VOLUME 11 | ISSUE 3 | SUMMER 2021

TBM

ABLE FLIGHT:
HOW TBM HELPS ADAPTIVE RESOURCES FOR FLIGHT

A TBM LEGEND SPOTLIGHT:
MARGRIT WALTZ

FROM THE FACTORY
Flying towards better, and safer, horizons

SIMCOM®
AVIATION TRAINING

Your Best Choice for Quality TBM Training

The Proof Is In The Numbers...

22 years- Exclusive Factory Authorized Training Provider

25 instructors with more than **125** years of combined TBM training experience

4 FAA qualified simulators - TBM 700, 850, 910 and 930

3 training solutions - Simulator based, Live Remote and In-aircraft

2 convenient locations- Orlando FL, and Scottsdale, AZ

Don't compromise on safety, train with the best, you're worth it.
To make your reservation, please give us a call at (800) 272-0211.

www.simulator.com

Don't Trust Your Panel To Anyone Else

Columbia Air Services

TBM

AUTHORIZED DISTRIBUTOR

Avionics

(TBM700 Upgrade shown above)

1980–2020 40 YEARS COLUMBIA AVIATION COMPANIES

When you want your panel done right, trust the experts. Our experienced technicians can handle any job from an ADS-B installation to state of the art panel upgrades. We proudly offer custom wiring diagrams and in-house panel fabrication with our computer-aided router.

Contact us today to find out how our team can deliver the TBM panel you have always wanted.

Chris Bergman
Avionics Director
chris@columbiaairservices.com
860-715-8810

COLUMBIA® AIR SERVICES, INC.

Because Experience Matters

GARMIN

PROUD MEMBER OF AIRCRAFT ELECTRONICS ASSOCIATION

ColumbiaAirServices.com

IN THIS ISSUE

TABLE OF CONTENTS

CONTENTS

06 TBM FOUNDATION MESSAGE
BY **ERIC HASKEL, Director, TBMOPA Foundation Board of Directors**

10 MEET THE MEMBER, MARTIN HEISE

14 DAHER ANNOUNCES KODIAK 100 SERIES III TURBOPROP
BY **CHRISTINE SPERDUTO**

16 THE WOMAN, THE MYTH, THE LEGEND: MARGRIT
BY **RACHEL FRIEDMAN, Ph.D.**

26 SHOULD I PAY OFF MY AIRPLANE LOAN OR INVEST?
BY **ADAM MEREDITH**

30 WACO KITCHEN: AN EXPERIENCE UNLIKE ANYTHING ELSE
BY **THE TEAM @ WACO**

36 FLYING TOWARDS BETTER, AND SAFER, HORIZONS
BY **NICOLAS CHABBERT**

39 QUARTERLY QR CODES
BY **THIERRY POUILLE**

40 FUNDAMENTALS: HOW TO GET BETTER PART 3
BY **WILLIAM GOLDBERG**

46 STABILIZED APPROACHES PREVENT RUNWAY ACCIDENTS
BY **SHARI S. DRERUP, MSA**

55 TBM Q2 MARKET UPDATE
BY **DAVID McKOY**

61 TBM BATTERY OPERATIONS AND THE USE OF BATTERYMINDER
BY **JOHN M. GRUNSFELD, PhD**

68 A TBM JOURNEY TO THE GALAPAGOS
BY **GUILLAUME "G" FABRY**

75 ABLE FLIGHT: HOW TBM MAKES A DIFFERENCE
BY **ASHELY MAXWELL**

Quarterly Update
FROM THE TBMOPA FOUNDATION

Eric Haskel
Director, TBMOPA Foundation Board of Directors

Years ago, when I started flying, I had the same ideas most people have about airplanes and how they are used. Airline travel, military flights, maybe the occasional corporate jet flying along, whisking some important (to them at least) executive from one meeting to the next. Little did I know how many uses there were for airplanes beyond taking people on vacation or fighting a war. Firefighting, agricultural spraying, freight haulers... you name it, a plane has probably done it.

Of course, I knew even less about charity flying, or flying for the "public good" as AOPA refers to it. Who knew you could fly and do good at the same time? Turns out there are lots of ways to do that. Pilots N Paws, Angel Flight, Wings of Mercy, Able Flight, and Lighthawk Conservation are just a few of the organizations out there giving pilots and their planes an opportunity to give back.

And then there are charities that focus on aviation itself: growing the industry by opening aviation up to more people and giving those who, for various reasons (financial, physical, etc.) haven't had the opportunity to participate. This is one of the focuses of your TBM Foundation. We provide resources to organizations that seek to give people who otherwise wouldn't go near an airplane an opportunity to experience aviation, either for personal satisfaction or maybe even to start a flying career.

Founded in 2008 by Tom Evernham, Tracey Forrest and John Hinshaw, the TBM Foundation was started primarily to put the dollars given to it to work. Operating as a 501c(3) nonprofit organization, the Foundation seeks opportunities to provide funding for organizations that further its mission, namely to keep TBM pilots safe and safeguard the future of aviation though selected scholarships. It is also the driving force behind the TBMOPA Safety Seminars hosted across the country. These seminars feature presentations on informative subjects related to the safe operation of the TBM, fostering the mission of the Foundation.

Although anyone can donate to the TBMOPA Foundation, it is funded primarily through the auction proceeds from the annual TBMOPA Convention. The Foundation is governed by a three-member Board of Directors, supported by TBMOPA's Executive Director. Tom McGrath is the Chairman, and he is supported by Howard Janzen and myself. The TBMOPA Foundation Board reviews potential

grantees and allocates donations based on need and relevance to the Foundation's mission. All three members of the TBM Foundation Board are not only TBM owners but have strong experience in philanthropy, particularly with respect to aviation.

Tom McGrath began working with the Foundation Board as an opportunity to help support the TBMOPA safety efforts. McGrath says, "learning from Howard and Eric with their extensive experience in charitable organizations has been extraordinary." Tom is flying his third TBM, a 940 that's now 1.5 years old, and enjoying every flight. "This foundation opportunity has allowed me to help in areas I've previously only observed from the outside. I'm looking forward to improving our transparency and broadening our outreach."

Howard Janzen has served as CEO and Chairman of several communications and energy companies and has been involved in a dozen technology startup businesses over the last ten years. Howard currently serves on three corporate boards and several nonprofit boards. With over 8,000 hours of flying time, aviation is a major focus for Howard: "I value the opportunity to leverage my aviation passion and board experience to help both raise money for the TBMOPA Foundation Board and to help direct how those dollars can be best put to work to achieve our mission."

Eric Haskel is our newest Board member, having joined the Foundation's Board in February of this year. Eric's day job is managing the financial affairs for a family in Arkansas who happens

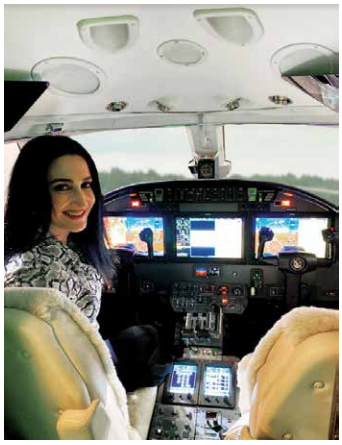
to be a big supporter of aviation. Many are pilots, and they support a number of organizations to promote aviation. As part of his role with the family, he helps to determine where their dollars can go to support such causes. "I am fortunate to have as an employer such a strong advocate for aviation" said Eric, who noted that his experience has "taught me the many ways we can support flying, especially for those not in a position to pursue flying themselves without a helping hand."

One grantee of the Foundation is Able Flight. Able Flight was created by pilots who believe that the life-changing experience of learning to fly is best shared. They designed the Able Flight Scholarships to enable people with disabilities to pursue that experience. With the support of TBMOPA Foundation and others, to date it has awarded over 100 flight training and aviation career training scholarships resulting in 70 licensed pilots with a variety of physical disabilities, including 18 pilots who are wounded or disabled veterans. In addition to pilots certified, recipients of Able Flight's aviation career training scholarships are now working in full-time aviation careers as pilots and aircraft dispatchers and in the commercial space program.

The TBMOPA Foundation was also instrumental in developing the TIPS program at SIMCOM. This was an extensive project headed by TBM owner Tom Evernham, the former TBMOPA Foundation Board Chairman. SIMCOM has since gone on to develop further scenarios in the simulator to help TBM pilots improve their skills.

Supporting safety in the TBM will always be a goal of the Foundation. However, we are constantly looking for new ways to support aviation in our communities. Many of you may know of organizations worthy of our support and we would love to hear from you! Drop us a line and give us your ideas.

LET ME NAVIGATE YOU HOME



RACHEL FRIEDMAN
License#:02133230

BERKSHIRE HATHAWAY
HomeServices
California Properties

ABOUT RACHEL

In today's real estate market, you need to work with a real estate professional who you can trust. As proud members of the Berkshire Hathaway HomeServices network, I will provide you with the absolute finest service, dedication, and expertise possible. My website offers a wealth of information on finding and buying a home, and I am always ready to answer any questions you have. As a pilot and aviation expert, I learned the following phrase: aviate, navigate, communicate. The type of decision-making needed in aviation is similar to finding and buying a property. You need a dedicated, focused realtor with knowledge of markets and neighborhoods. I can navigate you through the California real estate market and promise to communicate throughout the process. I look forward to working with you.

GET IN TOUCH

P : (484) 794 - 8818
E : professor.rachel@gmail.com

10750 Civic Center Drive
Rancho Cucamonga CA

TBM
OWNERS AND PILOTS MAGAZINE

TBM | SUMMER 2021 | VOLUME 11 | ISSUE 3

CORPORATE OFFICES
11382 Prosperity Farms Rd , Suite 222
Palm Beach Gardens, FL 33410
Telephone: +1 (561) 841-1551
Fax: +1 (954) 252-3935

FOR SUBSCRIPTIONS, ADDRESS CORRECTIONS, REPRINTS, AND BACK ISSUES PLEASE VISIT
AJPublications.com **or call** +1 (561) 841-1551

CONTACT THE EDITOR:
Rachel@ajpublications.com

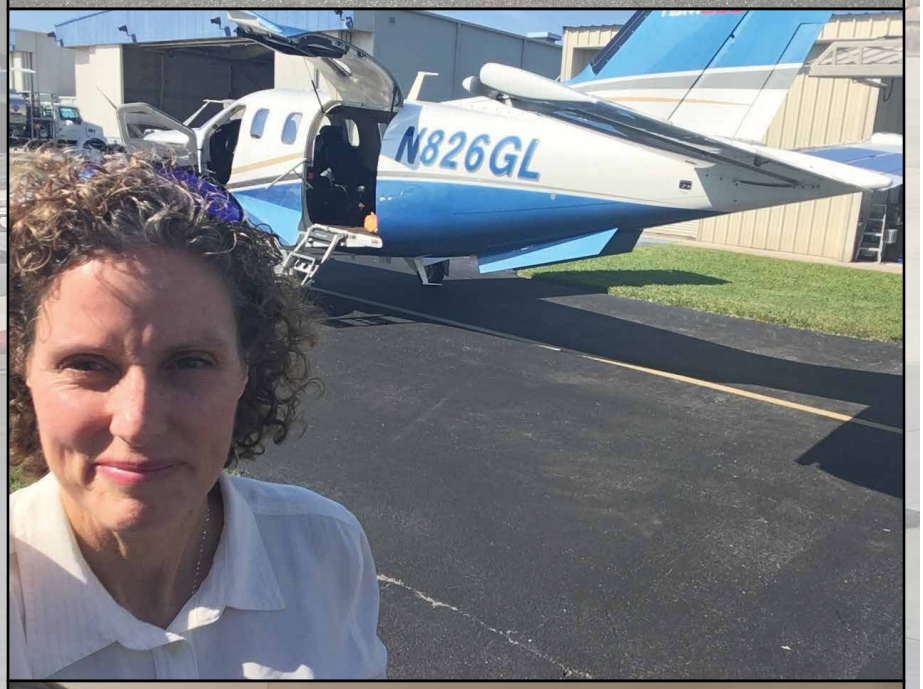
CONTACT THE PUBLISHER:
Thierry@ajpublications.com

COVER IMAGE: DAHER AVIATION
FEATURED IMAGE: MAXIME FOURCADE

Printed in the USA.

MEET THE MEMBER

MARTIN HEISE



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

PC-12NG, 300 hours
Carbon Cub, 100 hours

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

TBM – I have about 850 hours
Super Cub – about 300 hours
R44 Helicopter – 20 hours in training

What is your favorite vacation spot(s)?

Kodiak, Alaska

What was your favorite things about flying to and around Alaska?

Great scenery, experiencing the challenging weather, and landing at on and off airport landing sites.

What are your procedures for getting around foreign countries?

I use a handler specializing in that country like Air Journey.

What is your favorite flying experience?

Flying over western Cuba and landing in Havana.

What drew you to flying?

When my dad started flying lessons, I took ground school with him while I was 12 years old.

What is your career background?

Real estate developer/General Contractor

How many hours do you currently have?

About 2,500 hours

What is the first plane you ever flew?

Cessna 152

What is the first plane you ever owned?

Cessna 210

Do you have any recommendations for pilots out there?

Keep a high appetite for training in your aircraft or simulator and with its avionics.

BOSE

AVIATION

PROFLIGHT SERIES 2

AVIATION HEADSET

The FAA TSO and EASA E/TSO-C139a certified ProFlight Series 2 may be our lightest aviation headset ever, but it also meets our toughest standards. That's because the ProFlight Series 2 has been engineered to withstand the harshest conditions in our quality assurance lab – from extreme temperatures and UV to moisture and impact – all so pilots can experience acclaimed Bose noise cancellation, comfort and clarity for years to come.

See how the ProFlight Series 2 stands up to the toughest conditions – finance with Bose Pay powered by Klarna and start your 60-day test flight at Bose.com/ProFlight.

Connect with us @BoseAviation

Daher announces Kodiak 100 Series III Turboprop

By Christine Sperduto

Daher announced in late March 2021 delivery of the first Kodiak 100 Series III turboprop sport and utility aircraft. New features include improved flight safety, a more comfortable cabin, augmented operational capabilities, upgraded quality, and more comprehensive maintenance coverage. The new Kodiak 100 will be able to land on both unimproved strips and on water with floats.

"With these latest upgrades and quality improvements, the most modern, rugged, and reliable aircraft in its class is now even better with the Kodiak 100 Series III," said Nicholas Chabbert, Senior Vice President of Daher's Aircraft Division and CEO of Kodiak Aircraft.

