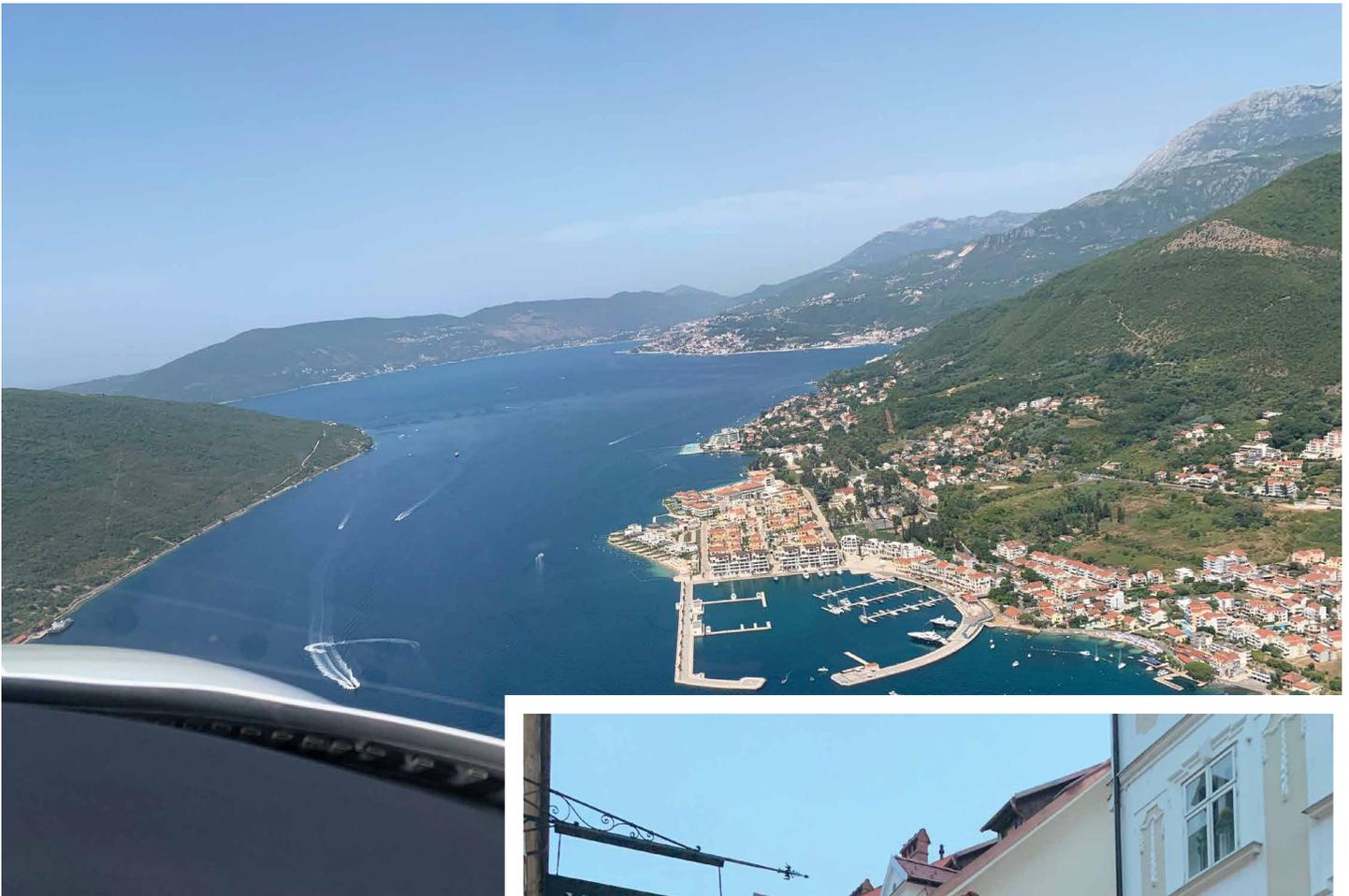


The most important item seems to be the vaccination card: this made our life a lot easier on the journey. Checking with airport police, immigration officers, or sanitary supervisors got us the answers we needed. Our plan was to travel with 6 airplanes from the USA to Canada, Greenland, Iceland, Sweden, Lithuania, Poland, Montenegro, Slovenia, and Switzerland — A 25-day journey mainly across Eastern Europe to destinations that were not going to be overly crowded during the summer. France, Spain, Italy, and Greece opened their borders to vaccinated and unvaccinated travelers with negative COVID tests and were going to be very busy this summer, especially with the US and Canada still closed for Europeans. Our “journeyers” had previously visited the main European countries, so they were ready to explore new destinations.

To begin, a COVID PCR test was required as part of our own safety protocol before meeting each other for the departure. Yes, we are all vaccinated, but we wanted to make sure that no one was carrying the virus before launching on this adventure. As Canada and Greenland were still closed for tourism, we launched early morning from

Bangor, ME (KBGR) with the 6 airplanes for a quick refueling stop in Goose Bay, Canada (CYJR) before heading to Kangerlussuaq, Greenland (BGSF) then over to Reykjavik, Iceland (BIRK). Both the Phenom 300 and Citation CJ3+ skipped the fun of Greenland while the 3 Citation M2s and the TBM900 made it a quick refueling stop. A nice part of travelling during COVID to countries closed for tourism is that they will expedite your turnaround at an incredible speed. Our ground time from touchdown to lift-off was 28 minutes in Kangerlussuaq and 32 minutes in Goose Bay, Canada; including taxi in and out, refueling, restrooms, paying the airport fees and getting our IFR clearance. Amazing when you are trying to cover 2,300 nm in a day, in four countries, and losing four hours.





Crossing the North Atlantic in the middle of July has its pros: good weather, no snow, no ice, and almost 24hrs daylight in Reykjavik, Iceland, which makes a landing at 9:00pm (5:00pm US time where we launched) a pleasant experience. Iceland had been doing very well with COVID and vaccination rates, so no mask were required inside, and no test was required if you are vaccinated. We spent the next day exploring an inactive volcano and going 500 ft inside the chamber where once magma erupted over 4,000 years ago. The two-mile easy hike to get there was a nice way to stretch after the flying the day before. One key item is that Iceland is part of the Schengen Area (an area comprising 26 European countries that have officially abolished passport requirements and all other types of border control at their mutual borders), which made our travel within Europe a lot easier with no passport or other COVID controls.



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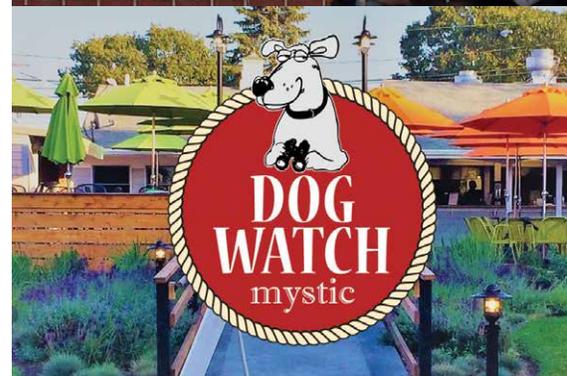
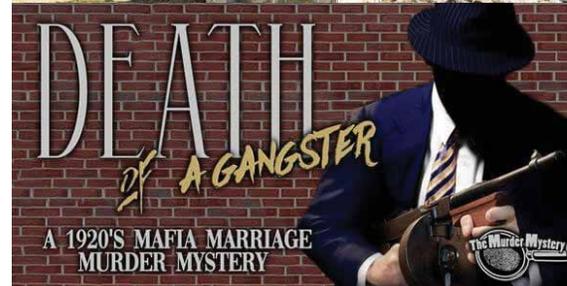
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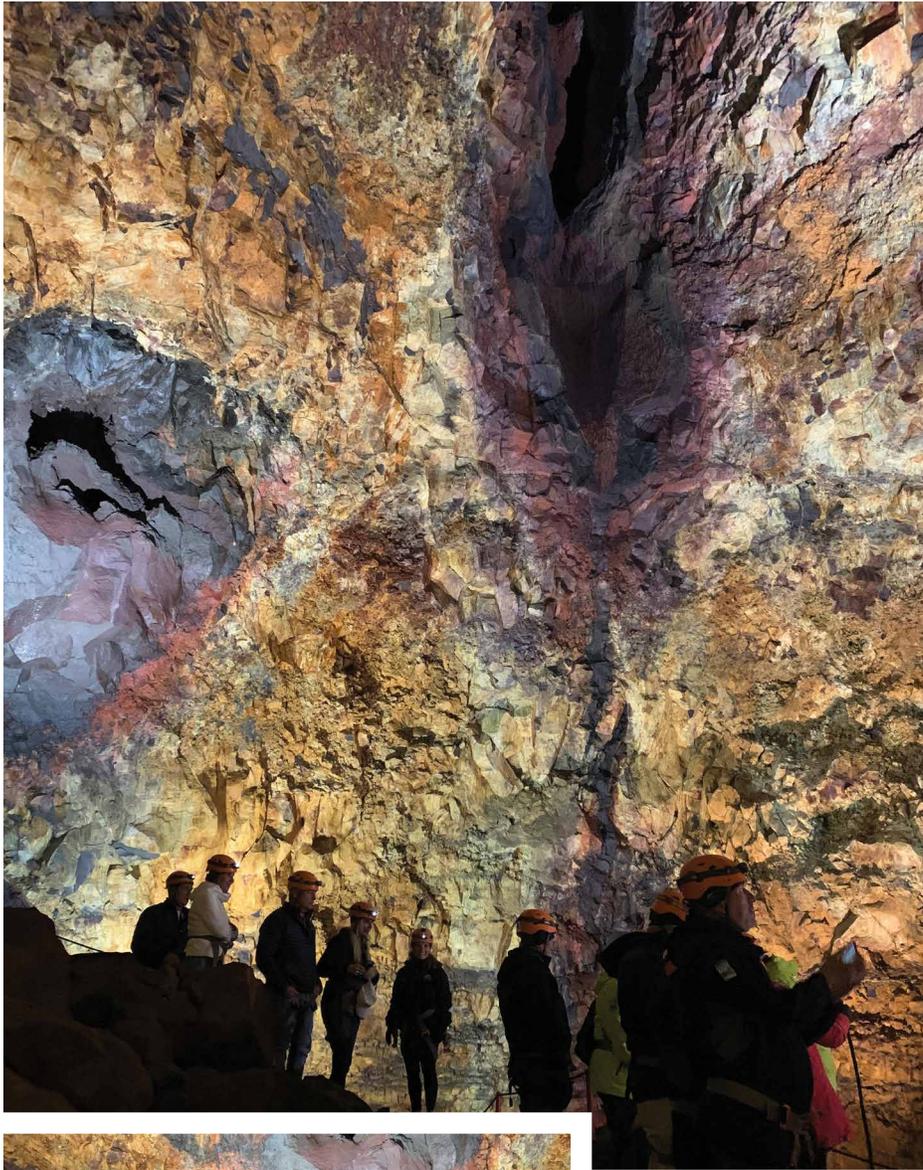
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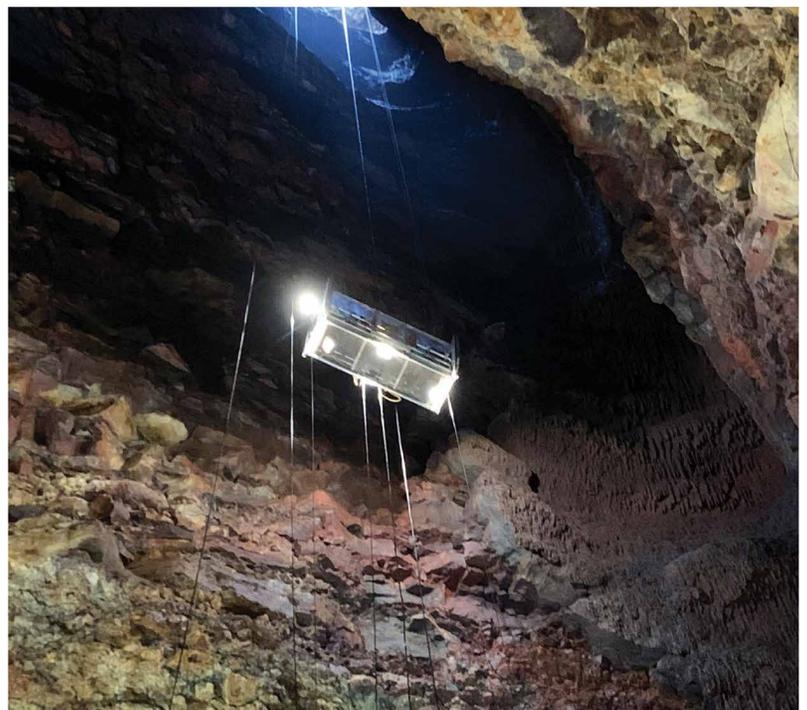
We visited the beautiful city of Stockholm in Sweden for 3 nights where tourism was at only 25% compared to a normal summer (and no 300 cruise ships this year), which made our visit very enjoyable. Then we continued to Vilnius in Lithuania for 3 nights. Our next stop was Warsaw, Poland, a beautiful city that was 85% destroyed during World War 2 and is now one of the leading cities in Europe.