Daher acquired the Kodiak product line in 2019 and has been working on improving the Kodiak 100's capabilities and worldwide reach. This versatile aircraft has been improved in the series III with a larger tire size (29 inches), higher landing weight of 7,255 pounds, and a lower zero fuel weight that allows for increased payload.

The new addition also features an eight-seat executive cabin with club-style seating, dual zone air conditioning with controls in both the cabin and flight deck, increased oxygen capacity, and new exterior paint options.

The flight deck features Garmin's G1000 NXi fully integrated flight deck, the GFC700 autopilot with full envelope protection and level mode, an angle of attack (AOA) indicator, SurfaceWatch runway monitoring technology, ChartView-enabled card, and the Synthetic Vision Technology for virtual flight reference. Also included is the Garmin GWX™ 75 Doppler-capable, fully stabilized color weather radar that has a high-definition color palette that shows more detailed contouring of storm cells and includes increased range and adjustable scanning profiles. A year's subscription for Garmin's NavData electronic database is included with the purchase of the aircraft.

An all-inclusive four-year Kodiak Care maintenance program is included with Kodiak 100 Series III aircraft purchases. Scheduled maintenance for up to four annual inspections or 1,000 flight hours – whichever comes first – is included. The Pratt & Whitney Canada's Gold-level ESP™ Maintenance Program for the PT6A-34 turboprop engine is also included alongside a one year subscription of CAMP Systems maintenance tracking. A reservation for Kodiak Aircraft's factory-taught maintenance training course also comes with the purchase of this aircraft.

All Kodiak 100 Series III aircraft are float-ready for seaplane operations. They can be easily maneuvered at the dock using the standard pitch latch propeller. Additionally, the aircraft features an industry-leading anti-corrosion process, providing protection especially in high salinity environments.

"This latest version underscores Daher's commitment to continual improvement for its airplane family, and further aligns the Kodiak's attributes with those of our TBM very fast turboprop aircraft," said Chabbert.

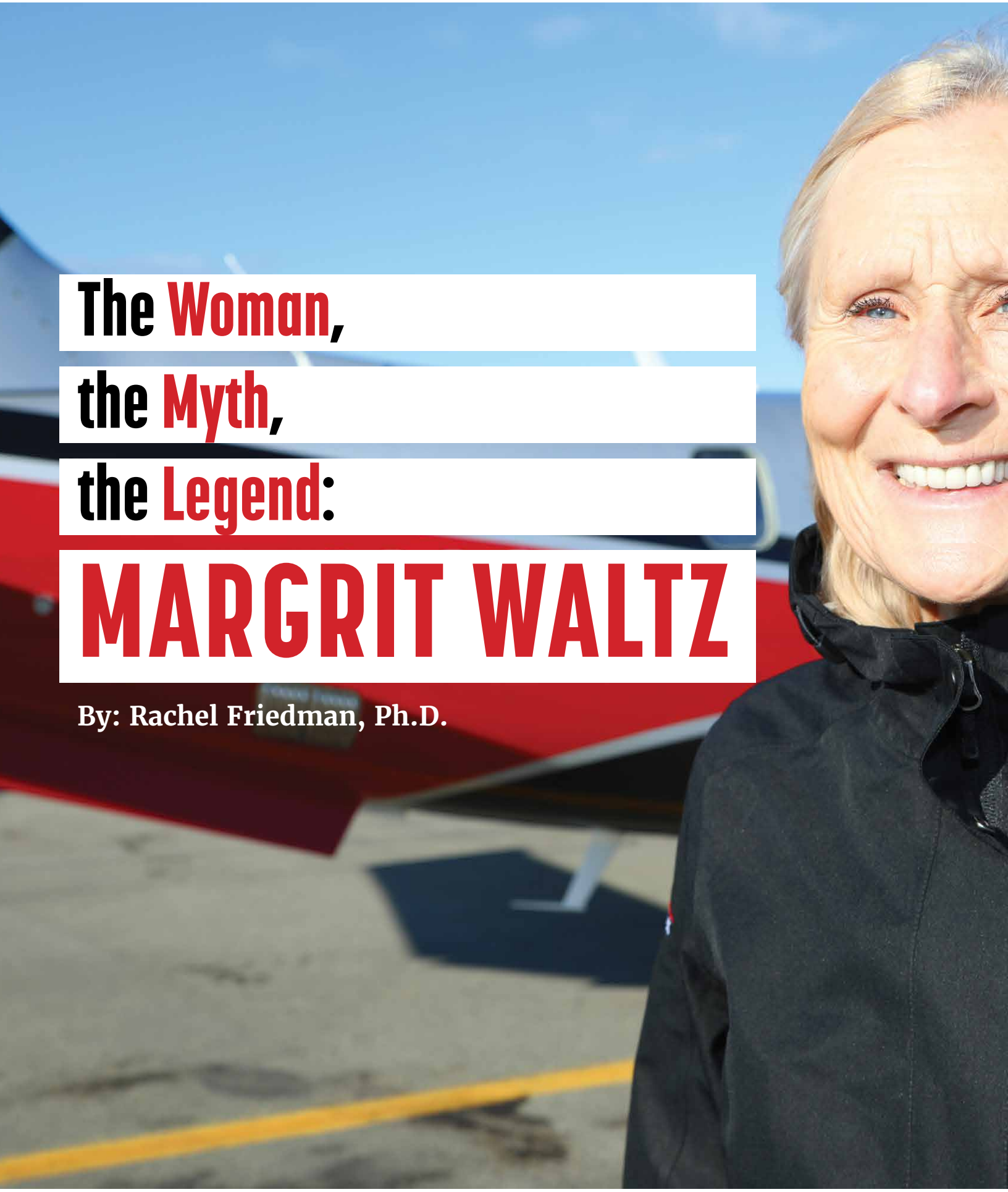
What's Your Story?

Can you explain a maintenance process ?
Have you traveled somewhere in your TBM worth recommending ?
Did you learn a valuable lesson while flying your TBM ?

We are looking for articles for this magazine! Do you have a story about flying your TBM? How about new tips and techniques for fellow TBM owners? Maybe you can explain a maintenance process you find valuable. We want articles for TBM owners, by TBM owners and service experts!

If you have an interesting story, we are asking for you to share it with us. Articles should be 300-500 words. Accompanying photos must be 300 dpi.

Email all submissions to Rachel Friedman, rachel@ajpublications.com for approval.



The Woman, the Myth, the Legend: MARGRIT WALTZ

By: Rachel Friedman, Ph.D.

Margrit Waltz is an amazing, interesting woman, who's been the first to do so many things in aviation. While her accomplishments are many, who she is as a person is just impressive. She combines all of the attributes of a modern and contemporary woman and yet is traditional in so many ways. Aside from all of Waltz's accomplishments, I set out to find how Margrit became the woman she is.

As most of you know, Margrit completed her 900th ferry flight just a few weeks ago, taking a TBM 940 turboprop from Daher's production site in Tarbes, France, to Delaware County Airport. I asked Margrit how this felt. Her answer won't surprise you: "I seriously think when I started the flight it was like any other flight, but as soon as I got to France, everyone made a big fuss about it. Everyone was so gracious and supportive – it was really amazing – not everyone crosses the ocean 900 times. There was a party in every harbor." Having true pilot grit, she said it was routine. She was amazed by the fanfare everyone made about her enormous accomplishment! I do not know anyone who has crossed the ocean 900 times; do you?

She really enjoyed the party with her Daher factory family as she got the water salute, not for retirement purposes as she made clear, but due to her milestone.

Margrit continued, "In Scotland, they know I have a fast turnaround but still made a fuss. By the time I got to my home airport, I was greeted, but I had no makeup, no hair done – it was go-home day for me! I have to thank everyone for their support and belief – very special for me."

Margrit does not seem know she is famous in the aviation world. When she arrived in Muncie, Indiana, she met a flight attendant who was on his way to France back in January. He recognized Margrit from a YouTube video. The flight attendant said, "YES YOU FLY TBMS!" Margrit assumed he was maybe also a private pilot. Nope – turns out he just loves aviation and is a YouTube enthusiast, and he created a sticker for her. She is also not a huge technology person besides her two iPads she uses for flying and of course, the FMS and other aircraft technology. She was perplexed that folks might have learned about her on YouTube. This is where Margrit is more traditional or perhaps it is generational. I am not too sure. I suspect Margrit is wondering, "Why are people watching YouTube – why not go out there and try flying?"

Margrit recalls a time she was ferrying a flight and stopped in Riyadh, Saudi Arabia, 25 years ago. When she landed, they cut her hair off — specifically the hair that was sticking out of the hat. It was against the law to leave your head and hair uncovered. Additionally, on the paperwork, the name for the overflight and landing permit said M. Waltz, which the Saudis believed was "Monsieur" Waltz. They were

TBMOPA
TBM Owners and Pilots Association, Inc.

SAVE THE DATE

2021 TBMOPA CONVENTION SEPTEMBER 22-26

TBM

THE GREENBRIER
WHITE SULFUR SPRINGS, WV

GREENBRIER VALLEY AIRPORT (KLWB)

pretty upset when a woman showed up with the aircraft, and initially, they would not let her off the plane. Eventually, they allowed her to deplane and wait in the VIP lounge. Despite a unique first visit, she has made many stops since then to Saudi Arabia.

There are so many memorable experiences for all pilots because cultures are so different across the globe. Margrit has the pleasure of having both memorable customers and cultural experiences. One time she said a customer ate the wrong food before the flight and exploded onboard – that was unforgettable. They redid whole interior upon landing. Another time, she was on the way to Australia and stopped in Oman – a big storm was brewing in the ocean between Oman and India, expecting three feet of water on land. This is called a super cyclone. Margrit braved the storm but was sweating bullets inside the cockpit. Since TBM brought her to Mumbai, she could not divert into Pakistan airspace for example. Waltz has so many stories like this. But she remarks, "there are a few flights that are memorable." Most are routine.

You may wonder, does Margrit learn new things as a pilot who has forgotten more than many of us will ever know as pilots. She does! Little things like the avionics. She usually flies left seat. But on this last flight, from the US to the Daher factory and then on to Saudi Arabia, the customer pointed out that the localizer letters stayed yellow. She said it seemed fine – she was not worried. But the very first thing she did upon arriving at the factory is she sought out Christian (aka the Garmin guru) and asked him: "This is weird, it turns yellow. He explained it to me but my mind is in the left seat but I was in the right seat this time so he said come with me to plane – as soon as we are at plane, both are yellow – but if #1 on localizer 1 and #2 is on localizer #2, then both are green. [The letters turn yellow if either localizer is cross-side.] Little things you pick up and learn." Even "the queen of the sky" can learn new things Regarding this title, "the queen of the sky," she does not mind it. She said, "you have to make sure there is royalty on board."

I inquired as to whether Margrit passed her love of flight onto any of her children or her husband? Her oldest daughter is a concert pianist and is quite artistic and does not have an interest in becoming an aviator. Her younger daughter has a little more interest as she likes skydiving. When flying with her mom, she will load the flight plan and set the transponder. But she is also working on her doctorate.

AVEX
SAFETY-DATA-DETAILS

We **love** your TBM as much as you do.

AVEX is an award winning leader in providing world-renowned expertise in the sales, operation, and maintenance of the Daher TBM Aircraft.

Focusing specifically on TBMs for the last 21 years, AVEX maintenance has harvested data from the PT6 series engine and formulated a mean trend line for vibration characteristics of rotating components in the PT6 engine. This proprietary data allows AVEX to reference any PT6 engine and compare the trend line to the standard signature of engine vibration and quickly identify any anomalies on the rotating component.

AVEX is renowned for its specialization and competency required to provide the finest support network tailored specifically to your TBM needs.

www.newavex.com | (805) 389-1188 | 205 Durley Ave A, Camarillo, CA 93010

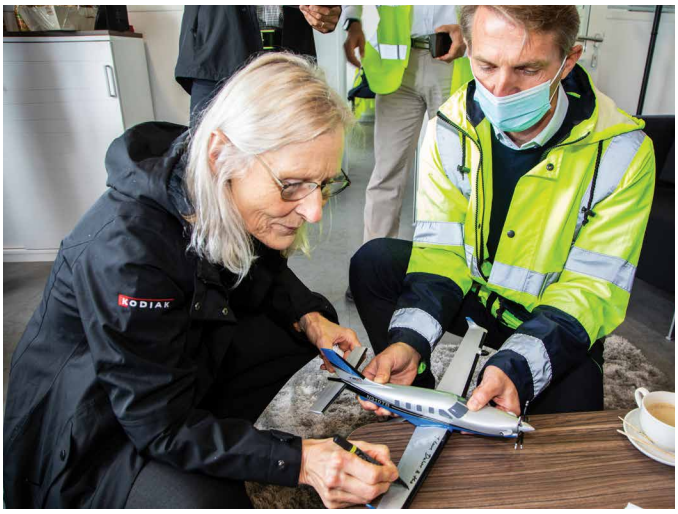
TBM
AUTHORIZED DISTRIBUTOR

Her husband used to have a private pilot's license but cannot have a medical anymore and it doesn't bother him. He prefers flying with Margrit now. Luckily, he was very supportive of her career. She says, "I am super lucky – I have a family, two children, a happy marriage and can go flying when I want to. Holidays like Mother's Day, Easter, and birthdays don't really exist much for us. But we have been married 35 years. Last month I did four flights, so I might be home five days in a row but not more."

Something I always asked pilots was how they got started. Waltz started at 16 years old as a glider pilot. At the time, she was in a boarding school and wanted to flight train during the week to have an excuse to get out of boarding school. She went to her father, and at the time he was totally supportive of glider lessons as it didn't cost much. When she told her father she changed her mind and wanted to do motorized flying, he said, "well that costs a lot of money – so if you get your grades up, then we can talk." He said he would take her out of boarding school, and she could get her private pilot's license. She got her private pilot's license at 18. Back then in Germany, she had to find a way to maintain the license, as you needed to have 24 hours of flight time in two years. Since money was an issue, Margrit decided to become a CFI. She became Germany's youngest civilian CFI at 19 and soon encountered an opportunity to ferry a plane for one of her students. Thus began her ferrying career.


DAHER
F-HECK
N64MA
900TH NORTH ATLANTIC CROSSOVER BY MARGRIT WALTZ
TBM 940


1000th TBM


KODIAK

Margrit met her husband in America at 22 years old as she started flying for Mooney in 1979. They met in Pennsylvania where he was taking flight lessons. She was flying a silver and red Mooney with a Swedish tail number (SEIEI) so he asked her about it. He asked, where was it from? She said it was a Swedish number and he said, "oh you're Swedish." Margrit said, "no I am German." He said, "so you came from Sweden?" She said, "no I am going to Sweden." Sounds like a "Who's on First" introduction! Margrit was also a weather girl in Germany. This helped her at the start of ferrying since there were no satellites at the time so her knowledge of weather helped with ferrying. Eventually, Margrit and her husband started a ferry company, which she liked more than standing in front of a camera.

Margrit has a true love of the TBM aircraft. She has a Citation Mustang rating and over 4000 hours in twin engines like Cheyennes, King Airs, Conquests and so forth. A while back, on her 50th birthday on February 10th, she was flying a Cessna 421 from Germany to Texas somewhere between Greenland and Goose Bay. Her left engine quit, and the right engine was not running with full power. The oil was congealing, and she put out a mayday call. Two fighter jets came to intercept her to be sure they knew where she was if she went down. She made it to Goose Bay and called her husband. She said, "I gave myself a birthday present today. I promise myself no more piston airplanes." After she detailed the events of this, he said he was so glad.

But again, this a reminder of her love for Daher and the TBM aircraft and the whole community. She said, "maybe you get a different attitude with this group - everyone loves the aircraft so much. There is constant progress of small changes, and you see how everyone works together, so you have this love for the aircraft. It is more than just talking about performance and speed. Daher has a lot of pride in their jobs."

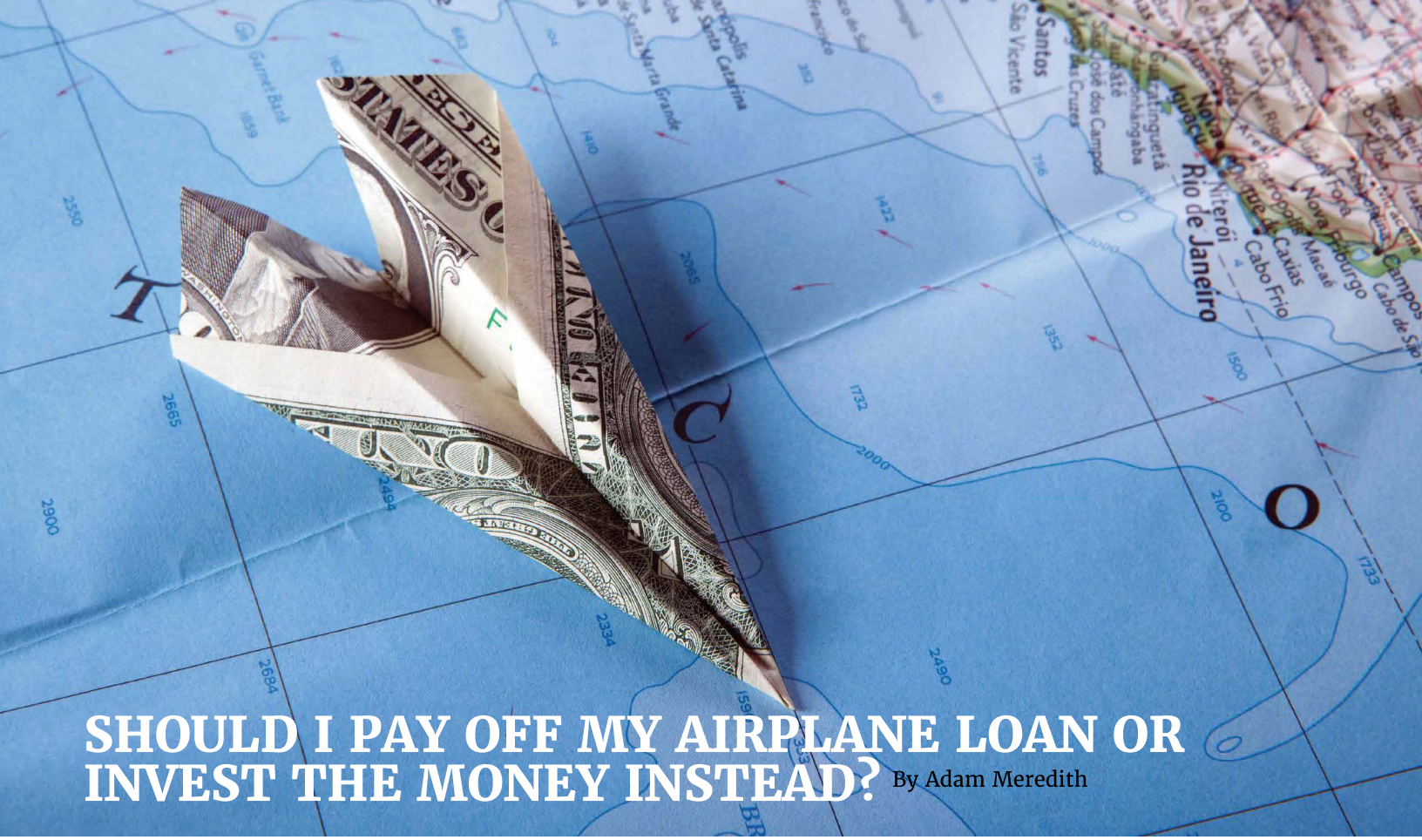
As we began to wrap our discussion up, she told me she was:

"really, really grateful because as women we don't have it easy. Early in my career, I was told I wouldn't make it past winter; then I heard 'she got engaged and her future husband will put a stop to this,' and the next thing I was married, still flying. I didn't have much support from colleagues. Then I had a baby and they thought this is it — I would quit. Next thing, I delivered a bonanza two days before giving birth, then I was back in plane with a baby five days later. At that point, the guys came around and a lot of them said 'I guess she is one of us.' I proved myself as a female aviator. I made a point of it. I was the first in in the morning and the last one leaving, and no matter what weather, I brought the plane in. Once I was accepted, then they would behave and be helpful."

Margrit continued, "I thank a lot of people for believing in me and supporting me and giving me the chance to fly these planes."

Many of you may be asking when or if she plans to retire. She said her biannual expires November 2022, and she will not renew it. She wants to go out on top. She

has a home, a devoted husband, dogs, and two granddaughters. Her family has supported her throughout her career, and she wishes to pay it back so to speak at this stage of her life. Her accomplishments speak for themselves. Her career and experiences are unmatched and everyone recognizes this level of achievement.



SHOULD I PAY OFF MY AIRPLANE LOAN OR INVEST THE MONEY INSTEAD?

By Adam Meredith

If you're in an airplane already, and you're uncertain as to whether you should pay off your aircraft loan or keep the cash and invest it, our advice would be to hang on to the money. You might consider refinancing, but we caution against paying off the loan. With lending rates as low as they are right now, and with aircraft market values looking as though they're going to continue to be as good, if not better, in the near term, now is the time to take a serious look at refinancing your aircraft loan.

At the very least, assess what you currently have. Could you do better? It's a good time to compare.

We're in a period where more than likely prices are going to be flat or increasing. If that stays true, then you're far better off — if you can afford the cash flow — keeping a loan on the airplane and investing the money in the market.

Conversely, if you are concerned that your situation is too fluid and you foresee that things may go sideways and you might not be able to afford the loan payments on your current aircraft, this is a great time to sell. Supply is low, demand is elevated, and airplane prices reflect those realities.

That also applies to financing a new aircraft. For the most part, we're seeing airplane values continuing to remain strong and trend upward. Low rates and appreciating values make a purchase now a smart move. So, assuming you're comfortable and you're confident that you'll have the cash flow to support your loan payments, then we would finance all day long.

Great advice. Great rates. From helpful and responsive reps you can trust. Three good reasons to turn to AOPA Aviation Finance when you are buying or refinancing an airplane. If you need a dependable source of financing with people who are on your side, just call 800.62. PLANE (800.627.5263), or visit our website at finance.aopa.org.

AIR JOURNEY

AROUND THE WORLD

2022

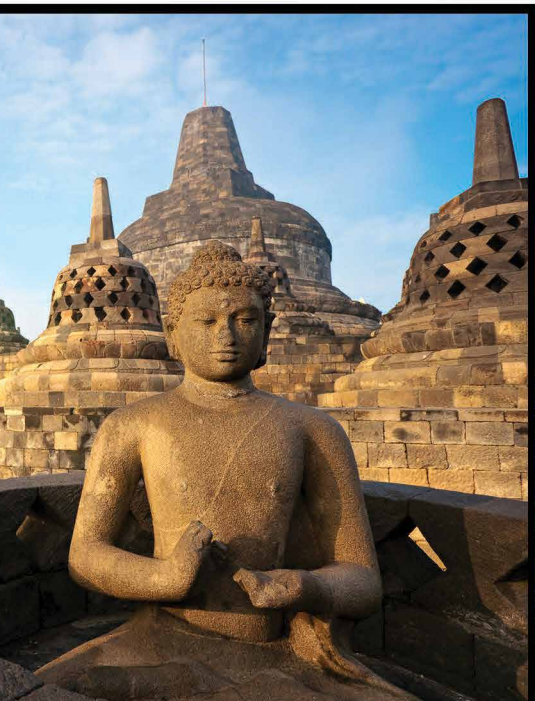
FLY YOUR AIRPLANE

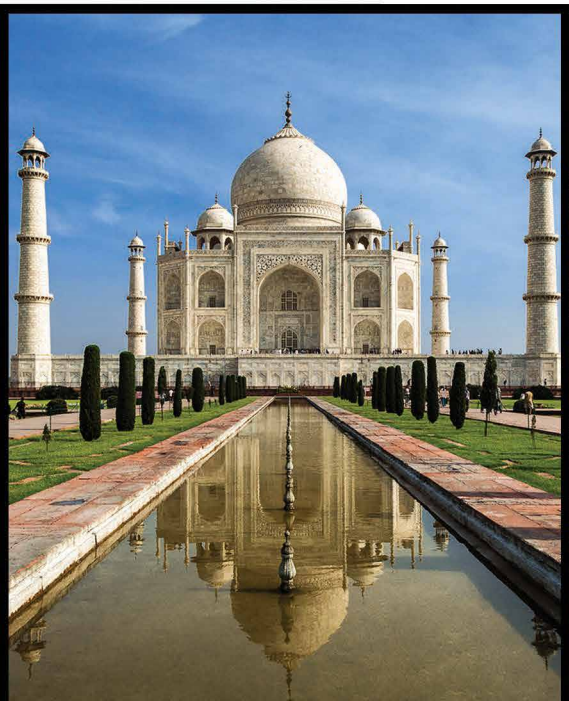
AROUND THE WORLD

MAY 11 - JULY 18, 2022

70 DAYS / 69 NIGHTS | 21,300 NM | 25 COUNTRIES

www.airjourney.com tel. +1(561) 841-1551





DAHER

Photo: Chris Rose

Redefining Flight Safety and Performance

The Daher TBM 940 sets the standard for performance, while also taking safety to new levels. After incorporating envelope protection and autothrottle to make loss of control virtually impossible, we have now introduced HomeSafe™, the emergency autoland system that automatically returns the plane to a runway if the pilot becomes incapacitated. Not to mention the most reliable turboprop in its class, built-in engine safeguards and automatic transmission of critical engine data back to the manufacturer after each flight. Daher, where safety comes first.

Speak to a Daher expert:
TBM (Americas) (954) 993-8477 (International) +33 5 62 41 77 88

www.tbm.aero

TBM 940

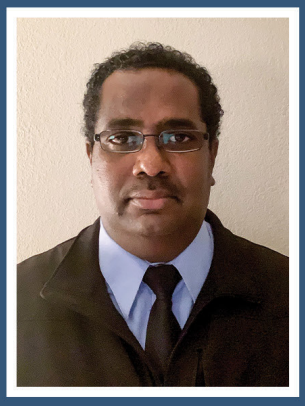
HOMESAFE®

GOLDBERG AVIATION

IN AIRCRAFT FLIGHT TRAINING EXPERTS

GET YOUR COMMERCIAL AND ATP IN YOUR TBM!

WE ARE HAPPY TO INTRODUCE
BRENDON BROWN:



TBM Instructor and
Designated Pilot Examiner

For in-cockpit TBM training, **Goldberg Aviation** offers the most experienced and knowledgeable instructors.

TBMs are our only business. We are happy to offer in-cockpit **TBM Commercial and ATP (SEL)** training and check rides.

Train in your TBM at your home airport then take your check ride with one of Goldberg Aviation's TBM instructors who is also a **Designated Pilot Examiner.**

Don't worry about check ride jitters; **take a mock check ride the day prior with the Check Airman.**

TBM TRAINING

We specialize in both **Initial & Recurrent Aircraft Training.** We have served hundreds of clients and have conducted TBM training on six continents.

FAA WINGS

Goldberg Aviation is now a designated **FAA WINGS** training provider. We have added Initial and Recurrent training to our array of world-class services.

BASED NATIONALLY,
our instructors serve world-wide clients and are able to come to you.

Call and talk to a training advisor at **404-725-8082**

Visit our website at
GoldbergAviation.com

GOLDBERG AVIATION

WACO Kitchen: An Experience Unlike Anything Else

By: Rachel Friedman, Ph.D.

If you're looking for a unique experience, WACO Aircraft Corporation is your destination. Located at the Battle Creek Executive Airport (KBTL), WACO Aircraft prides itself on being the world's leader in building handcrafted airplanes that provide the ultimate sense of adventure. Here, craftsmen and women pour their passion and artistry into each stage of the production line, which is evident as soon as these planes experience their first flight.

Since 1983, excitement for aviation has been growing through the people and the facility at WACO Aircraft. When the Dimor Group, Inc., of Fort Lauderdale, FL acquired the corporation in 2018, this excitement was able to truly take off. Thus, the facility went through a complete renovation which included the addition of WACO/Centennial Aircraft Service's FBO and WACO Kitchen.

Within the newly built FBO, pilots and their passengers can experience first-class hospitality through the comfort of private restrooms with showers, pilot lounge, and snooze room. Private office spaces are also available so that all business can be conducted with ease. This contemporary FBO also offers hangar storage for aircraft up to a G650 and a free meal at WACO Kitchen when you fuel your aircraft.

WACO Kitchen is located on the second story of the WACO Aircraft/Centennial Aircraft Service's FBO with panoramic views of runway 5L/23R and large observation windows into WACO Aircraft's production and service facilities. Here, you can enjoy a behind-the-scenes dining experience into the craftmanship of each new production biplane. This one-of-a-kind atmosphere is paired with a menu that offers locally sourced organic ingredients and nutritious meals that are freshly prepared by a staff of internationally-trained chefs. As Chef Randall Nash says, "It is an experience unlike anything else."

The creation of WACO Kitchen stemmed from owner Dieter Morszeck and CEO Sven Lepschy - passionate aviation enthusiasts that are motivated by adding value to WACO employees, Battle Creek neighbors, and the entire aviation community. Thus, WACO Kitchen opened to the public on January 4, 2021, and has been radically successful since.