Our next flight got us to fly over the Czech Republic, Slovakia, and Serbia for a beautiful approach into Tivat, Montenegro, on the coast of the Adriatic Sea. We stayed at the recently-opened One&Only Portonovi resort and went out for a yacht excursion in the bay of Kotor for some swimming and Mediterranean lunch overlooking the bay. Once again, being a vaccinated crew member made the entry into the country very fast and uneventful.





Due to stormy weather activity at our next destination, Ljubljana, Slovenia, we decided to delay a day and head to Dubrovnik, Croatia, only a few miles away. The next day the weather cleared up and went on to visit a bit of Slovenia. Our final 3-night destination took us to Zurich Airport then over to the Burgenstock Resort sitting on top of the mountain and overseeing Lake Lucerne. Landing in Zurich was an experience: the airport is slot coordinated, so depending on traffic you get a slot (assigned takeoff time +/- 5 min) from Eurocontrol that prevents you from departing from the previous airport until Eurocontrol has estimated that that destination airport will not be over-capacity by the time we get there. Controllers were very professionals and expecting the crew to perform well on vectors, speed restrictions, and other clearances. Zurich has a ground control and two apron controls for taxi, which seem intimidating at first for taxi, but a follow-me car is waiting for you after you vacate the runway to insure you don't end up facing a Swiss Air 737 on the taxiway and creating a mess.



Transferring to the Swiss Alps and visiting Lucerne for our 3-day stay was an amazing experience. Then, it was time to head back to the USA. A rapid COVID antigen test was required for us even as crew members as we were not official crew on “duty” but more crew on “vacation.” By then, Iceland required a rapid test for vaccinated travelers as well, so doing a test the day before departure covered us for both Iceland and the USA.

As the season for travelling to Europe and crossing the North Atlantic is slowly ending, we look back over the past 25 days travelling. It was an incredible and amazing experience. Uncongested airports, uncrowded cities, great destinations, hotels, and great services really made the experience special.





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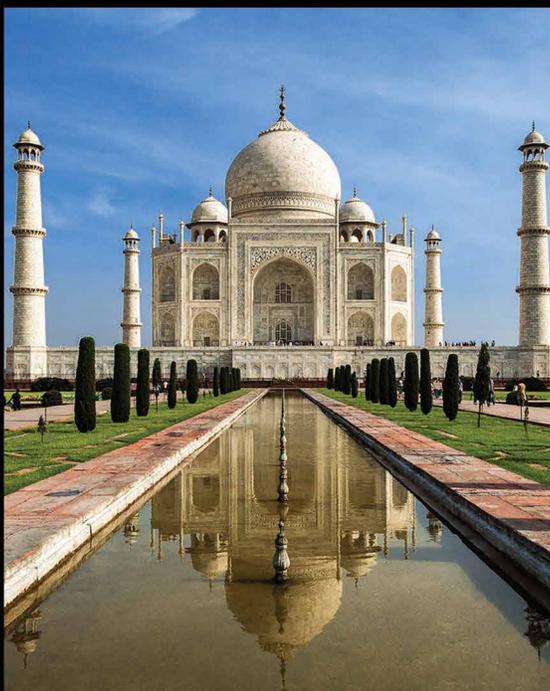
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SUMMER: The Season of Turbulence

By Stefanie Lauber

The skies are always calling at this time of year. What better way to vacation than to soar through the clouds, opening up to a bird's eye view of your destination as you make your approach? One thing that can really ruin your flight is unwanted turbulence. A smooth ride can really go south when you are dodging storms or navigating around AIRMETs. Murphy's Law says summer is when you'll find the most turbulence simply because it's the season of fun; but is there any truth to this? The meteorology of summer over the contiguous United States may lend some insight.

Summer 2021 began June 20th, marking the Summer Solstice. This marks the longest day of the year in the northern hemisphere, with the sun at its highest angle in the sky at noon. For the next few months, the U.S. experiences the hottest temperatures of the year. While many folks are ready to shed the extra layers and bask in the extended daylight hours, the warmer weather can also mean more turbulence on your flight.

Let's start with a basic definition: a bumpy ride caused by inconsistent lift beneath the airfoils. Every pilot at some point or another has experienced it. Air pressure and density may change drastically, and that rapid change can cause a jolting dip or rise

in altitude (and sometimes attitude) upon the aircraft. Turbulence in simple terms is the ebb and flow of the atmosphere, akin to a boat navigating the bumps of the ocean; after all, the atmosphere and the ocean are both fluids. What kinds of conditions can lead to turbulence, so much so that summer increases your probability of finding it along your route? For that we go back to the weather.

The longer daylight hours of summer (as compared to winter) allow for more daytime heating. A pocket of air at the surface warms, becoming less dense than the surrounding air, causing it to rise in altitude. This upward vertical motion alone can produce turbulence.

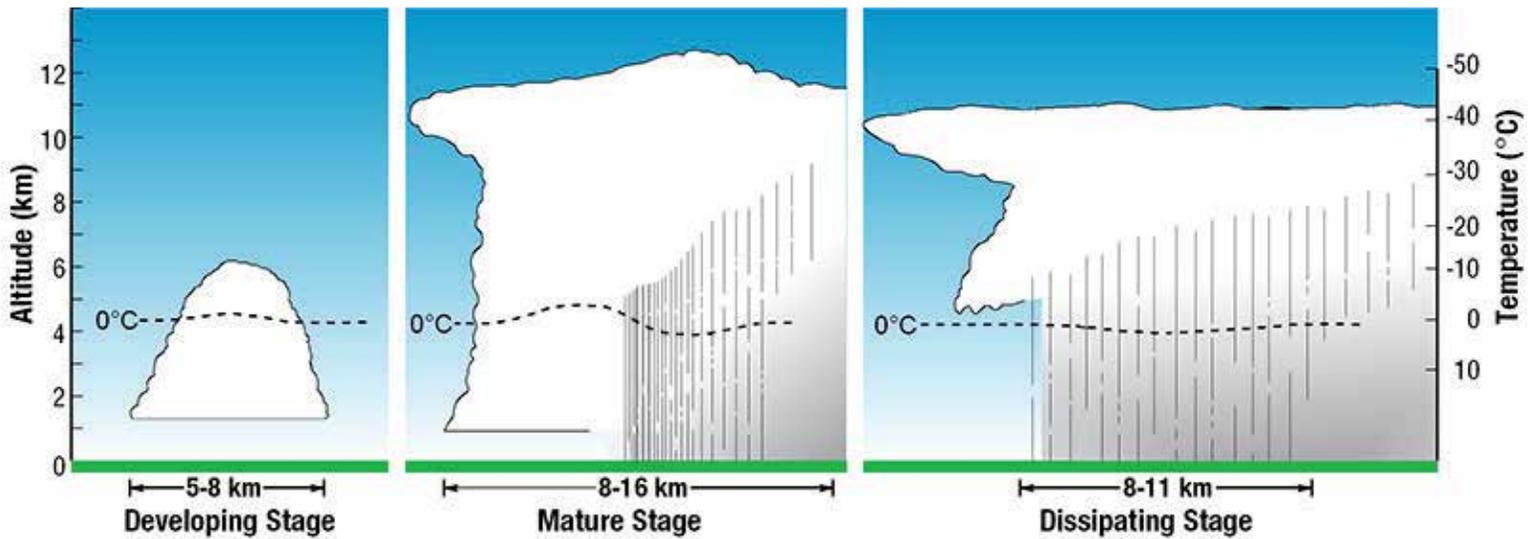
Now, if that pocket of air happens to be moist, as it rises from the surface aloft, the air will cool and the moisture will condense making a cloud. Taking things a bit further, if this process happens with the right atmospheric conditions, the upward vertical motion can continue to create clouds that produce rain; take this another notch and you'll get a thunderstorm or cumulonimbus cloud. These are often pulse or pop-up thunderstorms and are somewhat short-lived storms that bubble up from the day's heat.

If the warm, cool, condense, fall, warm cycle continues you may find yourself with many cumulonimbus clouds and strong supercell thunderstorms. These storms can happen just about anywhere over the lower 48 but are most often seen over the plains. The cool air

coming off the Rocky Mountains combines with the warm, moist air coming in from the Gulf of Mexico and the dynamics are just right for a stormy day. Flying through clouds and especially thunderstorms can be risky business as the column of rising air called the updraft can mean severe or even destructive turbulence. The change in air density along your flight path from the cooler, more stable air before and after the updraft can toss your aircraft around quite a bit depending on the strength. Depending on your flight level, thunderstorms can also be dangerous in that their outflow or downdrafts can produce a stomach-wrenching drop in altitude. It goes without saying, avoid thunderstorms and towering cumulus clouds at all costs.

Outside of thunderstorms in general, there are also clear air turbulence triggers to keep in mind. For instance, coastlines offer another weather feature to watch out for: the sea breeze. Because land and water heat and cool at different rates, coastal areas often see a diurnal heating event known as a sea breeze. The land along the coast will quickly warm during the midday hours, while the ocean (and the air above it) remains fairly cool. This difference in temperature creates a difference in air pressure, causing air to move inward from the ocean. That air moves over hot land, warms, rises, and so on. This doesn't always lead to precipitation, but often thunderstorms do form along a sea breeze "front." The result is a line of thunderstorms that moves inland from the coast. If you've ever been to Florida and





gotten rained on during a hot summer afternoon, it was likely this weather setup. And yes, Florida will often get a sea breeze on both coasts. They move inland and often collide, producing an utter mess of storms. Even more specifically, the difference in the moisture content of air can affect its density and therefore pressure.

By now you're likely recognizing the leading culprit behind summer turbulence: heat. Hot temperatures won't always lead to rain and thunderstorms, but the uneven heating of land can still make for a bumpy ride. Over the western half of the lower 48, hot and arid conditions can reduce air density meaning tricky

flight planning for certain aircraft. The mountainous terrain, deserts, and plateaus make for beautiful vacation spots in the summer months, but the diurnal fluctuations in temperature can translate to challenging pressure altitude/density altitude considerations. No pilot knows this better than perhaps one flying for firefighting purposes. A pilot responding to a wildfire can encounter precarious conditions while carefully manipulating their proximity to a fire and dropping water or other heavy loads of fire retardant. But for the average aviator, being mindful of the air temperature in transit will come in handy. In all, the summer offers an escape from the otherwise chilly

temperatures of winter, spring, and autumn. The ample sunshine entices everyone to enjoy the lively outdoors. Before you head to the hangar, make sure you get a thorough weather brief and understand that the warm, inviting air may have a few tricks to go with its treats. Clear air turbulence and summer thunderstorms can be found more easily in summer with the overall warmer weather. Take advantage of early morning flight times and remember to bring your favorite pair of sunglasses.

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TBM

DAHER



There's a well-known quote that perfectly applies to the TBM community today: "Together, we can do so much."

It's particularly true based on our activities during recent months, as highlighted by the latest Professional Pilot magazine's annual product support survey that ranked Daher #1 for turboprop-powered aircraft, putting us at the top after 12 years in second position.

This result benefitted from the support of TBM owners who responded to Pro Pilot's annual poll, and – as importantly – who have regularly provided feedback that enables our TBM Care teams to further improve Daher's support in meeting the community's needs.

The overall score of 9.05 placed us first in all of the survey's seven criteria: responsiveness, spares availability, speed in AOG service, technical manuals, technical representatives, service satisfaction, and the cost of parts – a category that has been the most criticized in the past. Our rating's spectacular improvement in the cost of parts category (7.42, compared to 6.26 in 2020) reflects our constant efforts to better control part prices over the years, working with the supply chain and acting on the input from owners and operators.

Excellence in customer service and the customer experience is key to everything we do at Daher, and the 2021 Pro Pilot survey's results encourages us to continue our

quest for the best. These excellent results also provide a return to the TBM community, as they positively affect aircraft values – thereby supporting owners' investments in their airplanes.