"Every restaurant should have three things to be successful" says CEO, Sven Lepschy, "One thing is the location, so the ambiance needs to be right, the lighting needs to be right. The second thing that needs to be right is the service. You need to feel welcomed; you need to feel valued as a guest. And the last thing that is very important is the food quality. When you cook something from your heart with passion and something that is very good and tasteful and good for your body then you really have a success with those three items."

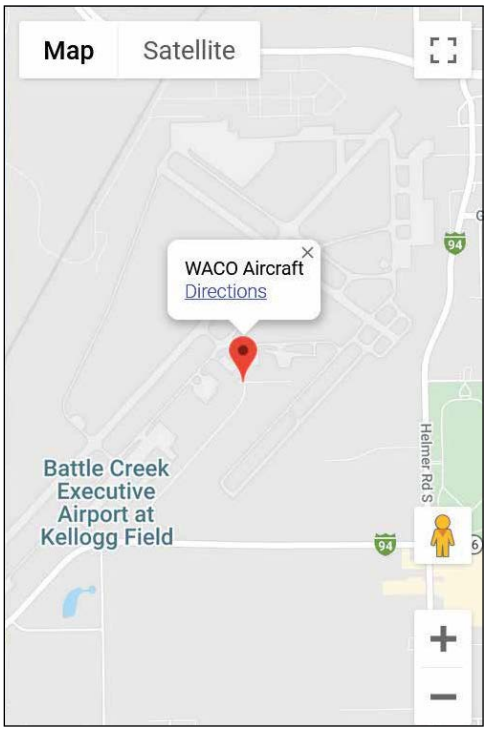
It is clear that WACO Kitchen has always strived to be different. The unique menu options combine the beautifully rich Mediterranean flavor with the American culinary culture which creates a wonderful fusion of European heritage with a cool and adventurous American approach to food. WACO Kitchen was designed to create an experience that ensures every guest feels welcomed and valued through providing a unique atmosphere, great service, and high-quality food. That is why the entire menu comes from farm-to-table, locally sourced ingredients, and the kitchen operates with a zero-food waste philosophy.

"Anything that we can source locally, we try to do. It gives us peace of mind to know that we're working with the freshest possible product, knowing that our guests are eating the freshest as well," says Chef Nash.

The year-round menu at WACO Kitchen is comprised of five main dishes, brand new breakfast options, unique beverages, and dessert. A seasonal menu is also available to ensure the use of fresh, in-season ingredients while offering a unique variety of options each time you visit.

Aviators from all over the world have travelled to Battle Creek, Michigan, to understand the uniqueness of WACO Aircraft and WACO Kitchen. "When people come to our restaurant, they have an experience" says CEO, Sven Lepschy, "Just from the moment they walk in from the friendliness and professionalism of our staff, to the food, but also the adventure to look out the window and see airplanes taking off and taxiing. We are a destination."

In fact, the WACO Kitchen experience has been in such high demand that the restaurant has recently extended its hours and menu offerings to include weekend breakfast options, otherwise known as "Dawn Patrol."



This menu will introduce a fresh take on the Midwest breakfast and will include Eggs Benedict, Migas Breakfast Bowl, Migas Vegan Bowl, "Eir Dienen Weg," and Fried German Toast – think French Toast but fried in custard and topped with whipped cream and mixed berries. We hope you bring your appetite!

The uniqueness of the main menu is no exception. For years, WACO Aircraft has used the phrase "WACO, like taco" to highlight the proper pronunciation of their name. This has inspired what is now a restaurant signature item, the WACO Taco – consisting of three tacos served on corn tortillas, piled high with crispy chicken, marinated Napa cabbage, homemade mango jalapeno salsa, and topped with silk chili drizzle and lime zest crema.

Just wait… There's more. WACO Kitchen takes 100 Dollar Hamburger to the next level by offering a few specialty menu items – each including your choice of side and your very own WACO aircraft. First, for $489,600, you can indulge in the world's most expensive hamburger served with a new production YMF Super. Second, for $269,300 you can get the Great Lakes Hot Dog, topped with avocado and mango jalapeno salsa and served with a new production Great Lakes by WACO. The third specialty menu item is the Amphibious YMF-5 Surf 'N Turf. For $648,300, you can enjoy a grilled New York Strip paired with fresh lobster and shrimp and served with a new production Amphibious YMF-5.

Are you hungry yet?

As you fly into Battle Creek, Michigan, the Breakfast Capital of the World, prepare to be surprised. Not by the sweet lingering smell of freshly baked cereal, but by the uniqueness of all that WACO Aircraft/ Centennial Aircraft Services has to offer. No matter where you're coming from, it's worth the flight.

Fly in to experience the difference at WACO Kitchen. Open Monday through Friday 11AM – 6PM, Saturday 7AM – 6PM, and Sunday 7AM -2PM.

Learn more about all of this and more at: wacoaircraft.com, centennialair.com, and wacokitchen.com

WACO
AIRCRAFT

MAKE YOUR SPLASH

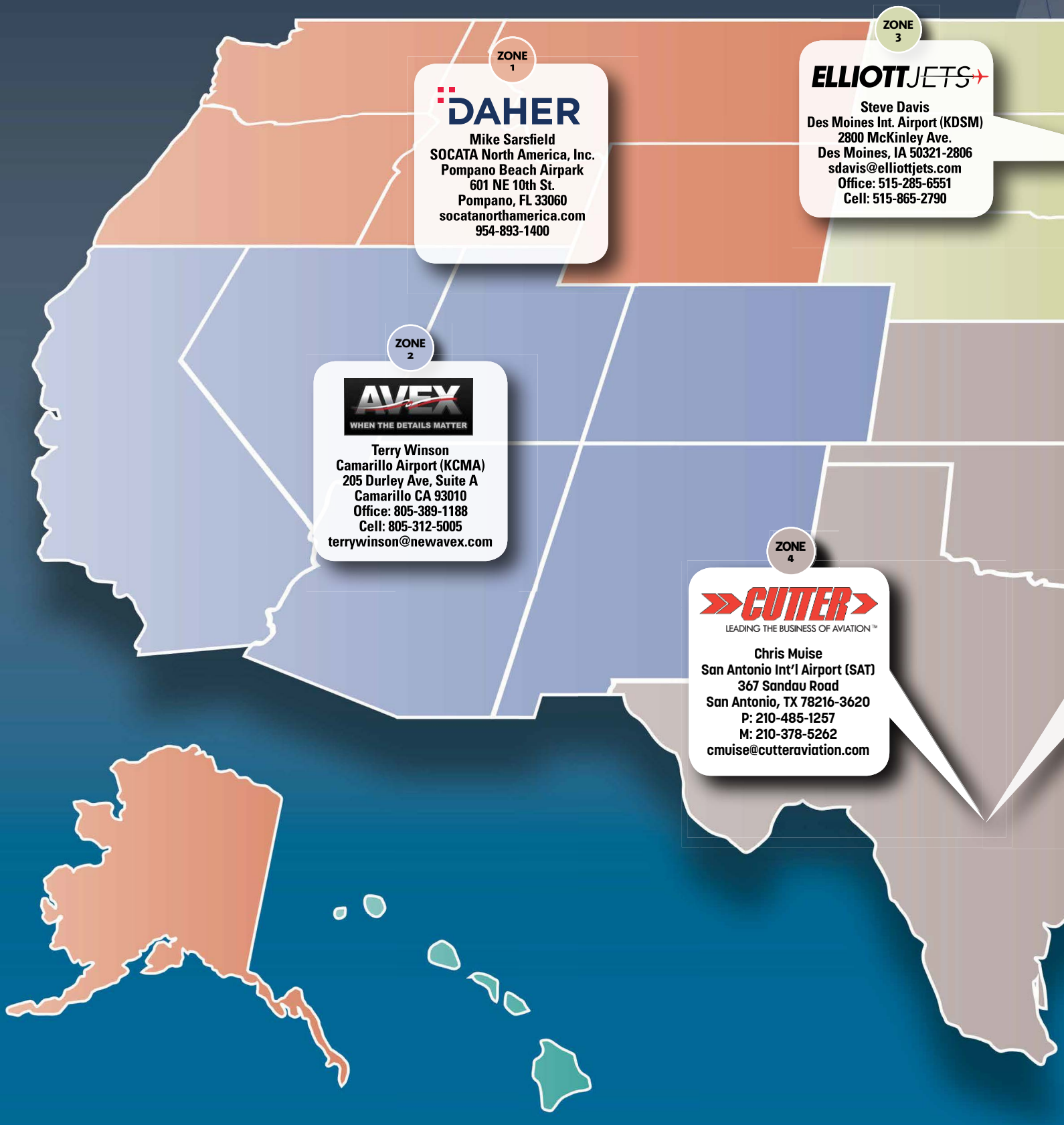
WACOAIRCRAFT.COM

Alter your perspective & distinguish yourself with a new-production WACO Amphibious YMF-5. Skillfully crafted by artisans in Michigan using original techniques from 1935, this pinnacle of aviation provides exhilarating flight and adventure year-round. Become one with the airplane, expand your horizons & experience unrestricted movement in three dimensions, just because you can. **Own Flying. Own Passion. Own WACO.**

WACO AIRCRAFT CORPORATION
+1 269-565-1000
15955 South Airport Rd
Battle Creek, MI 49015
Battle Creek Executive Airport (KBTL)

Unlimited Attitude

MEET YOUR TBM DISTRIBUTORS



ZONE 1

DAHER

Mike Sarsfield
SOCATA North America, Inc.
Pompano Beach Airpark
601 NE 10th St.
Pompano, FL 33060
socatanorthamerica.com
954-893-1400

ZONE 2

AVEX
WHEN THE DETAILS MATTER

Terry Winson
Camarillo Airport (KCMA)
205 Durley Ave, Suite A
Camarillo CA 93010
Office: 805-389-1188
Cell: 805-312-5005
terrywinson@newavex.com

ZONE 3

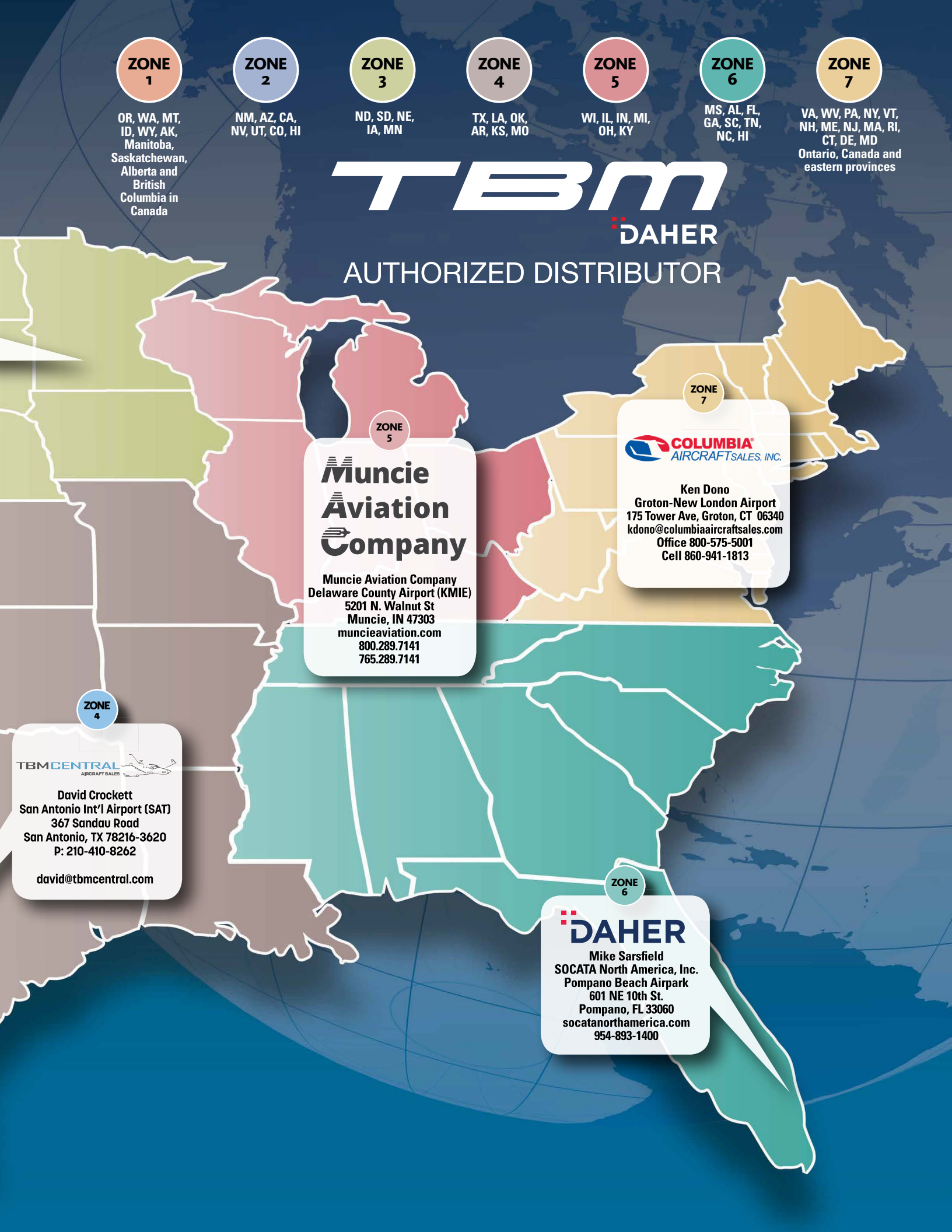
ELLIOTTJETS

Steve Davis
Des Moines Int. Airport (KDSM)
2800 McKinley Ave.
Des Moines, IA 50321-2806
sdavis@elliottjets.com
Office: 515-285-6551
Cell: 515-865-2790

ZONE 4

CUTTER
LEADING THE BUSINESS OF AVIATION™

Chris Muise
San Antonio Int'l Airport (SAT)
367 Sandau Road
San Antonio, TX 78216-3620
P: 210-485-1257
M: 210-378-5262
cmuise@cutteraviation.com


ZONE 1
OR, WA, MT, ID, WY, AK, Manitoba, Saskatchewan, Alberta and British Columbia in Canada
ZONE 2
NM, AZ, CA, NV, UT, CO, HI
ZONE 3
ND, SD, NE, IA, MN
ZONE 4
TX, LA, OK, AR, KS, MO
ZONE 5
WI, IL, IN, MI, OH, KY
ZONE 6
MS, AL, FL, GA, SC, TN, NC, HI
ZONE 7
VA, WV, PA, NY, VT, NH, ME, NJ, MA, RI, CT, DE, MD Ontario, Canada and eastern provinces
TBM
DAHER
AUTHORIZED DISTRIBUTOR
ZONE 7
COLUMBIA AIRCRAFT SALES, INC.
Ken Dono
Groton-New London Airport
175 Tower Ave, Groton, CT 06340
kdono@columbiaaircraftsales.com
Office 800-575-5001
Cell 860-941-1813
ZONE 5
Muncie Aviation Company
Muncie Aviation Company
Delaware County Airport (KMIE)
5201 N. Walnut St
Muncie, IN 47303
muncieaviation.com
800.289.7141
765.289.7141
ZONE 4
TBM CENTRAL AIRCRAFT SALES
David Crockett
San Antonio Int'l Airport (SAT)
367 Sandau Road
San Antonio, TX 78216-3620
P: 210-410-8262
david@tbmcentral.com
ZONE 6
DAHER
Mike Sarsfield
SOCATA North America, Inc.
Pompano Beach Airpark
601 NE 10th St.
Pompano, FL 33060
socatanorthamerica.com
954-893-1400

With the COVID-19 pandemic's dark clouds progressively dissipating, we see clearer skies on the horizon.