Another example of the TBM community's strength was evident at this year's EAA AirVenture Oshkosh, where TBM owners and their guests joined us at the Daher exhibit, along with suppliers, partners, future TBM owners, representatives from the airworthiness authorities, and others. After 18 months of limited public contact, it was great to experience the camaraderie that comes from a common love for aviation – which was evident with the hundreds of air show attendees we welcomed during the week. My thanks to TBMOPA for its help in welcoming the TBM owners, including the more than 70 who brought their TBMs to a very busy Wittman Regional Airport.

We logged new aircraft orders at Oshkosh, underscoring the TBM's continued value offering – supported by our constant evolution of the very fast turboprop aircraft family. EAA AirVenture also was an opportunity to further strengthen ties within our TBM and Kodiak teams, which we have unified under Daher's flag following the Kodiak product line's acquisition in 2019.

Additionally, the 2021 gathering at Oshkosh provided another occasion for us to underscore the importance that Daher places on flight safety. At our exhibit, we detailed the enhancements to the Me & My TBM application, which is utilized – and appreciated – by a growing number of pilots. This app was Daher's first approach to transforming “big data” into something useful for TBM aviators.

With its latest functions in Version 5, the app is becoming an even more valuable tool for improving operational safety – with an initial emphasis on the approach and landing phases. And we're retaining the “fun” aspect through the “Top Aviator” challenge, which enables pilots to compare their scores in the application with others through a friendly competition. At Oshkosh, we presented awards to some of the 70-plus app users who achieved a score superior to 80%, and I also had the opportunity to brief FAA Administrator Steve Dickson on the Me & My TBM application's capabilities.

At the end of July, there were 250 users of the app, accumulating some 46,000 flights and 70,000

flight hours on their TBMs. During EAA AirVenture, we announced the goal to reach 300 users by the TBMOPA Convention in September, and we urge all members of the association to download – and utilize – the app.

Another step in our efforts to create a safer operational environment for TBM owners and operators is the standardization of training through a focus on instructor pilots and the providers of training services. I've assigned this task to Wayman Luy, the Director of Training and Standards for Daher's Aircraft Division. At EAA AirVenture Oshkosh, Wayman joined with TBMOPA Safety Advisor Jim Tuley in organizing a meeting with TBM flight instructors and training service providers, outlining our goals in this drive toward standardization.

Any discussion of TBM and safety also needs to include our introduction of the HomeSafe™ emergency autoland system on TBM 940s. We've delivered more than 60 new-production TBM 940s factory-equipped with HomeSafe™, and 13 Model Year 2019 TBM 940s were retrofitted through the end of July. I take particular pride in the contributions of Daher's Aircraft Division in integrating and certifying Garmin's HomeSafe™ on the TBM 940, and my congratulations go to Garmin on winning the 2020 Robert J. Collier Trophy for the autoland system.

With the TBMOPA Annual Convention next on our calendar, I look forward to the opportunity of meeting with everyone at the Greenbrier in West Virginia.

Until then, I wish you the best of health, along with blue skies, good tail winds and... above all, safe flying.

Nicolas Chabbert
Senior Vice President
Daher's Aircraft Division



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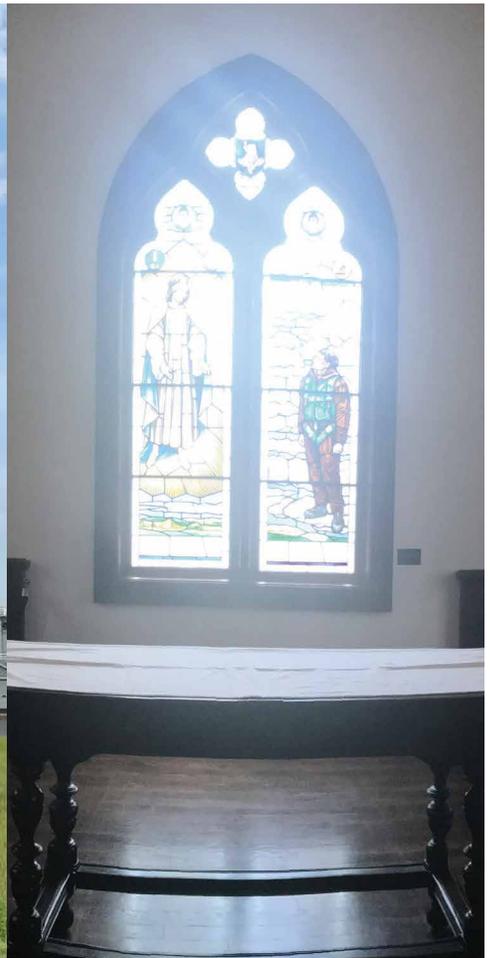
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Welcome back for the newest edition of QR Codes!

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Instructions: Simply open your camera app and place the QR Code within the view on your screen through your phone camera lens. No clicking necessary. The video will automatically pop up for you. Enjoy!

- 1 Daher aircraft at EAA AirVenture Oshkosh 2021 - Part 1 :**
In the footage, the Daher booth at EAA AirVenture 2021 preps for the opening which took place on Monday July 26th. "Watch the setting of the booth while the turboprop aircraft, the #TBM940 and the #Kodiak100 on floats, the Kodiak 100 Series III and one more Kodiak 100 demo are arriving in Oshkosh."
- 2 Daher aircraft at EAA AirVenture Oshkosh 2021 - Part 2 :**
A summary of the Daher booth's first day at EAA AirVenture OshKosh is presented with voice over provided by Nicolas Chabbert, CEO of Daher Aircraft & Kodiak Aircraft.
- 3 Daher aircraft at EAA AirVenture Oshkosh 2021 - Part 3 :**
A wrap up of Daher's presence at EAA AirVenture OshKosh 2021 is present by Nicolas Chabbert. Additionally, TBM's emphasis on safety as highlighted by the evolution of its Me & My TBM app is discussed.
- 4 Bullet Hole on a Plane! :**
Steveo1kinevo Channel shares with us what happens when a bullet hole is found on his plane. The repair and costs are broken down; t's an informative and interesting watch.
- 5 TBM 940 HomeSafe™ :**
HomeSafe™ is the emergency autoland system designed and certified for TBM 940. See a real life demonstration in the video.



MEMORIALS TO THOSE WHO SERVED

By S.V.(Steve) Dedmon

National Museum of the Mighty Eighth Air Force

Have you ever been to Pooler, GA? If you have been to Savannah, you were really close. Located just off Interstate 95, the first indication you have that you are close is a lone Boeing B-47 Stratojet sitting within a stone's throw of the passing northbound traffic. It sits standing guard over the Memorial Garden that pays homage to the sacrifices of those who served during WWII and subsequent conflicts.

Parking is free and once inside, you will be greeted by one of the museum volunteers. On one of the walls in the rotunda you can read that General Lyle was the museum's founder. Incredibly, he flew 75

bombing missions (69 credited) in the European theater, never losing a single crewman.

There are also busts of various of airmen who served during WWII and those involved with post-war service. One of the most recognizable from strictly a military perspective was Jimmy Doolittle. Another was Jimmy Stewart who enlisted as a captain and ultimately became a brigadier general while in the reserves. Unbeknownst to me was that he also flew as an observer on a B-52 mission over Viet Nam.

Another tribute was to museum trustee and corporate secretary Judge Ben Smith who, after his service with the 303rd Bomber Group as a radio operator and gunner, returned to Georgia to

become a Magistrate and ultimately a state court judge in Ware county.

Once inside, the self-guided tour begins looking at the events leading to the war. Those include Hitler's rise to power, the production of military equipment, the invasion of Poland and ultimately the Battle of Britain. As with most of the exhibits, you will see newspaper accounts, notable quotes and authentic WWII memorabilia. There is a small theater where you can watch footage of the actual Battle of Britain and an account of the efforts of the not only the Royal Air Force, but also the resolve of the British people in turning back Goering's prediction he could win the air war in four days.

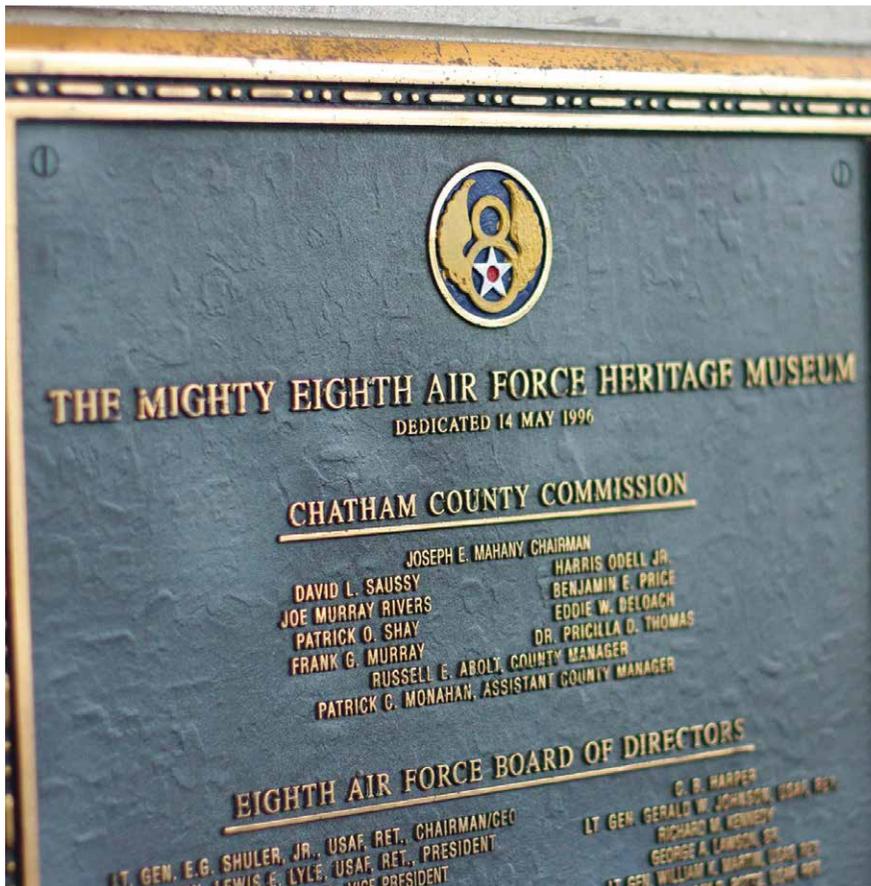
It moves from there to the events

leading up to and then the bombing of Pearl Harbor. There are photos we have come to associate with the event, the speeches and newspaper headlines. What they also memorialize is volunteerism American response. This part melds into the birth of the 8th and what they describe as its humble beginnings at Hunter Airfield in Savannah just six weeks after the bombing of Pearl Harbor. From there the Eighth Air Force Bomber Command went to High Wycombe, England.

The tour then gives the visitor a sense of what life was like in a bomber group, through a series of three videos called the Mission Experience. The first is in Nissen Hut and highlights a 0300 wake up, 0500 breakfast then pre-flight mission brief. The second shows those on the flight line in charge of maintaining the aircraft. From removing and replacing engines to repairing battle damage and everything in between, it depicts the dedication and effort of the ground crews and their service to the war effort.

The last video depicts an actual bombing mission. What makes this unique is that captured Luftwaffe footage is used to show German aircraft attacking B-17s while on their way to and from their targets.

Just before entering an aircraft display area, there is an exhibit of scout patrol squadrons, and a scale model of an air base. The most formidable display is the City of Savannah B-17 which was the 5000th airplane processed through Hunter Field in 1944 and actually displayed on the airplane. Hanging from the ceiling is a PT-17 in the blue and yellow Army Air Corp color scheme, a P-51, and a Me-109. As I own a



Stearman (PT-17) there was a slight restoration issue, but I will never tell. On the exhibition floor there is display of the front gunner position of a B-24 Liberator and a tribute to those in the Second Air Division.

Before continuing the rest of the inside tour, I went outside into the Memorial Gardens. In the Garden there is also the Chapel of Fallen

Angels. The stone structure was built to resemble an English chapel, with the most stunning stained-glass windows. In total there are thirteen depicting airmen, aircraft, bomber groups and at the focal point of the chapel one shows an airman looking up at an image of Christ. Truly, it adds a spiritual dimension to an already moving experience.

Resuming the tour inside, there is a depiction of a “Safe House” used by downed airmen as they evaded capture after being shot down. At the other extreme in another exhibit is a recreation of the barracks inside a German Stalag Luft that housed American airmen during their imprisonment. The fact that the effects that are displayed have been donated by airmen prisoners of war adds to the experience.

Continuing, the next group of exhibits honor various Eight Air Force groups and what they achieved

during their service during the war. It includes the Roll of Honor that lists the names of airmen specific to their service in the Eighth from 1942 through 1945. As you exit the exhibit, area there is the Hall of Valor showing those who in the Eighth who received the Congressional Medal of Honor and others who were decorated for their distinguished service.



Patriots Point

If you have ever been to downtown Charleston, SC walking along the eastside of the Cooper River and have looked approximately two and a half miles to the east you will see the aircraft carrier USS Yorktown (CV-10). You are looking at Patriots Point in Mount Pleasant, SC, which is the home to not only the Yorktown, but the destroyer USS Laffey (DD-724) and submarine USS Clamagore (SS-343). As nice as the long-distance viewings may be, the best way to view them is up close and personal. While walking along the dock to the ships, one of the volunteers suggested visiting the Clamagore first as the later in the day it became, the hotter the inside it would be. That was enough for me to put that tour at the head of the list.

As I approached, I realized I had only previously seen one aircraft carrier. That has been close to twenty years ago, I had forgotten the visual impression they impose; it is an impressive sight. Adding to the context of size is that there is a destroyer docked right next to it, which is dwarfed when compared to the carrier. As I got closer to the carrier, I got the impression that it was getting bigger and I was getting smaller.

Submarine USS Clamagore (SS-343)

The Clamagore is a 330 ft diesel-powered Guppy class submarine. It was commissioned in 1945 and spent its career in Key West FL, Charleston SC and New London CT. The walking tour began descending very narrow stairs into the forward torpedo bay. Literally, it is a one-way tour from front to back and the narrow confines cannot be overstated. Any images you may have of men having to turn side ways to pass one another in an emergency situation are not exaggerated.

Lastly is a tribute to the Tuskegee Airmen and Women's Airforce Service Pilots (WASP). The exhibit is a testimony to the pilots, navigators, bombardiers, maintenance and support staff, instructors, and all the personnel who kept the planes and pilots in the air. If you are not aware, as I was not, the Women's Auxiliary Ferrying Squadron and Women's Flying Training Detachment were the name of the units before becoming the WASP. Besides ferrying combat aircraft to the European theater, the women also towed gunnery targets as well as transporting non-flying personnel and equipment. Although neither the Tuskegee Airmen or WASPs were attached to the Eighth, the museum took great pains to honor their service.

On the second floor is an area showing the civilian efforts of those at home who were supporting those serving abroad. From sacrificing nylon for stockings, to using buttons instead of zippers to save metal for the war effort, Americans did

things I could not conceive of in an attempt to sustain those who actively served. One of those areas specifically highlighting the contributions of the Girl Scouts. They sold war bonds, collected clothing for war refugees, and sold calendars to collect funds for the war effort.

There is also a resource that is part of the museum: the Roger A. Freeman Eight Air Force Research Center. It is home to thousands of books, original manuscripts, photographs, oral history interviews, personal accounts, artifacts and works of art that are accessible for use by anyone doing research specifically on the Eighth, or the war in general.

As this was my first visit it was a wonderful experience, well worth the three plus hours I spent there. If you never visited the National Museum of the Mighty Eighth Air Force I highly suggest you do so. As an aviation/history enthusiast, neither, or both you will take something from the experience as it honors those who served.

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It was only mid-morning, and it was already warm. Part of the tour of the engine area was a simulate noise the engines would make while underway. Truthfully, it was not loud, but a note proclaimed under real life conditions it would be ten times that loud. Leaving behind the claustrophobic environment was via narrow steep stairs, much like the ones I took to get there.

Since my visit in early July, I have learned the Clamagore, which is the last surviving Guppy III class submarine, is destined to be towed off the coast of Florida and sunk to make an artificial reef. It was a pleasure to have had the opportunity to tour it before it reaches its final destination.

Destroyer USS Laffey (DD-724)

From there we toured the destroyer Laffey. Named after Civil War Medal of Honor winner Seaman Bartlett Laffey, it was commissioned in 1944 as an Allen M. Sumner-class destroyer and second to bear the name, the first being sunk in the Battle of Guadalcanal. In WWII it survived an attack just off Okinawa by twenty-

two Japanese bombers and suicide kamikazes earning the nicknamed, "The Ship That Would Not Die."

Beginning the walking tour, you could go inside the aft five-inch gun battery and experience what it would have been like to be part of a gunnery crew in gun mount 53 during the kamikaze. Additionally, you can walk around the ship and see the two forward gun batteries, twenty and forty-millimeter anti-aircraft guns, torpedo tubes and depth charges the ship used to defend itself from and to take the fight to the Japanese.

Entering the ship you see the ship stores, barber shop, sick bay and a laundry room. Continuing, there was the berthing area and engine room. Relatively early in the tour you can sit in an air-conditioned room and watch a video highlighting the ship and the war effort. Later, in the Command Information Center there is another video you can watch as it makes you a vital of the action.

Going back outside, forward and up a pretty steep flight of stairs will take

you to helm control, the captain's sea cabin and on yet a higher level, the signal bridge. From the helm the view is exclusively forward, which makes sense, although I was a bit surprised. From the signal bridge you do have a three-hundred-degree view.

After walking about, I came to two conclusions about the Laffey: The first was as compared to the Clamagore, the Laffey was huge. Although space is always at a premium and comfort is not always a focal point aboard a fighting ship, it was still a very comfortable environment. Second, it was built to fight, and historically proven, fight it did.

USS Yorktown (CV-10)

If you are a naval history buff, you know the Yorktown (CV-5) was lost in the Battle of Midway in 1942. Originally to be named the Bon Homme Richard, it was renamed the Yorktown CV-10 to honor her predecessor. Commissioned in 1943, it served in WWII, the Vietnam War and was used to recover the astronauts of Apollo 8 who were the first to orbit the moon. Incidentally, prior to its modernization in 1955 by adding an angled deck to accommodate jet aircraft, it was designated as an "attack aircraft carrier" (CVA-10). Later that designation changed again to "antisubmarine warfare support aircraft carrier" (CVS-10).

Walking up the ramp to tour the Yorktown takes you directly to the welcoming area in Hangar Bay 3. Like the tour of the Laffey it is a self-guided and self-paced tour, of which in this case there are five to choose from.

Tour 1 shows typical crew living and working conditions. These begin on the 2nd deck, descends to the 3rd and includes such things as





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crew berthing, ship's chapel, dental facilities, laundry, food prep areas, the ship's main galley and machine shop. It then merges into Tour 2 where you will see the battle dressing station, another crew galley, bakery, crew berthing, and sick bay.

On the way to Tour 4 where I began, you pass through Hangar Bay 2 and 1. Here there is a F/A-18 flight simulator and a variety of WWII and Korean-era aircraft. Of personal interest and to two I could specifically relate were a PT-17 Stearman and AD-4N Skyraider. The former because I have one, the Skyraider, as it was restored by a friend's company where my airplane was hangered.

As mentioned earlier, the Yorktown recovered the Apollo 8 astronauts and there is a replica of the capsule in Hangar Bay 1. It is accessible through a small hatch so you can experience sharing a very small space with two of your closest friends.

Tour 4 included quite the variety. What I found of particular interest were the non-operational related displays. These included the history and life of other naval ships including the Monterey (CVL-26), the Enterprise (CV-6), the Yorktown (CV-5), the Hancock (CV-19) and the Missouri (BB-63).

Two other very interesting displays included African-Americans and Women in the Navy. Included were Sailors who were awarded the Medal of Honor in the Civil War, the first Black Naval Aviator, Master Diver, Flag Officer, and Naval Cross recipient.

The Women in the Navy exhibit began with those who served as nurses as early as 1908. Then broadened to

the Women Accepted for Volunteer Emergency Service (WAVES) in WWII. The exhibit then included Female Officers, Aviators, and Flag Officer.

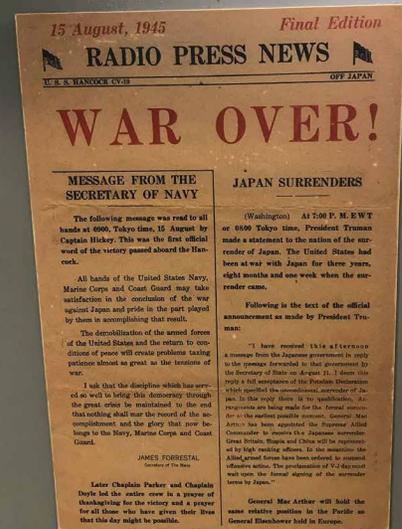
Somehow, we managed to merge to Tour 5, pretty much without even knowing it, which cemented the fact that carriers can be a maze of multiple hallways and decks. As in other tours including ship exhibits, there was one portraying the life and history of the Yorktown (CV-10).

Getting to the flight deck is done through Tour 3. Remember earlier I said how big a carrier was? While you are walking around, it is large, but... it gets a whole lot smaller in the context of being a runway. The takeoff distance is approximately three hundred feet, give or take a few, catapult (cat) assisted of course. Depicting a takeoff is a F-4J Phantom II hooked up to the forward starboard cat.

On the aft end of the carrier is the angled deck: the landing part of the runway, which is approximately six hundred feet long. There are four arresting wires. Portraying the "perfect trap" is a S-2E Tracker's tailhook holding the number three wire. On a carrier, a short field takeoff and landing takes on a whole new perspective.

All told, in addition to the above, there is a A-4C Skyhawk, F-8K Crusader, SH-3G Sea King (helicopter), A-6E Intruder, S-3B Viking F-14A Tomcat, A-7E Corsair E-1B Tracer and an EA-3B Skywarrior on the deck. By the way, it was now

Victory
After ceasing hostilities on 15 August 1945, the Japanese officially surrendered aboard *Missouri* on 2 September 1945. Eight days later *Hancock* entered Tokyo Bay, threading through a path of damaged ships and port facilities her aircraft helped destroy.



after noon, there were few clouds in the sky and taking refuge from the sun under the wings of the aircraft was a priority. It was not hard to imagine being at sea and except for a steady breeze over the deck, the conditions for those sailors working the flight deck would have been close to, if not downright miserable.

We finished our day by touring the Medal of Honor Museum. It displays a historical timeline beginning in the Civil War of those who have been honored. Those in the Navy, Marines and Coast Guard have their specific medal, as does the Air Force and Army, each having nuances in shape and design. If you are not aware, there has only been one woman and one Coast Guard recipient.

There is so much to see and do, it cannot thoroughly be done or adequately described in one day or one article. Truly this was a very enjoyable visit, refreshing my aviation interests. So, if you are in downtown Charleston, go experience the memorials and treasures to those who served.

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THE FUNDAMENTALS DONE WELL



IF YOU CANNOT
MEASURE IT, YOU
CANNOT MANAGE IT.

by William Goldberg, Goldberg Aviation

If you cannot measure it, you cannot manage it. Whether this pithy little saying is attributed to Peter Drucker, Andy Grove or, my perennially favorite human for quote misattribution, Abraham Lincoln, I think that it is a pretty good one. Irrespective of what we are hoping to change — whether it be our lactate threshold, Q score, 10K time, children’s spending, or sleep quality — it is great to have a baseline number and improve from there. Without numbers, we just have feelings, and feelings are notoriously hard to quantify.

Heretofore in civilian aviation, our measurements are not terribly precise. When we are queried about

instrument proficiency, we count approaches in an arbitrary time period (leaving aside the question of what constitutes an approach). When it comes time to assess our insurability, we present out our logbook and our claims experience. When elevating our ratings, we show a training record, endorsements, and an 8710 report.

My experience in military aviation reflected greater stringency. For example, in Army aviation, the pilot not flying was tasked with judging if the aircraft would land on the first third of the runway. If the pilot not flying says, “One-third, go around” the pilot flying was to execute TOGA, TRQ, pitch to command bars, flaps, gear, flaps and go around. I

never flew for the Navy, but it is well known that carrier-qualified pilots have each landing analyzed in detail including boarding rate and which arresting wire was caught. The feedback from too many missed or less-than-satisfactory traps meant that the pilot’s skills require additional training. But for the simple act of counting, we would not reveal the problems and areas for further attention.

A heavy emphasis for aviation metrics and measurements is targeted at the approach and landing phase of flight. The approach phase of flight starts at the Initial Approach Point and the landing phase starts at the point of transition from nose low to nose high attitude immediately before flare.

As I have discussed in previous articles, this phase of flight is hazardous and accounts for roughly half of all accidents. If we want to manage our approach and landing safety, it is essential that we manage those phases to the best of our ability.