Flying activity with aircraft in the worldwide TBM fleet is back up to levels of two years ago, as are customer inquiries and demo flights. And our TBM Care teams remain on deck, ready to support all owners and operators.

On the production side, our assembly cadence has swung back to a high level, benefitting from new tooling and enhanced processes – as well as the commitment of Daher employees. Today, a TBM comes off the assembly line every week in Tarbes, followed by its factory handover or ferry flight to the new owners. This popularity represents a strong vote of confidence for the TBM 910 and TBM 940, and underscores the continued value offered by our very fast turboprop aircraft family.

Speaking about new deliveries, the legendary ferry pilot Margrit Waltz accomplished her 900th ferry flight in May, and we were particularly proud that it was performed with a TBM 940 from Tarbes to the U.S. Her

impressive flight history probably would qualify Margrit as the most experienced living ferry pilot, if an official record of such an achievement existed! As her activity includes delivering more than 200 TBMs – from TBM 700 S/N 5 in 1991 to the new TBM 940 delivered last month – Margrit has flown all versions, making her a true witness to our aircraft product line's evolution and Daher's emphasis on safety.

When she started this activity in 1976, flying single-engine airplanes over the ocean was considered a risky undertaking. Her impressive safety record of 22,000 flight hours (of which 8,000 are on turbine aircraft) with only a single accident on a piston aircraft due to a mechanical failure is based on four pillars: knowledge of the airplane, understanding weather, constant checking of information along the flight trajectory, and a team spirit which enabled her to work closely with our staff when delivering a TBM.

Safety also is a theme for Daher's continued development of the Me & My TBM app. In keeping with its primary goal of improving TBM pilots' flying skills, we are launching a new Top Aviator Challenge to recognize the top scorers among the app's users. And the best venue to reward the Challenge's highest-scoring pilots? It's EAA AirVenture Oshkosh in July, with prizes to be provided by Daher and its supplier partners.

The upcoming EAA AirVenture Oshkosh gathering is another confirmation that airshows are spreading their wings once again. Daher had a successful presence at Sun 'n Fun in Florida during April despite a limited audience, and June's France Air Expo in Lyon gives us the second opportunity within as many months to display the Kodiak and TBM side-by-side. We expect EAA AirVenture Oshkosh to meet its reputation as "the world's greatest aviation celebration," providing an opportunity for our teams to – once again – greet the TBM aviator community in person.

As life begins returning to normal, 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

Trying times require *experience*

LANCE TOLAND ASSOCIATES
Aviation Insurance Management

770.329.7200

lance@lancetoland.com | lancetoland.com

by Thierry Pouille

QUARTERLY QR CODES

1 SCAN ME

2 SCAN ME

3 SCAN ME

4 SCAN ME

5 SCAN ME

Welcome back for the newest edition of QR Codes!

If you have an interesting video and can post your video on YouTube, please share it with us! Email video links to kristin@ajpublications.com for consideration.

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 New 2021 TBM 940 :
YouTube channel steveo1kinevo shares a flight vlog in a brand new 2021 TBM 940. The interior and exterior are equally impressive. The vlog presents a flight from Arcadia, Florida, to Pompano Beach, Florida.

2 Dream Big by artist Pete Tillack :
Visit Pete Tillack's channel to learn the meaning behind one of his notable aviation oil on canvas art pieces. This artwork is an in-house favorite of AJ Publications.

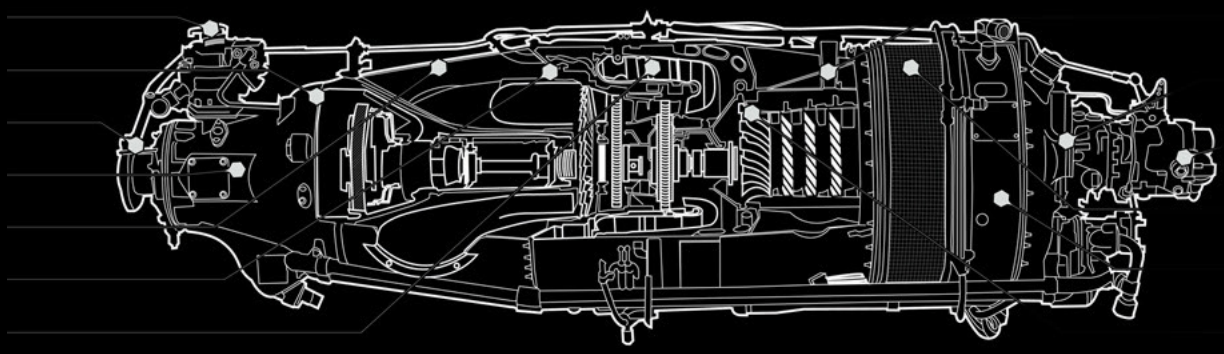
3 The Grumman TBF "Avenger" :
ZenosWarbirds shares a video which was used for U.S. Navy pilot training. The YouTube channel notes that during WWII, the Grumman TBF "Avenger" was President George H.W. Bush Sr.'s aircraft. "More than 7,500 TBF/ TBM Avengers were produced in 20 variants. The TBF was the Grumman version [and] the TBM was produced my General Motors aircraft division."

4 Short Field Takeoff Demo - Kodiak 100 :
Mark Brown, Chief Demo Pilot at Kodiak Aircraft, performs a short field takeoff and landing in a Kodiak 100. Contact kodiaksales@daher.com for a demo flight.

5 How to use the TBM 930 GARMIN G3000 :
Microsoft Flight Simulator 2020 is used by NaviSim101's channel to demonstrate how to use the TBM 930 GARMIN G3000 avionics system. This is an informative, full tutorial.

"HOW TO GET BETTER" (PART 3 OF 3)

by **William Goldberg, Goldberg Aviation**



Note: The Airline Transport Pilot Multi Engine rating process is complicated and time consuming – as it should be – for those wishing careers in Part 121 or Part 135 operations. For TBM pilots, the process of earning an ATP-SEL can be simple and efficacious. This article is part three of a three-part series on "How to Get Better." Our goals are to raise the flying ability and enjoyment of the TBM community, reduce the accident rate, and, hopefully, contain adverse insurance rate adjustments.

Were I to draw a Venn diagram of pilots who (i) have experienced the fewest accidents, (ii) are most skilled and (iii) possess an ATP certificate, I'd estimate that the circles are very close to completely overlapping. It is conjecture, however, for me to say in which areas the causal arrow points – are ATPs inherently safer pilots or do safer pilots climb the certification ladder to ATP? No matter the causality, any pilot that achieves an ATP rating as an avocation amply demonstrates commitment to high operational standards and safe operations.

My barstool analysis is backed up by Embry-Riddle Aeronautical University's research indicating that age, flight time, certification, currency, gender, and profession (professional pilot or not) are indicators of accident occurrence. What is noteworthy about the research is that it can more easily use the factors to explain accidents than safety *per se*. In other words, young males who are low time, private certificated pilots would be the epitome of a high-risk group. It is just harder to say with same level of confidence that older, ATP-rated, females with lots of flight time are as safe as the other group is dangerous.

As an aside, I had the good fortune to fly with Evelyn Johnson. When she died at age 102 in 2012, she had flown over 56,600 hours, given more than 9,000 practical tests and had quit counting soloed students when she got to 3,000. *She never put a scratch on an airplane*. Say what you will about analysis that is based upon single data points, her record has left a deep and meaningful impression on me.

In my last two articles, I have set forth a well-trodden path for the

GARMIN

POWERFUL INSIGHT INTO YOUR PT6A POWER PLANT

EIS TXi NOW AVAILABLE FOR DAHER TBM 700/850

TIMERS FOR ENGINE START AND EXCEEDANCES

DYNAMIC LIMIT RANGE MARKINGS

EXCEEDANCE ALERTS AND LOGGING

ENGINE AND FLIGHT DATA RECORDING

WIRELESS DATA UPLOAD AND SECURE STORAGE*

GARMIN.COM/TXi

*Requires Flight Stream 510

Commercial certificate and will not rehash the same guidance here. Buy the books, get a great score on the knowledge exam, get your airplane ready, take instruction, have a mock practical test, and take the practical test. There is nothing new on the ATP practical test, but the pilot must perform to very high standards. For example, I have had instrument rating applicants fly an ILS and experience full scale deviation on the localizer, yet pass the practical because they noted the deviation and promptly executed a missed approach procedure. I have had ATP applicants who failed the practical test because he allowed the CDI to exceed ¼ scale deviation. The point is that an ATP candidate makes the necessary corrections in all phases of flight that prevent deviations from the intended flight path using prompt and smooth control inputs.

TBM-Specific Considerations

In a fleet as diverse as ours, it is difficult to define precise power settings, and we will work with you during instruction to develop power settings that work for your aircraft and your configuration. Generally speaking, between maneuvers using TRQ = **40%** and KIAS = **140** is a good starting point for power settings and the torque governor in the 850 should be left **ON**.

Practical Test Overview

In our Airline Transport Rating Training Curriculum, we go into much greater detail describing these maneuvers, but we deviate only minimally from the Airplane Flying Handbook (FAA-H-8083-3) and the Pilot's Handbook of Aeronautical Knowledge (FAA-H-8083-25).

Prefight Preparation – The format of Preflight Preparation looks remarkably similar to that of the Private Pilot ACS, but there is consideration given for the complexity of the aircraft, mission, and route. ATP candidates are often given a scenario that asks for interpolation of performance charts, runway lengths, density altitudes, aircraft loading, and meteorological conditions and asked about areas of risk and how best to mitigate the risks. If the particular flight is deemed to have an insufficient risk margin, what changes in conditions would change the applicant's mind?

Preflight Procedures – Examiners will want to see that applicants understand the PAVE checklist as well as proper inspection and malfunction detection of aircraft systems. Engine starting considerations and modes along with pristine taxi procedures and checklist usage are key skill topics upon which to demonstrate professionalism.

Takeoffs and Landings – All of these procedures are done with much more precision and in much closer reference to POH values than in previous practical tests. For example, the normal landing is evaluated by (my personal favorite) the pilot achieving a stabilized approach with +/- 5 KIAS, touchdown point and attitude in relation to the aiming point, and total landing distance in relationship to calculated landing distance. Takeoff demonstrations emphasize good judgement and safe procedures for rejected takeoffs.

Inflight Maneuvers – While the tolerances for steep turn performance for an ATP is identical to that of a private pilot, the ATP candidate must execute the steep turn solely by reference to instruments and in a TBM. Too many candidates have managed a steep turn or two under the hood during training, assumed that amount of practice was sufficient, and went on to fail that element on the practical test. Please give this maneuver the practice that it deserves in order to execute flawlessly. (Proper use of the trim is the key element here.) Unusual attitudes and specific flight characteristics demonstrations are meant to address some of the circumstances that might precede such situations such as stress, task saturation, and distractions. Situational awareness, systems knowledge, and flying skills are called for in equal measure in successfully handling these task demonstrations.

Stall Prevention – The name of this section says it all. In aircraft as capable as the TBM, we encounter many situations that could lead to the pilot stalling the airplane – airspeed, configuration, weather, weight, icing, density altitude – and ATP candidates must be alert to all factors that add risk. Your safety and the evaluative criteria of the examiner are the same: At the first indication of a stall (buffet or stall warning horn), make the immediate, smooth, corrective action. The recovery sequence is Pitch = **DOWN**, Trim = **DOWN**, Wings = **LEVEL**, and TRQ = **100%**. In my experience, there are few maneuvers that reward smoothness more than a stall recovery.

Instrument Procedures – Discussion of all of the points to the various

AIRCRAFT FINANCING

- Flexible Loan Programs
- Unmatched Personal Service
- Easy, Fast, Efficient Process
- The Industry Leader in Rates & Service

800.390.4324 | airfleetcapital.com

takeoffs, approaches, and landings goes beyond the scope of this article. Suffice it to say that ATP applicants will be closely evaluated on their ability to adhere to very high performance standards while maintaining situational awareness and practicing cockpit resource management, precise ATC communications, and timely checklist usage (but not during taxiing).

Emergency Operations – There is much to evaluate in a high-performance, pressurized, turbine-powered aircraft. Knowing from memory the next action when the CAS illuminates as well as special situations such as icing and evacuation is essential. Non-standard flap landing speeds and appropriate airports for landing will very likely be evaluated.

There is much discussion and good advice in the appendices of the ACS. Here are some highlights from my perspective:

- Be prepared to say something cogent about every knowledge and risk management element.
- Have your documents and your aircraft's paperwork in perfect order with appropriate highlighting and paperclipping of pages for easy reference.
- If you are not 100% in the moment due to undertraining, work concerns, or personal challenges, ask for a discontinuance. A notice of disapproval, while not the end of the world, can easily be avoided by being self-aware.
- Too often we assume safety of flight and do too little to announce it or practice it. At the start of the flight, taking time to give a proper preflight briefing using the acronym S.A.F.E.T.O.Y. would be warmly welcomed by the examiner. Were you to follow a request from the examiner to demonstrate a power on stall with the statement, "A power on stall starts with some clearing turns. In the clearing turn, please look out for other aircraft and assure that your seat belt is secure," the examiner's heart will swell. Lastly, transferring control using the proper phraseology will be well received.
- Slow down. In talking with many DPEs, a frustratingly common behavior that leads to Notices of Disapproval is haste. Forgetting clearing turns, rushing a checklist or trying to immediately follow the examiner's direction are all symptoms of emphasizing speed over judgment.