Our teaching has greatly benefited from our carefully monitoring speeds, settings, and attitudes during approaches and landings, but, until recently, the means by which we tracked this information have been crude. I have used all manner of GoPro and iPhone cameras to record PFD displays for later playback and analysis, but there were numerous shortcomings in my work. The data were hugely valuable, but we lacked a great way to record, analyze and teach from it.

Given our emphasis on stabilized approaches and the challenges that we have faced in productively analyzing the data collected during approach and landing, you can only imagine my enthusiasm when I begin to utilize the

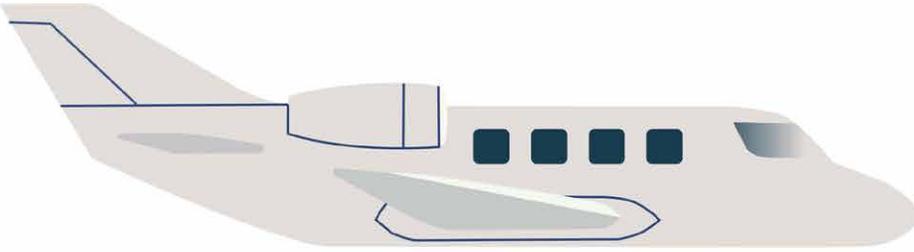
data available from our GARMIN avionics and the ease of downloading it through the apps available – Me and My TBM and TBM Report. I am thrilled about the opportunity to teach best practices by using time series data collected and analyzed by these apps.

Details about the operation of these two apps abound on the TBMOPA forums and in written documentation and I will not repeat them here. First and foremost, we are teachers and our time is best spent prescribing training based upon what these data say.

The data contained in these apps can profoundly and positively influence learning outcomes from our initial and recurrent training programs. For example, we typically spend over 50% of our training time working on approach and landings. If we can track our performance promptly and accurately, we can clearly see the opportunities for improvement and focus our training efforts accordingly.



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Let me give you some examples of how instructors can help pilots become safer and more proficient. The TBM Report breaks down the approach and landing into seven segments. Each segment is scored and then weighted for an overall score. While I may quibble a little bit the weightings, I think that they directionally correct. The seven phases and weighting are as follows:

Criterion	Weight
Landing flaps at 500'	11%
On Flight Path at 500'	11%
On Speed at 500'	11%
TRQ > 10% at 50'	11%
VSI < 1000 FPM to 50'	11%
Pitch at 50' -2.0° to 3.5°	22%
Touchdown pitch >3.0°	34%

Here is some of the most helpful advice we can give pilots for each phase of flight. This coaching can improve your score – if you care about such things – or simply make your landings more consistent and safer.

Landing Flaps at 500' –

Either you have Flaps LDG at 500' AGL or not. The opportunity for improvement is by always having the aircraft configured for landing when the aircraft “comes off the perch.” In other words, when you commence the last continuous descent to landing, the aircraft should be fully configured for landing. The last continuous descent the runway usually takes place at well over 1,000' AGL and, as such, you should be able to easily meet this criterion at 500' AGL.

The selection of “Flaps LDG” will cause a significant pitching moment and an increase in lift. A mark of TBM proficiency is the pilot's

ability to anticipate and respond with forward elevator pressure to the “ballooning” (increase in lift and thus altitude) that accompanies the application of landing flaps. Uncorrected ballooning results in the aircraft becoming too high on the flight path and too fast. A common mistake is correcting this condition by decreasing pitch abruptly, increasing airspeed and increasing vertical speed. Best practices are for the pilot to reduce power and pitch as landing flaps are deployed. I use the mnemonic, “TRQ down, Flaps down, and nose down” to control the ballooning tendency.

Further, we should always strive to land with “Flaps LDG” because the microswitch that is part of the gear warning system is not activated at “Flaps TO”. “Flaps LDG” provide us an additional layer of protection from landing gear-up.

On Flight Path at 500' – In order to be considered on the flight path, the aircraft would pass through 500' AGL between 1.1 and 1.7 nm before 50' AGL. We teach pilots to “fly by the numbers” and use the appropriate power setting to achieve the correct airspeed and descent rate in the landing configuration. For example, we recommend TRQ **15% to 25%** and where you fall between those numbers depends on aircraft type, landing weight, and headwind.

On Speed at 500' –

On speed means KIAS **Vref +10/-5** at 500' AGL. Again, knowing and using the appropriate power setting for landing configuration and headwind that yields a 3° flight path is fundamental. Setting the power at 1,000' AGL and adjusting as necessary should yield a very stable

and consistent speed by the time the aircraft descends through 500' AGL. Trim is used to control speed and the trim should be set such that there is neutral control pressure at Vref.

TRQ > 10% at 50' –

If the TRQ is <10% between 500' and 50', this criterion is not met. Too often, we see pilots recognizing that the aircraft is on speed, but above the glide path. The solution is to reduce power to rejoin the glide path, but the solution is never to reduce the TRQ below 10%. If TRQ >10% results in a long landing and runway is available, land long with ATC permission. If runway is unavailable long landing, go around.

VSI <1000 FPM to 50' –

If the VSI <1,000 FPM between 500' and 50', this criterion is met. Once again, choosing the appropriate power setting for the landing configuration and weather conditions at 1,000' AGL will result in a smooth and stabilized approach on the last 500'. One benefit of having a stabilized approach at 1,000' is that that the last 500' are uneventful – even mundane.

Pitch at 50' -2.0° to 3.5° –

To meet this criterion, the aircraft pitch is measured at 50' AGL and compared to the target range. This is where good technique from “coming off the perch” in a stabilized configuration pays dividends. At 50' AGL, the pilot has used parasitic drag (in the form of configuration), induced drag (in the form of deck angle) and power setting to achieve the target air speed and decent rate. When over the numbers, the pilot should smoothly increase up elevator pressure and use the remaining nose up trim to achieve a positive pitch attitude.

Touchdown pitch >3.0° —

Touchdown pitch should be greater than 3.0° to meet this criterion. We teach pilots to target TRQ ≈12% to 14% and Pitch 5.0° in the flare. This combination results in consistent, smooth and safe landings.

In landing configuration with TRQ ≈12% to 14%, the aircraft cannot hold altitude and the combination of ground effect and 5.0° nose up pitch allows the aircraft to settle on the runway. Assuming sufficient runway, where an aircraft lands on a runway is significantly less important than how the aircraft lands. In other words, spot landings are a secondary goal until consistent, safe landings with no risk of prop strikes are assured.

The most common mistakes during the landing flare and touchdown sequence are (i) pilots becoming

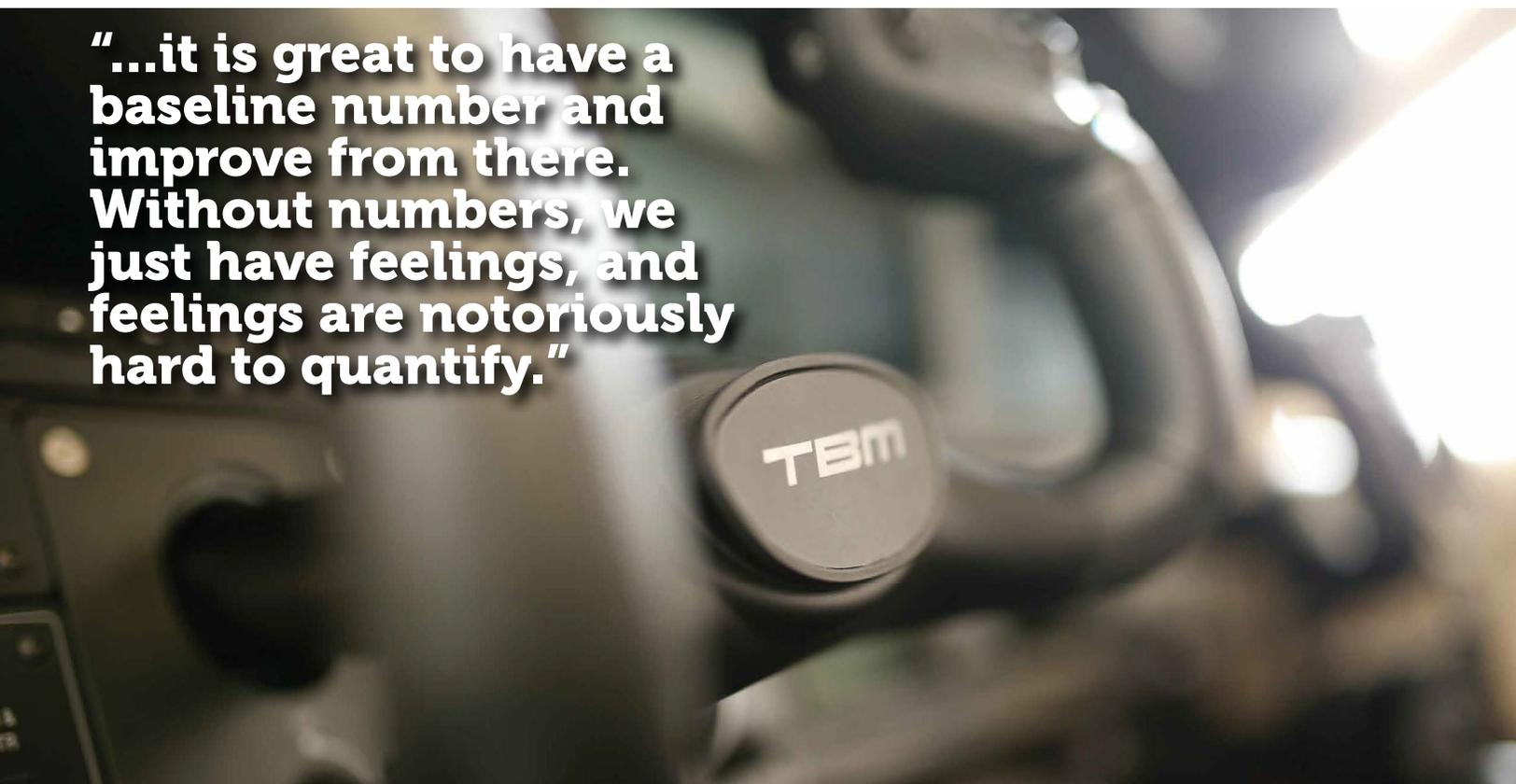
impatient for touchdown and compromising the pitch angle by hunting for the runway and (ii) abrupt reductions in power. Both mistakes risk a hard landing and/or a propeller strike.

The authors of the TBM Report warn against “self-medication” and encourage pilots to use this analysis in collaboration with TBM-specific flight instructor. I take this to mean that just like a golfer retooling a golf swing, pilots who are improving landing technique would benefit from an experienced set of eyes in the cockpit for safety and learning efficiency.

Being evaluated is no fun. However, superior pilots are always working to improve skills to become safer. The TBM Report gives us an unprecedented opportunity to benchmark our performance and target areas for skill growth.

In the not-too-distant future, I hope that we will not just put down age, health, hours, ratings, etc. on our insurance applications, but that we can send data from our last 25 landings as a much more accurate assessment of our insurability. This is certainly a two-edged sword, but at the end of the day, both our families and our underwriters want us to be the safest and most skilled pilots we can be. The TBM gives us tremendous performance and we can and should return the favor. Let’s vow as a community to use the data available from the various sources to act as a feedback loop on our training.

When it comes to approach and landing performance, we can now very easily measure it. I would add the Goldberg Aviation twist on the old saying above: “*Now that we can measure it, woe betide us if we do not manage it.*”



“...it is great to have a baseline number and improve from there. Without numbers, we just have feelings, and feelings are notoriously hard to quantify.”



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TBM Q3 MARKET UPDATE



What does a Seller's Market Mean?

2021 has been the clearest example in recent history of a "Seller's Market." What exactly does a Seller's Market mean? As many of you might have guessed by the influx in mailers soliciting to purchase your plane, traditionally a Seller's Market is one where supply is short and there are more buyers than available inventory. All forecasted expectations for sales volume have been surpassed, and the TBM market is on pace to be an all-time benchmark sales year. Despite volatility in the mid-to-heavy jet market, 2021 has highlighted the TBM product as a market leader.

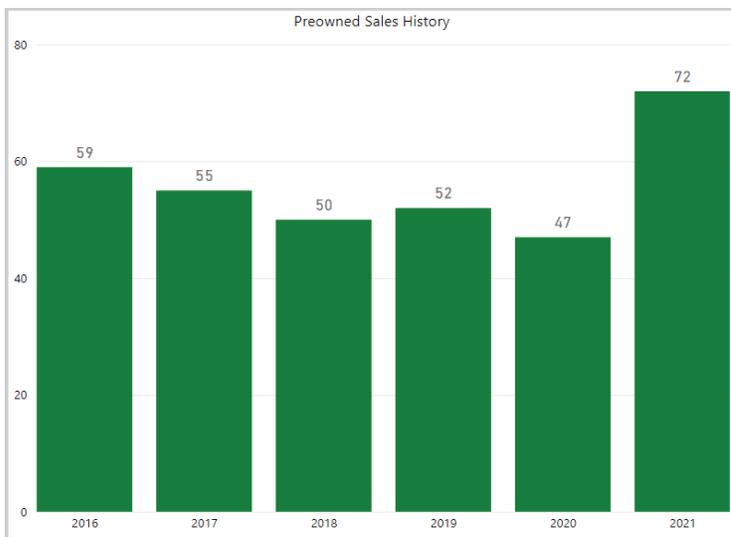
There are some misconceptions in high-velocity times like these. Often sellers get the false tells that their plane will sell for much higher prices. We have seen people trying to accomplish prices that are hundreds of thousands of dollars above market; as the data demonstrates below, those type of premiums are not being realized in the market. Unlike the real estate market, we are not seeing anyone offering above asking price, and the prices remained constant throughout the last 12 months. The best strategy is always to price the plane appropriately to the current market conditions accounting for its options and characteristics. Even in today's market, we have seen numerous examples of good aircraft being floated out there at

above market prices, then facing an extended stay and chasing the market down to only accomplish a less-than-average price. One way to avoid a situation like this is to align your expectations with where the market is today and price it appropriately to move it at a good pace to avoid extended holding costs with the transaction. The in-network Daher distributors can assist in orientating you to where the TBM product is moving.

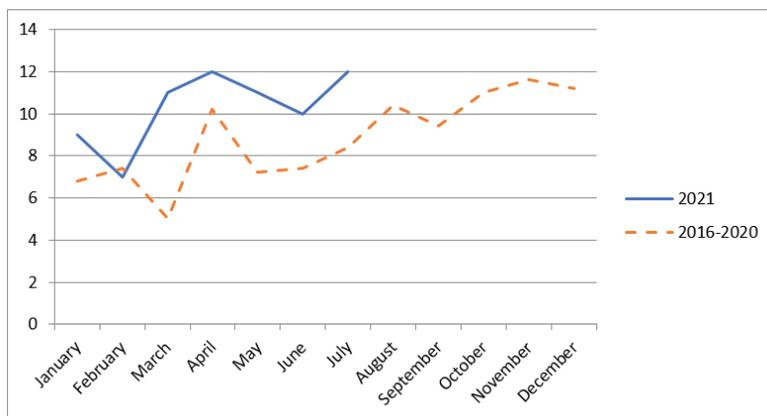
Another misconception we have observed in this market is sellers not wanting to come to the table in terms of maintenance status. Many owners who have not kept current on their maintenance might think the high velocity market is an opportunity to unload an out of

compliance plane in a hurry. Unfortunately, this path has not proven successful. We have seen numerous transactions go sideways on account of the pre-buy and due diligence process. There are many examples of aircraft out there that have an extended stay on the market because they have failed pre-buy with several different potential buyers. The fact is that TBM buyers want a plane that is a quality product and one that is up to date on maintenance, and no market condition is going to change that trait in their character. Today has proven more than ever that there is no “free lunch” in terms of maintenance standing. Keeping up on it throughout your ownership history is always the safest and most cost-efficient strategy.

2021 is on pace to close the books as the highest year in terms of preowned sales volume. As of July 31st, 2021, there have been 72 processed sales in the preowned market. During the same time span in 2020 there were only 47. For more perspective on the historical market velocity that 2021 is experiencing, we can look at 2016, which is the single highest sales year in the preowned TBM market history. From January 2016 through July 2016, there were 59 sales achieved, which is 18% less than what is happening in 2021. Currently, 2021 is on pace to overtake 2016 in early Q4 as the all-time leader in transactions achieved for a year. The accompanying graph displays preowned TBM sales for over the past five years dated from January 1 through July 31 for each year. Please keep in mind that the FAA typically takes up to eight weeks to process sales, and as of this writing (mid-August), some July sales will remain unregistered. This would only lead to an increase in the already sizable margins that 2021 has over previous years.



Sales have consistently grown throughout 2021 with unit sales growing quarter over quarter. Both Q1 saw an average of 9 sales per month and Q2 saw an average of 11 sales per month. So far, Q3 is on pace to achieve 12 sales per month. Comparing sales in 2021 to the five-year average of 2016-2020 we can see that 2021 is consistently well above the historical average of units sold per month. We also see that 2021 is following the same sales trajectory. This indicates that sales should continue to increase throughout the rest of the year so long as inventory levels can keep up, as Q4 is traditionally the most active quarter in terms of transactions.



Now let's look at how each model type has performed in 2021 when compared to recent history. In the accompanying table, each model type is listed with the delta between 2021 and the same period in 2020. For an example, in the 850 Elite market through July, the number of sales achieved in 2021 is 17% above the where transactions were at this same point last year. In the column “Change in Selling Price %” the data shows the percentage, positive or negative, of change from 2020 to 2021. Again, in the 850 Elite market, the data shows that there has been a 1% decline from 2020 to 2021.

We can see that most model types are well above the pace that their respective markets were at during the same period last year. Also, several of the model types have seen a slight increase in selling price compared to last year. The model types that have a decrease in price are within 4% of prices seen last year with only two exceptions. Most 910 models are still within the initial five-year depreciation curve, which would mean slightly higher than typical depreciation rates, and most are just coming to the end of their 5-year warranty period,

FINANCING A TURBINE AIRCRAFT?

Model	Delta in Transactions (%)	Delta in Selling Price (%)	Market Density (%)
700 A	0%	-9%	0%
700 B	50%	4%	-2.6%
700 C2	83%	2%	-48.1%
850 Legacy	14%	-1%	-48.2%
850 G (08-10)	29%	8%	1.3%
850 G (11-12)	-50%	4%	1.3%
850 Elite	17%	-1%	.9%
900	100%	-4%	-14.1%
910	150%	-7%	-41.6%
930	100%	-3%	11.1%

meaning last year those that sold had some of the maintenance warranty accompanying the transaction, and this year, most lack the program. Regarding the older model types, 700A/700B/ etc., a higher level of variance can be expected to due total time, maintenance history, damage history, non-network planes, and the various avionics configurations that can be installed. Selling prices in the aggregate have changed by 0% for the preowned TBM product from 2020 to 2021. Market density in the aggregate is down 14% compared to last year as well.

If the activity that AVEX is observing is an indicator, Q3 and Q4 of 2021 should be the most active closing quarters in the history of the TBM market. The volume of sales has been trending upwards over the past five years and selling prices continue to remain strong and tight to a central mean. These indicators were accelerated in 2020, and the first half of 2021 has proven to be the most active opening market in TBM history. Planes that are represented in-network continue to outperform

those that are represented out-of-network by a 5% margin of the price achieved compared to the asking price. TBMs that are serviced inside the authorized maintenance network, ones that are low time, lacking damage history, have good aesthetics and feature upgraded panels will continue to be highly desired on the market. Buyers in this market understand the value in the TBM product and will continue to pay a premium price for premium quality.

If you are interested in selling your TBM or simply want to know the current value of your TBM, AVEX is here to help. Allow AVEX to provide you with analysis that utilizes over 21 years of TBM market data to help you make an informed decision.

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TBM Market Analyst

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Shared Use as a Solution to Limited Year-End Inventory or Need

By Letisha Bivins

Although the global pandemic has recently disrupted business travel, there is no doubt that efficient and flexible air travel is an essential business need. As more entrepreneurs and businesses recognize the benefits of general aviation, the demand for private air travel has increased, including demand for efficient, but limited air travel. In addition, as we approach the fourth quarter and the final year of 100% depreciation, many are considering the purchase of a new or used plane. As a result, there is increased demand and limited supply of planes for purchase by year-end 2021. The shared ownership/use of a plane in some form may be a viable solution for many business owners with limited need or faced with limited inventory.

Shared ownership and/or use arrangements has many benefits in that it allows efficient, on-demand travel, while also maintaining significant tax benefits and offsetting the cost of ownership. The benefits do not come without great planning. Compliance and thoughtful structuring is the key to peace of mind... and absence of reduced tax benefits, penalties and significant legal consequences.

One of the most common shared ownership arrangements is through a fractional ownership program. There are several popular fractional programs that allow the purchase of a percentage of a plane (i.e., 6.25%) and permits the owner to use a plane for a certain number of hours per year (i.e., 50 hours/year). The fractional program will generally

manage and maintain the planes in the fractional fleet, and provide the pilot and crew to operate all flights. For the fractional owner, it will have the feel of charter flights, but the tax benefits of full aircraft ownership (deduction of depreciation and operating expenses). Proper structuring is key if you will be using the fractional interest for business. The entity owning the fractional interest can significantly impact tax deductions.

Aircraft co-ownership arrangements are also becoming more and more common. In an example of a common scenario, John Smith and Michael Brown decide to purchase a CJ3 through Airway, LLC. John plans to use the plane to travel with his family to various sporting events and vacation homes. Michael will



use the plane 100% for business, however, and is interested in 100% depreciation. They are financing the purchase of the plane, and the lender is requiring the plane to be owned through a single entity. This co-ownership scenario through a single entity can present a problem for co-owners like John who want to use the plane for business and deduct operating expenses as Michael's use could reduce John's deductions. This problem can often be avoided with the assistance of knowledgeable tax advisors. If structured properly, both parties

will be able to accomplish their objectives even if the plane is owned through a single entity as the lender requires.

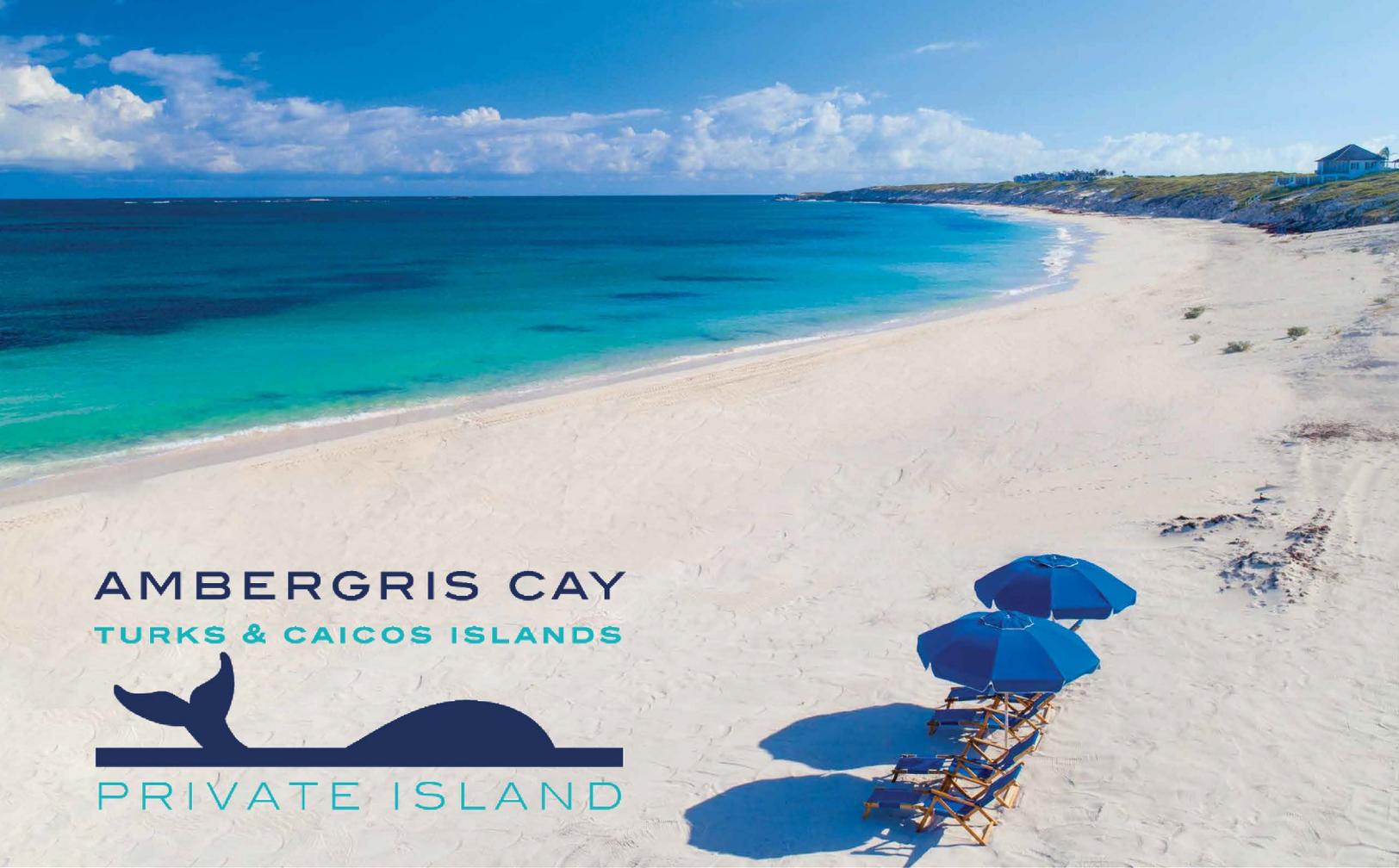
Co-ownerships not only require proper structuring for tax purposes, but a clear understanding of how the parties will maintain records, share the use of the plane (scheduling/reservation system), allocate expenses (fixed and variable), pay vendors, and otherwise make plane-related decisions. Ideally, these items should be decided before the plane is purchased and set forth

in a written co-owner agreement signed by all co-owners. The more comprehensive the agreement, the lesser the opportunity for disagreements in the future.