Human nature is a funny thing. In order for us to practice healthy habits and to develop beneficial skills, we often need to employ commitment devices. A commitment device is a technique where we voluntarily adopt a practice that protects against procrastination and ties adverse consequences to failures to follow through. If you were to announce to your friends that you are committed to improving your skills and achieving an ATP rating, you would lose social capital were you not to complete the rating. It almost does not matter how long it takes to finish, but rather that you have put yourself in a learner's mindset and you begin to watch yourself more closely on every flight. As you take more steps by buying study materials, taking the knowledge test, etc., you get better and progress towards your goal. Soon, you will be close with only the practical test required to get you over the finish line. Let us know how and when we can help.

ICE SHIELD®
LEADING EDGE & WING BOOT DE-ICERS

FAA approved for the Daher-Socata TBM

FASTER

Complete leading edge assemblies and replacement boots in stock for guaranteed 48-hour delivery.

BETTER

New and improved leading edge design offers more flexibility and ease of installation.

Wing boots certified for installation on OE leading edges.

iceShield® de-icing systems

SMARTER

No-charge access to technical support regarding installation of product.

Contact Our Worldwide Stocking Distributors for Purchase

IceShield.com • 800-767-6899

Stabilized Approaches Prevent Runway Accidents When Landing - Socata TBM N700VA Landing Overrun

Shari S. Drerup

Corporate Pilot, Aviation Safety Author, Mentor Pilot, Flight Instructor

Master's degree in Aeronautical Science with a Specialization in Safety, Embry-Riddle Aeronautical University

By Shari S. Drerup, MSA

On October 24, 2003, while landing at the Dundee Airport in Scotland, a TBM bounced on landing, overran the runway, and came to rest in the River Tay. The aircraft was destroyed, but the 4 occupants of the aircraft survived. The pilot was conducting a visual approach to Runway 28, and reported that the aircraft floated down the runway while in the flare. On touchdown, the aircraft bounced, yawed, and then rolled left, causing the left wing to hit the ground when the pilot to initiated a go-around. The aircraft continued to yaw to the left, allowing one of the wheels to strike a low wall as the aircraft ditched into the river. Air traffic controllers reported to investigators that during the go-around, the aircraft was nose-high before the left wing dropped, hitting the ground.

Let's Take a Look at the Numbers

The Aviation Safety Network, a service of The Flight Safety Foundation, listed 44 TBM accidents on their website from the time period 1991 - 2019, across the globe. The accidents occurred during all phases of flight including ramp, taxi, runway incursions, takeoff, climb, enroute, approach, and landing. Of the 44 accidents listed, 33 (75%) of these accidents occurred during the approach and/or landing phase of flight. Below is a summary of some of these accidents:

Date	Location	Landing Event
11/15/1991	France	Loss of control on final approach, pilot initiated a go-around resulting in a roll to the left due to low speed.
08/22/1992	California	Touchdown on runway in crosswind, left wing struck the ground.
03/13/1998	California	Circle to land with a 70-degree bank, resulted in loss of control at night.
08/04/1998	South Dakota	Circle-to-land loss of control.
03/13/1999	Virginia	Pilot landed the aircraft gear up.
03/01/2003	Virginia	Pilot's failure to fly a stabilized approach, aircraft stalled on approach in IMC.
10/24/2003	Scotland	Hard landing, bounce, and go-around attempted. Aircraft exited the runway, ditching in the river.
12/06/2003	UK	Aircraft struck the ground to the left of the runway threshold during gusty conditions. Loss of control during late go-around.
02/02/2007	Massachusetts	Pilot flew a fast approach with a steep missed approach and failed to maintain aircraft control.
06/15/2007	Paris	Aircraft nose gear collapsed on landing.
12/22/2008	New Mexico	Pilot apparently failed to perform before landing checklist resulting in gear-up landing.
07/15/08	Georgia	Aircraft airspeed too slow on approach resulting in aerodynamic stall.
03/01/2010	Maryland	Aircraft crossed the threshold at 81 knots, as stall warning went off. Aircraft drifted left off runway. Pilot initiated a late go-around without full power and lost control.
11/09/2011	France	Aircraft crashed on approach to runway short of the displaced threshold.
02/10/2012	France	VFR pilot crash landed during snow shower with zero visibility.
12/07/2013	Brazil	Pilot forgot to lower the landing gear.
03/22/2014	Colorado	Pilot's loss of control and stall during approach.
10/18/2014	Germany	Nose gear collapse on landing.

Primary Causes of Runway Overruns

FAA Advisory Circular 91-79A, "Mitigating the Risks of a Runway Overrun Upon Landing," addresses the primary causes for runway overruns, along with ways to mitigate the risks of these hazards.

Hazards Associated with Most Runway Overruns Per AC-91-79A

When you look at runway overruns or landing accidents, in the accident reports you generally find one or more of the following hazards that were causal to these overruns:

1) **Landing with a 10-knot tailwind increases your landing distance required by 21 percent**. The tailwind effectively increases your speed across the ground, causing the aircraft to eat up more runway while landing. Aircraft controllability also becomes a factor when landing with a tailwind as the aircraft is being pushed by airflow coming from the tail, instead of over the wings as in a headwind. Winds can shift from the time you receive ATIS and program an approach in the FMS, especially if there are storms or a frontal passage in the area. The Terminal Area Forecast, TAF, which you reviewed before departure, should alert you to potential wind shifts that are forecast. For example, if the winds are forecast to change direction during the day due to a frontal passage, be prepared to request and use an opposite direction approach at the last minute if the winds shift. Also be alert to the fact that an afternoon thunderstorm can cause a wind shift that is not in the forecast. When landing with thunderstorms and rain showers near the airport, ask the tower on final for a wind check in order to be alert to the possibility of a go-around to another suitable runway. A headwind can quickly shift to a tailwind while on final to land. If your calculated runway required is 3,000 feet and you have a 10-knot tailwind on landing, add 21%, or 630 feet, to your runway required calculation for 3,630 feet.

2) **Excess threshold crossing height contributes to runway overruns. For every 10 feet above 50 feet threshold crossing height, add 200 feet to your required landing distance**. If you cross the threshold at 100 feet AGL instead of 50 feet AGL,

you will have to add 5 x 200 = 1,000 feet to your landing distance required.

3) **Crossing the runway threshold with excess speed increases the chance that you will overrun the end of the runway. For every 10% increase in your speed, add 20% to the amount of runway required to land.**

4) **Downward sloping runways require you to add 10% to your landing distance required for each 1% of downhill slope on the runway.** If you needed 3,000 feet to land and the runway has a 1% downhill slope, add 300 feet + 3,000= 3,300 feet required. A downhill sloping runway increases your groundspeed just as a tailwind component, causing you to need more runway, reducing your ability to slow and stop the aircraft.

5) **For a high elevation/density airport, be sure to use the correct landing data in the POH for the increased landing airport elevation.** Failing to use the correct elevation can cause your aircraft to overrun the runway. Runways at higher elevation airports with air that is less dense, result in your landing true airspeed being higher than your indicated airspeed, leading to an increased landing roll.

6) **Use of less than maximum braking requires you to add 20% to the landing distance required.** If you do not use the aircraft's maximum braking for any reason, or improperly use the aircraft brakes, which reduce their effectiveness to stop the aircraft, add 20% to your required landing distance. If you are landing on a 3,000-foot runway and do not use maximum braking, you will need an additional 600 feet or 3,600 feet to land and stop.

7) **Wet runways require you to use the wet runway landing distance landing charts or make some type of adjustment calculation to the dry runway landing distance chart.** Hydroplaning is a condition in which standing water, snow, or slush causes the moving wheel of the aircraft to lose contact with the load bearing surface of the runway, which will cause reduced braking action. The reduced braking ability creates the potential for the aircraft to go off the end of the

runway. Slowing and stopping the aircraft is in jeopardy when hydroplaning.

Every tire will hydroplane at a certain calculated speed based on the pressure of each tire. Every pilot should know the minimum hydroplaning speed of their aircraft. The formula to determine the speed that your aircraft will begin to hydroplane is as follows: The square root of the main tire pressure multiplied by 9. Let's say your main wheel tire pressure is 175 psi. The square root of 175 is 13 x 9 = 117. This tire will begin to hydroplane at the speed of 117 knots. Making the habit of adding an additional amount of runway required due to wet runways will increase your safety landing margin.

8) **Displaced thresholds can eat into your landing distance available. Be sure to determine if any portion of the runway is unusable due to a displaced threshold.** Research NOTAMS, the Airport/ Facility Directory, or Airnav.com for information on displaced thresholds when flight planning. An unexpected displaced threshold can cause you to attempt to land on a runway that does not have the landing distance available that you relied on during your flight planning, resulting in a runway overrun.

Landing Out of an Unstabilized Approach is the Main Reason Your Aircraft Will Go Off of the End of the Runway

All of these issues listed above can be a factor in a landing accident, although usually two or more of these factors are at play on the day that your airplane inadvertently goes off the side or end of the runway. However, nothing is more important in the success of your landing than the stability of your approach. Our flight instructors always preached to us that a good landing starts with a good, stable approach. The FAA's definition of a stabilized approach is one in which the pilot establishes and maintains a constant angle glidepath towards a predetermined point on the landing runway. It is based on visual cues and depends on the maintenance of a constant final descent airspeed and configuration. A stabilized approach profile is one of the most critical elements needed to ensure a safe approach and landing. For every landing, set a standard for yourself that if you do not have the following, GO AROUND!

1) Plan to touchdown in the first 500-3,000 feet beyond the runway threshold, not to exceed the first 1/3 of the runway. If you find that you are floating and have gone past the first 1/3 of the runway – go around.

2) If in instrument meteorological conditions, have your speed and configuration set by 1,000 feet AGL with 3-degree glidepath established. If in visual conditions, have your aircraft stabilized by 500 feet AGL. This means flaps, gear, and checklists complete, flying your target airspeed, and in a stable 3-degree glidepath. If you do not have all of these parameters stable by 1000 feet in instrument conditions or 500 feet in visual conditions, tell ATC that you need vectors to get set up to re-fly the approach.

3) Indicated airspeed should not be more than plus 5 of the POH approach speed, but never less than your POH approach speed. Excess speed can cause you to use up more runway than normal and cause your aircraft to bounce or porpoise on landing, causing prop

strikes, wing strikes, and gear collapses. Flying an airspeed below your POH speed can cause your airplane to stall or land short of your landing target.

Is Your Approach Really Stabilized?
The Flight Safety Foundation Briefing Note 7.1, "Stabilized Approach," breaks down the stabilized approach criteria even further and recommends that the following elements must exist, in addition to the criteria listed above by the FAA, for an approach to be considered stabilized:

1) Aircraft on correct flight path
2) Only small changes in heading or pitch are required to maintain the correct flight path
3) The aircraft landing configuration is correct
4) Sink rate is no greater than 1,000 feet per minute
5) Power setting is appropriate
6) All briefings and checklists have been conducted
7) For an ILS approach, the aircraft must be within one dot of the glideslope and localizer, and for a circling approach, wings should be level when the aircraft reaches 300 feet above the airport elevation

When you review the list of TBM accidents above and the corresponding accident events, you can see that the majority of these accidents were likely caused by the pilot flying an unstabilized approach, followed by an unstabilized go-around. When attempting to salvage a very unstable approach, the result is usually an awfully bad landing followed by an out-of-control go-around, as several of the accident aircraft listed above attempted. Things tend to just go from bad to worse.

What Does This Mean for You?
Don't wait until you have busted every stabilized approach criterion listed above to make the decision to get vectors and fly the approach again, either in IMC or visual. Some of the worst landing accidents can happen in VFR conditions. A blue sky and calm winds can create a false sense that we can make the landing even if we are not stable because we can see the runway. I believe we tend to focus more on flying stabilized instrument approaches in actual IMC conditions because the weather has gotten our attention.

Make the decision to follow the stabilized approach criteria for each landing, regardless of the weather, and your landings will be smooth, safe, and you, your passengers, and your aircraft will survive to fly another day. If you choose to ignore the stabilized approach criteria and continue an unstabilized approach, you may eventually find yourself off the end of a runway someday or, worse, written up in my next safety article.

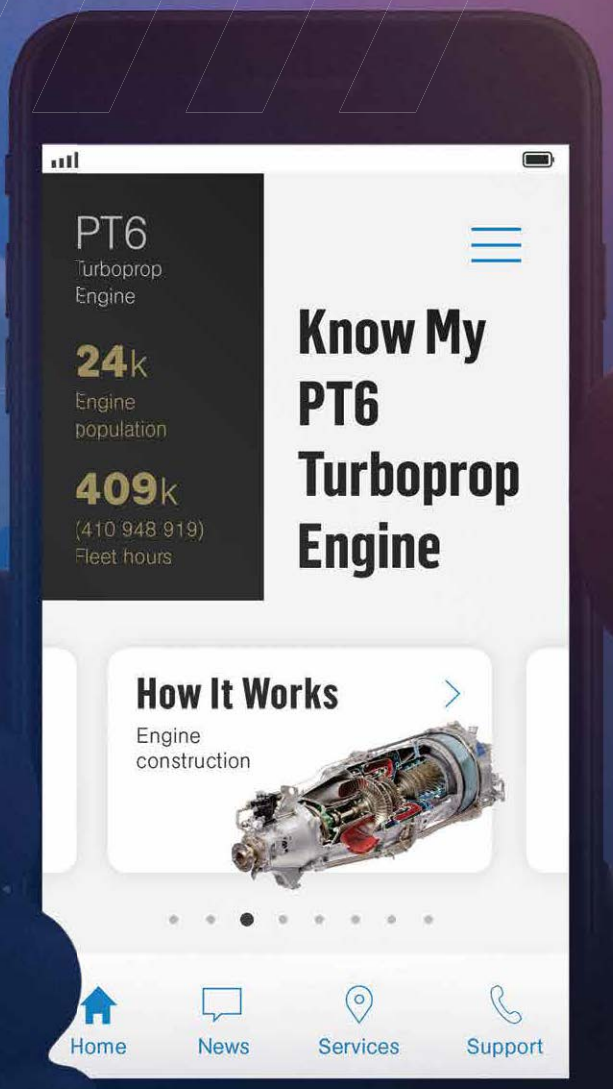
GO BEYOND

KNOW MY PT6 APP

THE INFORMATION YOU NEED TO KEEP YOU AHEAD

Pratt & Whitney's Know My PT6 app can help you optimize the performance and availability of your turboprop engine with valuable maintenance and power management recommendations. Access key PT6A engine booklet content and excerpts of new Service Information Letters, contact our Customer First Centre directly, find authorized service centers, parts distributors, and more.