Dry leasing is another shared use alternative that has benefits on both sides of the transaction. For example, the owner of a plane may want to offset the cost of ownership by leasing the plane when it is not in use by the owner. A dry lease with one or more lessees can also be a great opportunity to test the waters of co-ownership (or ownership for a potential first-time plane owner). It is far easier to walk away from a lease than to an interest in a plane or entity.

If structured properly, the use of the plane by the dry lessee may be fully deductible by the aircraft owner/lessor. The lessee may also be able to deduct its plane rental expenses and operating expenses to the extent the lessee uses the plane for business. Whether owned or leased, proper flight logs must be maintained to deduct expenses, however.

Co-ownership arrangements require compliance with proper structuring and comprehensive co-ownership agreements. Dry leasing, on the other hand, requires more focus on a true shift in operational control. The lessor is providing only the plane, NOT a plane with pilot or crew (unlawful charter flights). In short, the lessee must provide its own pilot and crew and have exclusive possession and operational control of the plane during its lease periods. The FAA has steadily increased enforcement in this area. The key factors considered by the FAA in making the determination



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of whether the lessee has operational control are:

1. Who makes the decision to assign crew; accept flight requests; and initiate, conduct, and terminate flights?
2. For whom do the pilots work as direct employees or agents?
3. Who is maintaining the plane and where is it maintained?
4. Prior to departure, who ensures the flight, plane and crew comply with regulations?
5. Who decides when/where maintenance is accomplished, and who directly pays for maintenance?

6. Who determines weather/fuel requirements, and who directly pays for the fuel?
7. Who directly pays for the airport fees, parking/hangar costs, food service, and/or rental cars?

No single factor is controlling. It is best to have a written dry lease agreement in place, and that the lessee be directly responsible for most of the factors above, particularly the selection and direct payment of pilot and crew. The failure to properly dry lease the plane and shift operational control to the lessee can result in significant monetary penalties per flight leg, the plane being grounded,

and action against the license of the pilot operating the plane.

The shared ownership or use of a plane may be a viable solution for those with a limited need for private air travel, or faced with limited inventory at year-end. Through proper structuring, documentation, and compliance, you can still accomplish your business needs and tax objectives.

Letisha D. Bivins, Esq. is a Managing Attorney at Advocate Consulting Legal Group, PLLC, which serves the tax, legal, and compliance needs of general aviation clients throughout the country. For more information, visit www.advocatetax.com.





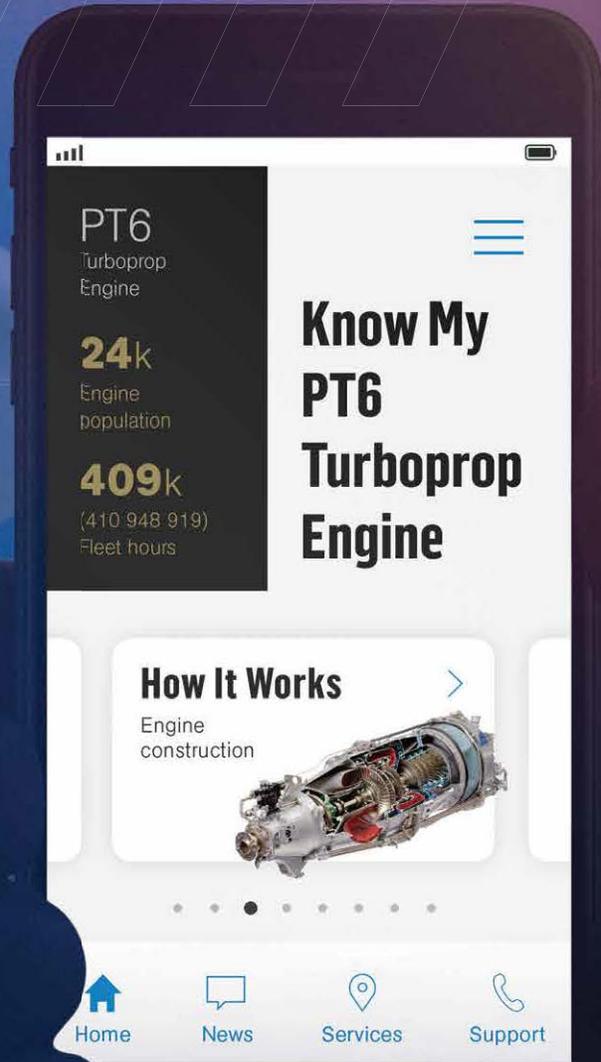
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HOW TBM OWNERS CAN HELP TRANSPORT ENDANGERED ANIMALS

By: Ashley Maxwell

Montauk is a super friendly harbor seal that was transported to his forever home at the Virginia Aquarium in Norfolk, VA after a few unfortunate human encounters. Montauk was previously rescued three times after incidents with people, dogs, and a triple hook fishing lure, which unfortunately penetrated his right rear flipper. He was rehabilitated at the National Marine Life Center but did not do well back in the wild and started losing weight. It was time for Montauk to find a sanctuary to live out his best life, but how would he get there?

Turtles Fly Too, Inc., a 501(c)3 non-profit organization in the US, coordinates with general aviation pilots for emergency transport and large-scale relocation efforts of endangered species. Pilots donate their aircraft, fuel, and labor to help these rescue efforts. Collaborating with the National Oceanic and Atmospheric Administration (NOAA) and the US Fish and Wildlife Services (USFWS), they provide air transportation to reduce travel time, and therefore, stress on endangered species. Cold stun events, entanglements, and injuries,

like with Montauk, are just some of the events that threaten wildlife.

Turtle Flier Richard Krulik, from SOLO Luggage/ Briggs & Riley, divisions of United States Luggage LLC, used his private Daher TBM850 to bring Montauk to the KORF Signature Flight Support Norfolk International Airport, where he happened to be greeted by Governor Ralph Northam who wanted to meet his newest resident. Montauk has settled in nicely to his new digs and is just one recent example of how TBM owners can help Turtles Fly Too on their mission.

For example, Turtle Fliers Paul and Sherry Schubert used their Daher TBM850 to fly six missions for the organization. Their most recent flight transported Quasimodo, a green sea turtle injured by a boat, from the Georgia Sea Turtle Center to the St. Louis, MO Aquarium. Peter Lewis and Dorinda Murry used their Daher TBM700 to transport a threatened Southern Sea Otter named Earle from Monterey Bay Aquarium to the Oregon Coast Aquarium. Lewis and his family also flew sea turtles from Santa Barbera, CA to Newport, OR. Richard Gottscho and Jeff Katz

flew an American White Pelican from SeaWorld San Diego to Desert Willow Wildlife Rehabilitation center in New Mexico with their Daher TBM940.

COVID-19 has not stopped Turtles Fly Too from completing missions. In 2020, they completed their largest number of assignments, with 19 in the fall alone. These missions included transporting 536 cold-stunned sea turtles to 49 rehabilitation facilities, assisting organizations releasing sea turtles that had to cut staff due to the pandemic and aiding in the release of a trapped humpback whale in New York's harbor.

Turtles Fly Too assists both coasts, and you can too! Want to become a Turtle Flier? Go to <https://www.turtlesflytoo.org/volunteer/>. Want to be a corporate sponsor? Go to <https://www.turtlesflytoo.org/corporate-sponsorship/> to be a part of conservation practices, policies, and solutions to keep oceans and the environment healthy. You can also donate to their organization here: <https://secure.givelively.org/donate/turtles-fly-too>, and follow them on Facebook @turtlesflytoo and Instagram @turtlesfly2.



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What We Wear Is Who We Are (or Who We Want to Be): How Aviation Has Influenced Fashion

by Ana Pajić and David Keck

Every day, all across the world, non-pilots put on clothes and fashion accessories derived from the history of aviation. In the popular imagination, flying suggests numerous extraordinary qualities – daring, precision, and calm under pressure. Not surprisingly, people want to wear articles of clothing that signal to others that they have such qualities, qualities that pilots such as Tom Cruise’s character from the movie *Top Gun* embody. This article examines the history of several of these articles of clothing – particularly watches, bomber jackets, scarves, and aviator sunglasses – and explores how aviation came to have such influence in the world of fashion.

The history of the pilot’s watch exemplifies how aviator gear became widely used by non-pilots; it is a story of utility, innovation, celebrity endorsement, and style. Wrist watches date to the early 19th century, but because of their fragility, most men preferred the relative safety of pocket watches. These watches work fine when you

have a free hand and easy access to a pocket. In 1906, however, Brazilian pilot-innovator Alberto Santos-Dumont needed a watch that would allow him to track time while also keeping both hands on the controls. His friend Louis Cartier designed the first pilot’s watch, notable not only for being worn on the wrist but also for being very easy to read.



Although militaries were to require round watches during World War II, the square-shaped design of this watch has endured despite the increasing popularity of circular watches. To this day, Cartier continues to sell the Santos-Dumont Watch. Santos-Dumont's aviation exploits coincided with the increasing use of photography in newspapers and the beginning of the emergence of celebrity pilots. Legend has it that readers would see his photographs in papers and wonder what he was wearing on his wrist. Perhaps this could be called one of the earliest examples of product placement in aviation.

In 1912, French pilot Louis Charles Joseph Bleriot offered one of the first explicit celebrity endorsements for his Zenith wristwatch, declaring, "I am very satisfied with the Zenith watch...and I cannot recommend it too highly to people who are looking for precision." He had worn a Zenith in his daring 1909 crossing of the English Channel, and as with Santos-Dumont, aviation achievements brought him into the public eye. Watch historians see this design – circular with an oversized crown for turning by gloved fingers, large Arabic numerals, and an easily-read luminous dial and hands – as more of an ancestor of future pilot watches than the Santos-Dumont.

For his 1927 crossing of the Atlantic, Charles A. Lindbergh worked with Longines to develop what is now called the Lindbergh Hour Angle Watch. He needed the angular information on the watch dial in order to navigate his way across the ocean. The watch company continues to sell this watch along with other innovative watches designed by and for aviators. In



1936, the International Watch Company produced their Special Pilot's Watch, which added new features, such as a rotating bezel. Consumers today now have many different choices for "pilot's watches." Once the wrist watch was primarily for women, but now they are the dominant form of watch for everyone. Aviation requirements, technological advancement, adventurous pilots, and publicity have transformed the experience of finding out what time it is.

The bomber jacket's origins also lie in the very practical needs of pilots. The earliest open-air cockpits were cold, and they got colder as planes could fly higher and higher. As militaries needed to send pilots into the skies in challenging weather conditions during World War I, the need for warm gear became acute. The earliest military flight

jackets combined rugged strength (they were manufactured of horse leather or sealskin) and insulation (some form of fur). Although the style evolved over the decades, some common features endured – a waist-length cut; ribbed waistbands, collars, and sleeves; plenty of room in the shoulders and arms. Today, jackets marketed as "bomber jackets" tend to share these characteristics, even though leather is not always the main material, and leather or military colors are no longer required.

That said, a mystique about the old-style bomber jacket remains. This jacket's appeal, its "feel," is based in part on the fact that it is leather. It comes from a living creature, presumably a large, strong animal. And "leather" evokes natural durability, protection, and strength. In contrast to artificial materials,



leather has a history; it goes back to the days when warriors wore it as armor. The military-style garment further suggests a brave willingness to enter unhesitatingly into dangerous territory, to fly a bomber into skies filled with exploding metal fragments or enemy fighters. It suggests a determination to get the job done, regardless of personal risk. Few who wear bomber jackets today have faced hostile fire, but perhaps almost everyone feels as if s/he is facing tremendous life challenges requiring an everyday courage.

Similar to the leather of the bomber jacket, the material used to make the pilot's scarf – silk – combines natural fibers, an ancient indeed distinguished history, and practicality. Although the development of the pilot's scarf is less clear, the story of its increasing popularity includes both the ways it addressed specific needs of early pilots as well as being associated with well-known pilots. The fact that the earliest cockpits provided so

little protection meant that the first generation of pilots needed to find ways to stay warm in the air. Leather jackets with high collars served well, but they also chafed the neck. Scarves made of a soft, insulating material – such as silk – worked well to provide warmth at the neckline and protection from the jackets.

But where did the familiar white scarf associated with pilots come from? Early pilots wore goggles to protect their eyes, but these often fogged up. Scarves proved useful for cleaning them. So the story goes, since early engines were prone to leaking oil and splattering it on pilots, being able to quickly see the clean part of a

white scarf had great value for pilots who didn't want to get oily gunk all over their goggles. Although their planes may not have presented these technical problems, Amelia Earhart and Howard Hughes both regularly wore pilot's scarves, and this increased the appeal of these scarves for the general public.

As with scarves, the history of "Aviator" sunglasses also involves problems with goggles. In 1921, Lt. John Macready, a US Army Air Corps test pilot, set a new altitude record of 34,508 feet. Higher altitudes presented increasingly difficult challenges. Both planes and pilots needed supplemental oxygen, and colder temperatures led to goggles fogging more frequently and even





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they can represent similar values: independence, a willingness to struggle, even inscrutability. And over the decades, aviator sunglasses have become part of the stylized images of numerous celebrities: Elvis Presley, Paul McCartney, and Michael Jackson (to cite the example of musicians). Large sunglasses that obscure the face suggest a person whose power or fame is such that they are in danger of receiving too much attention in public. Just as pilots have the courage to fly solo, so do wearers of these glasses signal their daring independence.

The popular 1986 movie *Top Gun* incorporates all four of these aviation-inspired clothes and accessories. Cruise sports a technologically sophisticated watch (the Porsche Design Orfina Chronograph was one of earliest watches to use black PVD-coating to for protection and reduced glare). He wears a Navy G-1 bomber jacket. The prominent white tee shirt underneath his jacket and uniform represents an echo of the old silk scarf (as a jet pilot in southern California a scarf would not have “fit”). And he has his Ray-Ban model 3025 (Aviator Classic) sunglasses ready for when he gets out of the cockpit of his F-14 or jumps on his motorcycle.

His call sign is Maverick, and each of these accessories helps define his character as an independent, bold flyer. Consumers can send a similar signal of their strong, daring identity by wearing these products. Although Maverick represents an extreme type of risk-taking pilot, it is this version of the “magnificent men in their flying machines” (to use the title from a 1965 movie) that

icing over. Macready also sought to help pilots see clearly on bright days as well as to protect the pilot’s eyes from intense glare. As early as 1929 he was working with Bausch and Lomb, who were at the time a leading producer of medical equipment. By 1936, they had an anti-glare prototype for goggles, and in 1938, the now-famous Ray-Ban sunglasses went on sale for the first time. The glasses feature a large, dark lens several times the size of the eye designed to minimize the amount of light affecting this sensitive, critical part of the body. Initial marketing schemes seeking to reach sportsmen who spent long hours in the sun touted the science behind the protection being offered.

Once again, an aviation need led to a technological breakthrough and a commercial product. And again,

famous people made the new item popular. In October of 1944, military photographers captured numerous pictures of General Douglas MacArthur’s return to the Philippines during World War II. Wearing his Ray-Bans, he waded ashore, bringing with him officers and leaders of the Philippine government in exile. He declared confidently, “I have returned.” He showed resolve, resiliency, determination, and power. A man with a warrior’s heart, he represented a leader who could see all (as a strategist in charge of a massive operation) but whose eyes could not be examined. Such powerful, symbolically-rich photographs helped to establish the ethos of the brand.

In the late 1960s, Peter Fonda wore Ray-Bans in the movie *Easy Rider*. A motorcyclist is not a general, but

has such commercial appeal. Over the last twelve decades, aviation, technological advances, special materials (both natural and innovative), and courageous, even celebrity pilots have helped create a history of an image, an image that pilots and non-pilots alike find alluring. For some, this combination of adventuresome exploration, scientific breakthrough, and enduring glory represents an idealization of what humans can do.

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Golze Engineering's ADLConnect Satellite Weather App

The Iridium Satellite system can bring you weather data no matter where you are in the world.

By: Wayne Rash

Of course, you've got your weather briefing before your departure, but that doesn't mean that the forecast won't change while you're enroute, especially on a long flight. And even the best briefing won't provide up-to-the-minute weather information during a flight. Fortunately, there are other ways to get updated weather data while you're in flight. One of those, ADLConnect from Golze Engineering, will provide that information real-time.

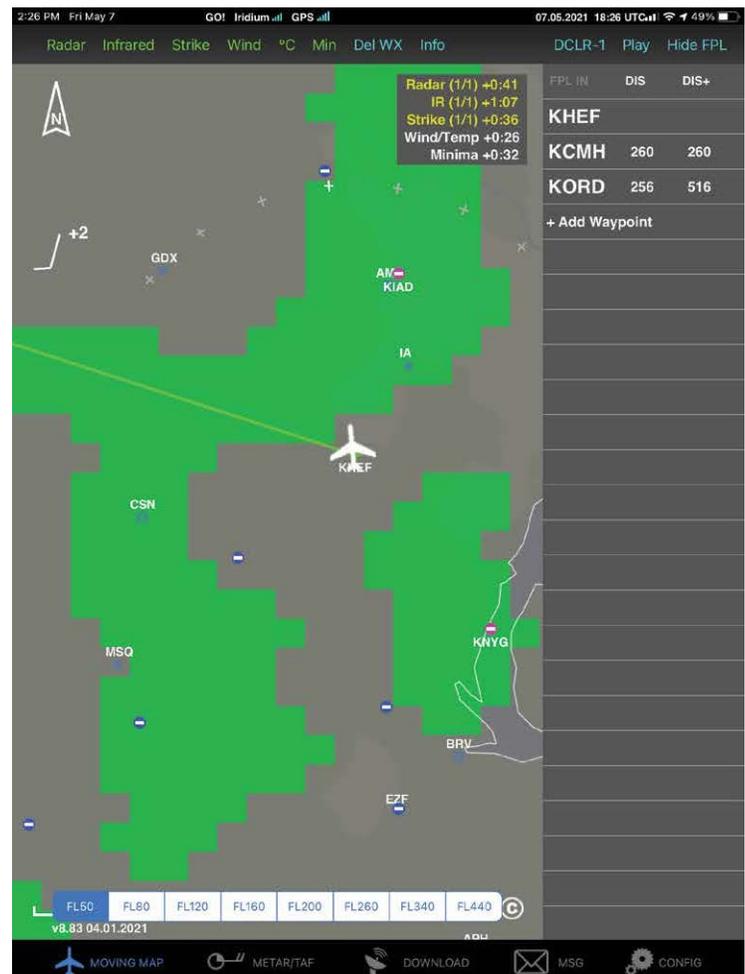
The Golze Engineering's approach requires the company's software plus Iridium Satellite receivers to make it work. You can view weather information using an iPad or an Android tablet or with your phone using iOS or Android. Using an iPad will present a more extensive weather display than using the smaller screen on a phone.

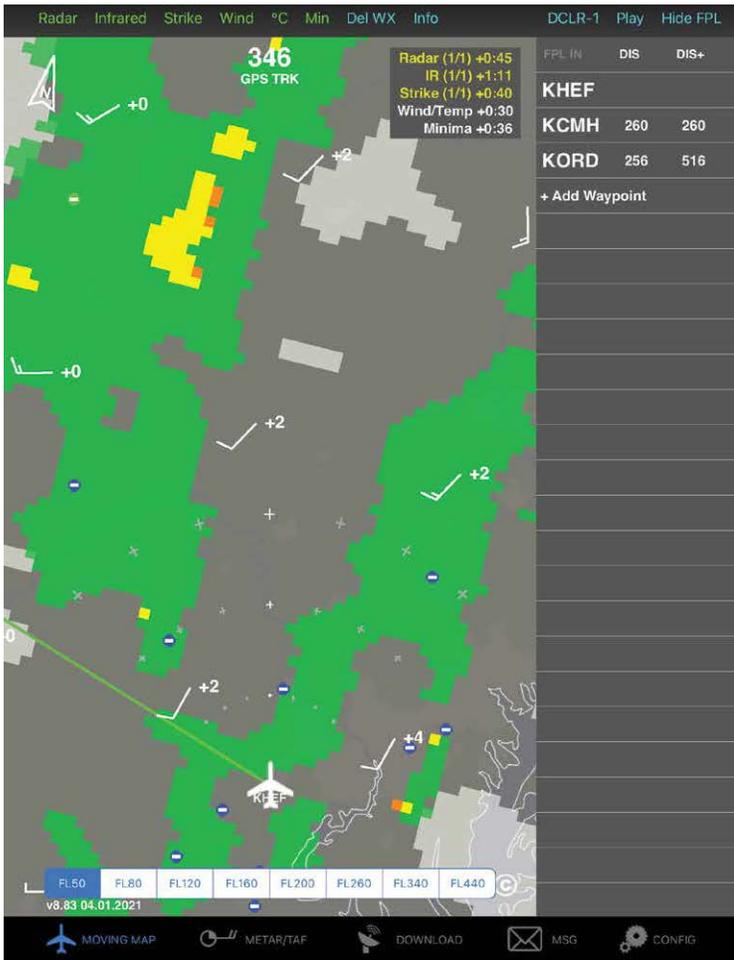
Once you've downloaded the ADLConnect app from the AppStore and get it set up, you'll need to connect your iPad to the WiFi access point in the Iridium receiver. There are several receivers that will work, including some that can be installed in your aircraft and some that are portable. I used an Iridium Go device for this test.

Connecting to the WiFi in the satellite receiver means that you'll need to go into your iPad's Settings app, touch WiFi, and search for the Iridium device you'll be using. Once you've done that, you connect to that device. This will allow the ADLConnect app to download weather data from the satellite network.

If you download weather data prior to your flight, ADLConnect will show you a map with weather along your proposed flight, which is great for planning. For greater utility, you can also get a moving map display, but

to do that, you need to use the GPS receiver that's built into the Iridium receiver. Iridium receivers do not have the GPS data enabled by default, so you'll have to go into the settings in the Iridium app to turn that on.





The ADLConnect app can also use the GPS receiver that's built into your iPad if you're receiving data from an internet connection, but that only works with cellular iPads that have GPS, and it won't work on its own in flight. Having that option available, however, is very helpful when you're doing your flight planning at home or at the FBO.

iPadOS14 to move between apps, which worked fine on the iPad Pro that I used for testing. I should add that I also tried ADLConnect on the new iPad Pro with Apple's latest M1 processor chip, and the software worked fine there, and it was able to take advantage of the better performance of the new platform.

Users of ForeFlight, Avidyne, and SkyDemon will be able to use the ADLConnect weather information to provide the weather layer in their software. Otherwise, you may be able to use the moving map that's provided by Golze Engineering in the ADLConnect app for your navigation. However, you may find it easier to use the multi-tasking capabilities of

ADLConnect is generally intuitive. It works without requiring too much input once it's running, which is a benefit in a busy cockpit. The display seems somewhat low-resolution with its blocky graphics, but in reality, it's adequate for spotting bad weather ahead, and that's what counts.

What also counts is the ability of ADLConnect to keep your weather display updated in flight, anywhere in the world. While there are other domestic weather services in the US, they're not generally available elsewhere. But ADLConnect is available to provide real-time weather information anywhere you can see an Iridium satellite, and that's everywhere.

It's not cheap. You have to buy the Iridium receiver, plus you have to pay for a license to use ADLConnect, which costs \$460.00 for use with the Iridium Go, which is what was tested here. But it's also not overly expensive considering the utility of having real-time weather information in your cockpit when you need it.

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