DOWNLOAD THE APP TODAY



IT CAN HAPPEN℠

Actual Tornado Damage
Nashville, TN - March 2, 2020

Your new jet is hangered at the local FBO and a F4 tornado tears through it. Now what? At CS&A Insurance we are experts in the Aviation Industry striving to provide our clients with more than just "Insurance". We add value through education and risk management to help customers avoid and also prepare for claims situations. Insurance is NOT just a price-driven commodity; it is truly a partnership that requires a commitment from all parties. In most cases, ***"cheaper" is not always "better."*** Our aviation experts help clients navigate pricing and coverage challenges. When clients base their purchasing decisions solely on price, they tend to find themselves underinsured at the time of a claim. It's important to remember, no matter how improbable a situation may seem, ***It Can Happen***℠

PRIVATE AIRCRAFT

CHARTER OPERATIONS

FLIGHT SCHOOLS

MAINTENANCE FACILITIES

800-999-1109
WWW.AVIATIONINSURANCE.COM

CS&A Insurance
AVIATION DIVISION

1006 MERYLINGER COURT
FRANKLIN, TENNESSEE 37067

By David McKoy

TBM Q1 MARKET UPDATE

The current TBM market is healthy, market density is at an all-time low, prices are remaining constant, and momentum continues throughout the first half of 2021. Below you can see the activity that has occurred throughout the first quarter compared to what we observed last year, which by all markers was a "record year." The sales volume in the first quarter of this year has exceeded all historic records in years past. The TBM market is on track to replicate or surpass the sales volume achieved last year.

Recently we have seen many TBM owners weigh the decision of upgrading their existing panel or moving up into a newer TBM. The decision to upgrade your panel or upgrade your TBM is a complex one, with several factors to consider. Some of the concerns a buyer might pose include considering a need for a boost in performance, weighing the incremental cost of new equipment with the safety features available for their current platform, tax considerations including the benefits of higher depreciation, and the cost of the upgrade compared to the residual value over time.

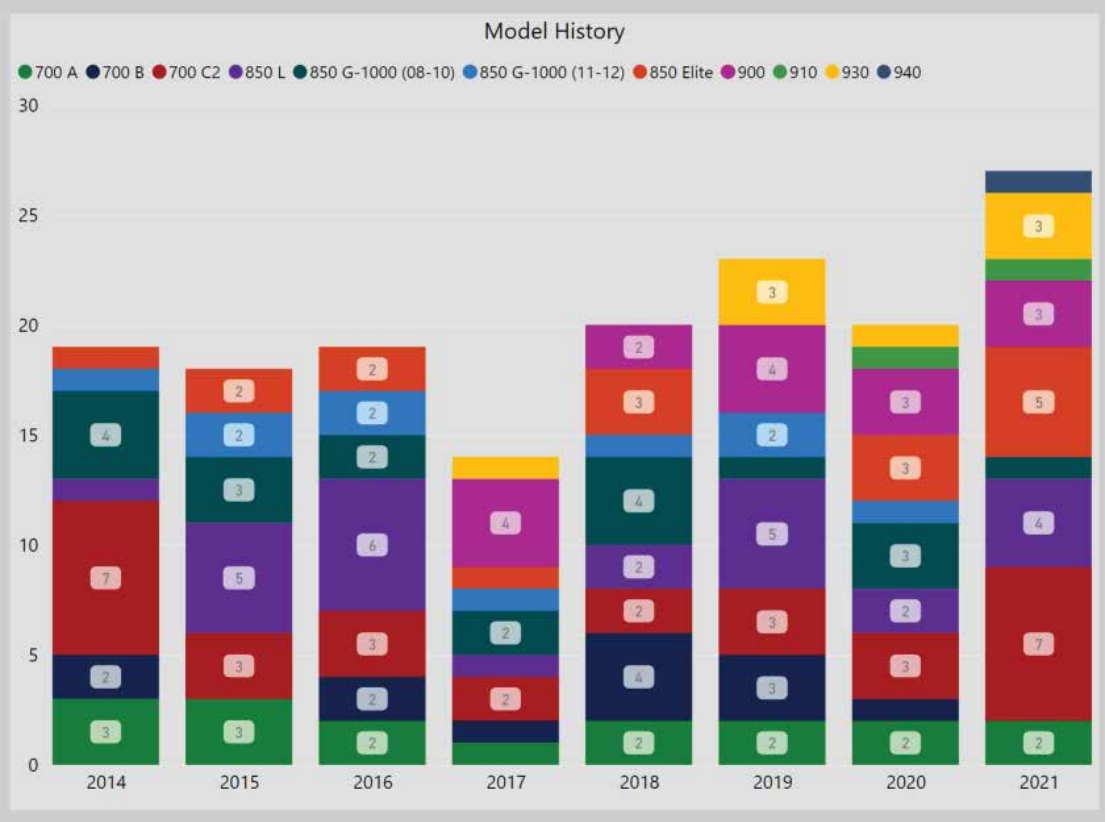


Figure 1. First Quarter Sales Year over Year

An artfully crafted exit strategy is one of the most important, yet often overlooked factors in the decision to buy any aircraft. If one sets themselves up for a strategic exit, they can be afforded the luxury of dealing with a premium buyer. The premium buyers are discerning, generally know what they want and are willing to pay for it, and typically purchases the plane and moves on with no drama. We do find that premium buyers are seeking certain qualities in a TBM, and those discerning buyers are willing to pay a premium market price for a quality plane with their list of "must-haves."

One of the most important considerations consistently

voiced by a premium buyer is that the plane should come from an in-network maintenance shop. There is the perception that in-network shops are more expensive; however, premium buyers will pay a fair market price for the integrity and security of an aircraft being delivered from an in-network shop. Keen buyers know that this alleviates risk by being maintained to a more consistent level, standing behind their work post-sale, having trained personnel that perform high fidelity work, having detailed documentation and the manpower to produce the reports that buyers seek, being well-capitalized to support the buyer downstream, having higher insurance coverage, being equipped with proper tooling, and keeping significant part supply on hand.

We are currently observing the emergence of a new market with a high demand for legacy aircraft with premium upgraded panels. We find that buyers in this market want an "OEM level install" and pursue equipment that replicates the characteristics of a G1000 panel.

Ergonomics are important to these buyers; most of them question any legacy instruments remaining in a modernized panel. Recently one customer posed the question, "If one were spending the money to do a G600 TXi, why would they leave a panel-mount transponder in there?" Similar sentiment is given to the mode controller bump on the top of the glare shield. The placement of the GTN 750 units and the mode controller are both important considerations as well: pilots want a functional panel that is assembled with mindfulness of their reach, scans, and flows. We find buyers entering the product have a longer timeframe for amortization of upgrades and will pay for the highest quality, most ergonomic panel that is available on the market.

Redundancy is equally important. For most pilots, installing a new panel is not just about aesthetics, but also about safety. Premium buyers want the look and feel of a G1000 panel, but also find comfort in knowing the panel has built-in redundancies like the ability to have the engine gauges available on both left and right PFDs.

Additionally, premium buyers want an all-inclusive package that includes training to competency on the updated equipment. Transitioning buyers find comfort in having a comprehensive training program that includes familiarization with the panel.

Owners of aircraft with legacy panels often ask what the ROI is on upgrading to an advanced panel. Asset value of the TBM is defined by two parameters: Primarily, the value of the aircraft in the retail market as described above, and secondly, the current liquidity of the product in the market. There is a demonstrable equitable return on a panel upgrade from a financial perspective. Our observations are data-driven and there is a significant amount of information to demonstrate aircraft that have upgraded panels sell for a higher price and sell with fewer days on the market.

When we look at the average selling price of a TBM equipped with the TXi panel, it is clear to see an immediate return on investment. While there has been a relatively small population with the NXi updated panel that have sold, we find that those equipped with the G600 TXi are seeing approximately 18% in price (or $208,000) compared to a standard panel. Of the subject aircraft that have sold, the most significant ROI comes on the "Full Suite" panels that have dual Garmin G600 TXis, dual GTN 750

Figure 2. Average Selling Price by Avionics Panel: Standard, G600, and G600 TXi

TXis, Garmin GFC 600 autopilot, and enhanced ergonomics and redundancy. Additionally, those TBMs with the modernized panel enjoy an improved liquidity in the market. Here you can see TBMs with the updated panel move in a third of the time of those that are standard equipped:

	Price Difference	%Δ
TBM 700B	$158,000	0.17
TBM 700c2	$250,000	0.22
TBM 850L	$210,000	0.14

Figure 3 and 4. Average Price Delta and Difference in Days on the Market, NXi vs. Standard Panel

The decision of upgrading your existing panel or moving into a newer TBM is a complex one. Many factors go into a decision like this, not the least of which is one's utilization and the engine time remaining on your plane. DAHER Distributors are well versed in the market including the benefits and drawbacks to each path. Sometimes the most obvious answer is not necessarily the most cost-effective solution. Running the analytics could prove that upgrading your existing plane might be the best option.

David McKoy

AVEX Director of Sales

TRUST YOUR AIRCRAFT TO THE TBM EXPERTS!

Will D. Cutter
Regional Maintenance
Sales Manager
(469) 518-5775
wdcutter@cutteraviation.com

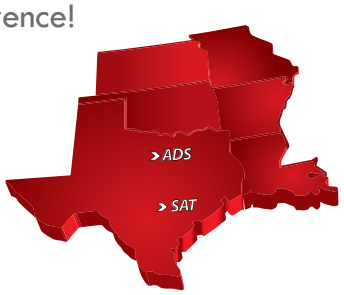
Christopher Gradisar
Cutter Aviation - ADS
Manager of Aircraft Services
(469) 518-5772
cgradisar@cutteraviation.com

Bruce Tanis
Cutter Aviation - SAT
Manager of Aircraft Services
(210) 485-1315
btanis@cutteraviation.com

Cutter Aviation is an FAA certified repair station and TBM Authorized Support center that offers comprehensive full-service airframe services, inspections, support, avionics and interior refurbishment.

Experience the Cutter Aviation difference!

Contact us today for all your TBM upgrades such as NXi, AOA/ESP, ADS-B, 5 Blade Prop and many more!



Authorized Service Center for Texas, Oklahoma, Arkansas, Kansas, Missouri and Louisiana

TBM
AUTHORIZED SERVICE CENTER

TO LEARN MORE ABOUT OUR SERVICES, GO TO CUTTERAVIATION.COM

CUTTER
LEADING THE BUSINESS OF AVIATION

TBM CENTRAL
AIRCRAFT SALES

TBM

Authorized Sales Center for Texas, Oklahoma, Arkansas, Kansas, Missouri and Louisiana

DAVID CROCKETT

Possessing experience that spans for over two and a half decades, David Crockett is the expert to have on your side of the wing. Vast industry knowledge coupled with unrivaled personal experience makes him your go to person for all things TBM.

Call (210) 410-8262 to request the opportunity of a personal demonstration of the TBM

HOW DID WE MAKE THE NEW M600/SLS THE **NEW STANDARD IN SAFETY?**

We taught it everything you know.

M600/SLS | HALO SAFETY SYSTEM

The HALO™ Safety System with Garmin® Autoland—the most groundbreaking advancement in recent general aviation history—does everything you would do when you can't. After alerting ATC, checking fuel levels and weather, it safely lands the aircraft. In short, it's as if the controls were still in your hands.

See how your highest standards come standard at piper.com/HALO.

Piper®
FREEDOM OF FLIGHT
1.772.299.2403

Download the Piper Aircraft App to experience our M600/SLS in flight.

Note on TBM Battery Operations Between Flights and BatteryMINDer Usage

By John M Grunsfeld PhD

Last year, Will Goldberg of Goldberg Aviation presented a TBMOPA online seminar on "Common Electrical Errors Made in the TBM".

In the briefing, Will recommended that between flights, the operator should disconnect the aircraft battery, and not keep it constantly on a BatteryMINDer. This is the best procedure if the aircraft will sit between flights for an extended period (roughly a week or more).

The recommendation from Concorde, the manufacturer of our RG-380E/44 battery, is the following:

Recommended practice for maintaining the Concorde battery when the aircraft is not in use for more than 7 days, in order of preference:

1. Disconnect fully charged battery from aircraft and top charge with BatteryMINDer every 30 days for 24 hours and also the day before next flight.

   -or-

2. Connect to BatteryMINDer after engine cooldown and leave connected until next flight

Both methods are used by TBM owners with satisfactory results. Because of the continuous charging, Method #2 may shorten battery life slightly. However, since the charging is at a reduced voltage level (float voltage), it will not shorten the life substantially.

The rationale for disconnecting the battery is two-fold. There are small loads the aircraft puts on the battery, even when the switches are all off and the crash bar is down. For the TBM 700-850, this parasitic load draws approximately 17mA, and for the TBM 900s 2mA. This small drain on the battery over time leads to sulfation of the electrodes. Disconnecting the battery reduces the drain on the battery to the lowest level possible, reducing sulfation, minimizing charging cycles, and maximizing the life of the battery.

Leaving the BatteryMINDer on all the time with battery connected keeps the battery fully charged and de-sulfates the battery. The

If it is desired to have a remote way to turn on the BatteryMINDer periodically, with the aircraft battery connector removed, a remote switch can be connected between the BatteryMINDer and battery clips which attach to the terminals of the aircraft battery. The BatteryMINDer can then be left powered, and a remote command to a relay will connect it to the battery. Devices to accomplish this can be cell phone text commanded, or for hangars with alarm systems or Wi-Fi can be remotely commanded via Wi-Fi relays or Z-wave relay devices. Many such devices are widely available.

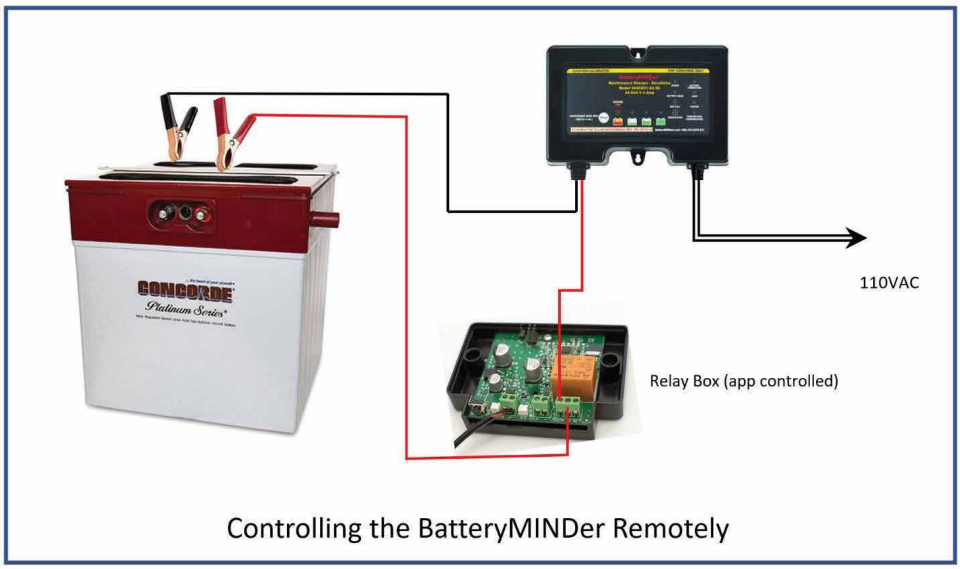
Examples are:

KKmoon GSM Remote

Wireless Z-Wave Multi-Input/Output

WHDTS WiFi Smart Switch Module Home

(All readily available through retailers such as Amazon.com)



Controlling the BatteryMINDer Remotely

One could remotely switch the 120V AC power to the BatteryMINDer, but this is not recommended. Leaving the BatteryMINDer connected but not powered on (connecting directly to the battery terminals with the main battery connector disconnected) will power on an LED in the BatteryMINDer, indicating it is connected to the battery. This will increase the drain on the battery, lead to sulfation of the electrodes, and drain the battery over time.

DAHER

Photo: Chris Rose

Redefining Flight Safety and Performance

The Daher TBM 940 sets the standard for performance, while also taking safety to new levels. After incorporating envelope protection and autothrottle to make loss of control virtually impossible, we have now introduced HomeSafe™, the emergency autoland system that automatically returns the plane to a runway if the pilot becomes incapacitated. Not to mention the most reliable turboprop in its class, built-in engine safeguards and automatic transmission of critical engine data back to the manufacturer after each flight. Daher, where safety comes first.

Speak to a Daher expert:
TBM (Americas) (954) 993-8477 (International) +33 5 62 41 77 88

www.tbm.aero

TBM 940

HOMESAFE®

BatteryMINDer does this by keeping the battery at a constant voltage, providing just enough current to completely balance both the parasitic loads and the internal discharge rate of the battery. However, this small, constant current may decrease battery lifetime.

By disconnecting the battery after a flight — when the battery should be fully charged — the parasitic load is removed and the capacity of the battery will be preserved, except for a very slow decrease due to self-discharge. Charging the battery with the BatteryMINDer every 30 days and 24 hours before a flight will ensure the battery has full capacity when needed, as well as de-sulphate the electrodes.

Detailed Discussion

Battery

Batteries work by converting chemical energy into electrical energy during discharge and reversing the chemical reaction during charge. In our lead-acid aircraft batteries the reaction is:

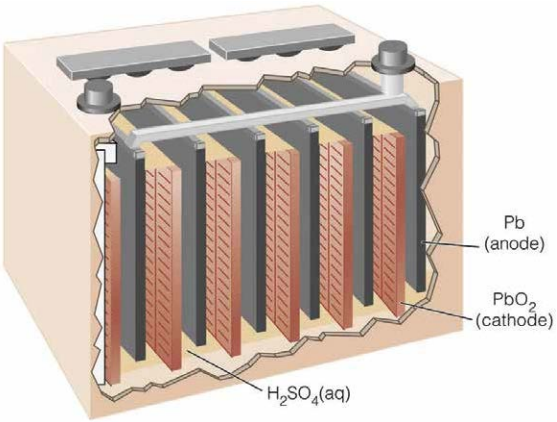
$$\underset{\text{Lead}}{Pb} + \underset{\text{Lead Dioxide}}{PbO_2} + 2\,\underset{\text{Sulfuric Acid}}{HSO_4^-} + 2H^+ \longleftrightarrow \underset{\text{Lead Sulphate}}{2\,PbSO_4} + \underset{\text{Water}}{2\,H_2O} \qquad \underset{\text{Electrical potential}}{E_o \approx +2.1\ V}$$

Discharge → ← Charge

An electrical load is applied to the battery lead and lead oxide in the battery electrodes reacts with sulfuric acid in the electrolyte to produce lead sulphate and water, while producing electrical current between the cathode (+) and anode (-) with a potential of ~2V/cell. When current is applied to the battery during charging, the chemical reaction is reversed. Our batteries have 12 cells inside resulting in a 24V battery.

The Concorde RG-380E/44 battery in our aircraft is a recombinant gas (RG series) valve regulated lead-acid absorbed glass mat battery design. It is a sealed battery in which the byproduct gasses of discharge recombine in the battery. The positive and negative plates are sandwiched between layers of fiber glass mats, which promote maximum retention of the electrolyte, and which enable efficient gas recombination. Each of the cells in the battery have pressure relief valves that open when the internal pressure exceeds the valves relief pressure, then re-closes. These features allow the battery to be virtually maintenance free and promote a long life.

During charging and discharging, there is some degradation of the electrodes, and minor loss of electrolytes. Over time, this reduces the capacity of the battery, and eventually the battery must be replaced when it can no longer support its function. This is determined by either watching the minimum voltage under starting loads, or capacity testing during maintenance inspections. During discharge, lead sulfate forms within the battery from a reaction of the lead plates and the sulfuric acid in the electrolyte. Long term buildup of lead sulphate crystals is called sulfation. Eventually sulfation can increase the internal resistance of the battery to the point that the battery can no longer be fully recharged. Sulfation may be reversed by a specific maintenance procedure or by the use of the BatteryMINDer which has a de-sulfation mode.



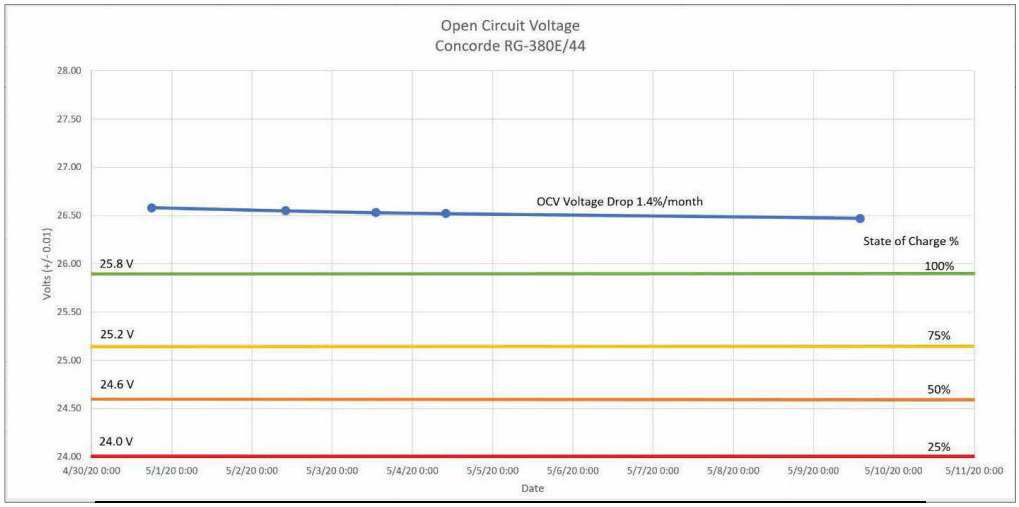
Good battery capacity is critical for starting our turbine powerplants and as a backup in the event of electrical failure of the generator or standby alternator. To keep the battery healthy, it should be stored fully charged, the number of cycles should be minimized, and sulfation should be kept to a minimum.

The state of charge (SOC) of the battery can be approximately determined by measuring the open circuit voltage (OCV) of the battery. This measurement can be accomplished by putting a digital multimeter (high impedance) across the battery terminals. The battery should be stabilized (no charging or discharging for at least 4 hours) before the OCV is measured.

State of Charge versus Open Circuit Voltage

Voltage	State of Charge (%)
25.8V	100%
25.2V	75%
24.6V	50%
24.0V	25%
23.4V	0%

In my aircraft I measured the OCV starting with a fully charged battery and monitoring for 10 days with the connector removed. The OCV declined very slowly, and over the period the OCV stayed in the "~100%" state of charge region.



Concorde therefore recommends that the battery should be disconnected to preserve the maximum state of charge, minimize cycles of charge and discharge on the battery, and minimize sulfation. ***Note: The SOC does not necessarily indicate the State-of-Health of the battery, and batteries should be checked at maintenance events to determine health and airworthiness.***

BatteryMINDer

The engineers at VDC Electronics, producer of BatteryMINDer, have worked closely with Concorde to develop a battery maintainer that performs several functions when we plug it on to our batteries. The units act as an aviation battery charger, charge maintainer, and de-sulfator. The Model 244CEC1-AA-S5 is designed specifically for Concorde 24V aviation batteries.

After a flight, the batteries are likely at their warmest, and the internal pressure likely at its highest as a result. To avoid the relief valves from opening and releasing gas it is best to allow the battery to cool before attaching the BatteryMINDer or any other charger.

When we attach the BatteryMINDer, the logic in the controller measures the voltage of the battery. If the voltage is below 21.0V it will use a low constant current in order to slowly bring it up to a higher voltage.

Normally it will start a constant current charging stage, initially putting 4A into the battery until the battery voltage reaches approximately 28.5V (temperature compensated, so this may vary).

It then begins a constant voltage charge, adjusting the current while maintaining the voltage. As the battery nears full charge the current will continually decrease until it falls below 0.1A. This stage lasts a minimum of 1 hour.

Following the charging phase, the battery will then perform a test of the battery by measuring the voltage of the battery for 10 minutes (without any charging).

Once the test is successfully completed, the BatteryMINDer begins Float mode. In this maintenance mode, the voltage is held constant at approximately 26.5V (temperature compensated, so this may vary), providing just enough current to compensate for any parasitic loads. In Float mode the battery is kept fully charged, ensuring no lead sulfate can form. There is no cycling of voltage in Float mode, the state of charge of the battery is held constant. The current is adjusted several times per second to keep the voltage constant. Every 12 hours the test mode is repeated during Float.

To help remove lead sulphate in the battery, the BatteryMINDer has a de-sulfation feature in which it injects short pulses of higher voltage into the battery. This is similar to the Concorde maintenance procedure, but instead of a deep discharge followed by a high-voltage/high-current charge (as high as 34V), the BatterMINDer uses short high-voltage pulses to remove the lead sulphate crystals on the electrodes over time. This feature is automatic in the BatteryMINDer and is shown on the front display when active by a blinking blue LED. A deeply sulphated battery may take 2-weeks to de-sulphate completely.

Even though the BatteryMINDer has been designed specifically for the Concorde battery in our aircraft, experience in the field suggests that leaving the BatteryMINDer full-time on the batteries, with or without the battery connector attached, may decrease battery lifetime. Concorde indicates this decrease in lifetime is not significant, but there are some reports of batteries experiencing premature retirement when on a BatteryMINDer full-time. Reduced battery life can be caused by many factors including starting at low temperatures, short flights in which the battery doesn't reach full charge, charging when the battery is still hot from a long flight, or allowing the battery to become deeply discharged.

Regardless, following the recommendations from Concorde by disconnecting the battery after flight, and only using the BatteryMINDer periodically to fully charge and de-sulfate is a sound procedure to maintain a healthy battery with a long life when not flying regularly.

In all cases, the recommendations in the operations manuals, maintenance manuals, and instructions for continued airworthiness should be followed in consultation with aircraft service technicians.

Additional information from conversations with Dave in technical support at VDC Electronics, technical support at Concorde, and with maintenance staff at AVEX.

Sources and References:

1. *Concorde Battery RG Series Aircraft Battery Owner/Operator Manual, Document No. 5-0324 Revision F, November 26, 2019, http://concordebattery.com/otherpdf/5-0324-rg-manual.pdf*

2. *Concorde Battery Main Aircraft Battery Component Maintenance Manual, Document No. 5-0171, Revision Q, December 4, 2018, http://concordebattery.com/otherpdf/5-0171.pdf*

3. *BatteryMINDer 24-Volt 244CEC1-AA-S5 Aviation Calibrated Maintenance Charger-Desulfator Instruction Manual, Revision B-012517, https://www.batteryminders.com/content/manuals/CEC%20Aviation%20128CEC1244CEC1%20RevA4%20050416.pdf*

4. *www.concordebattery.com, www.batteryminders.com*

You Have to Burn Jet Fuel. You Don't Have to Burn Money.

SAVE 37% ON AVERAGE. TRY IT FOR 3 MONTHS FREE.

For 10,000+ Part 91 aircraft, CAA membership means more savings, more freedom, and more control. We negotiate the best jet fuel prices from more than 270 preferred FBOs throughout the US and beyond. You even get to vote on which FBOs we include — and recommend your favorites.

JOIN FOR FREE TODAY!
Visit www.corpaa.us

Interested FBO? *Sign up online.*

CORPORATE AIRCRAFT ASSOCIATION®

CAA provides the lowest price on jet fuel offered to Part 91 aircraft at the CAA Preferred FBO.

Photo by Gyrostat

A TBM JOURNEY TO THE GALAPAGOS

By Guillaume "G" Fabry

West Palm Beach (KPBI) – Cartagena, Colombia (SKCG) : 1,050 nm

Cartagena, Colombia (SKCG) – Guayaquil, Ecuador (SEGU) : 830 nm

Guayaquil, Ecuador (SEGU) – Liberia, Costa Rica (MRLB) : 860 nm

Liberia, Costa Rica (MRLB) – Fort Pierce, FL (KFPR) : 1,090 nm

On May 21st, 2021, a group of 4 TBMs met in West Palm Beach, FL, in anticipation of the departure for their journey to the Galapagos visiting 3 countries: Colombia, Ecuador (including the Galapagos Islands), and Costa Rica. All travellers had been vaccinated, took multiple COVID tests before departure, and were eager to explore the world while flying their TBMs.

The next day took them on a nonstop flight from KPBI to SKCG, Cartagena, Colombia. The weather forecast was clear for the whole flight with light winds. Transitioning through Cuban airspace, it was on to Jamaica and, finally, Colombia. Controllers were very nice and professional along the way.

Our next two days were filled with exploration, private tours, and incredible meals. Cartagena is a beautiful colonial city filled with sparkling colors and history. The nice part of traveling during COVID is that you see a lot less people than normal. The night before our flight to Guayaquil, Ecuador, we went through a detailed briefing for our next flight, including review of the departure procedures, enroute and arrival details, along with weather forecasts and airport processes. After clearing customs and paying our airport fees, the 4 TBM pilots got ready to copy their IFR clearance to continue the adventure.

During the engine start process of the first plane, a TBM 940, we had no NG indication. We stopped the start sequence, turned off the plane as sometimes resetting the battery and avionics helps clear the fault, but no luck. We got on the phone with Daher and they started to work on a fix to get us back up and moving. They were going to send a part from Pompano and a mechanic from a TBM-approved service center in Bogota. However, our short commercial flight from Guayaquil to the Galapagos Islands was the next day, so we couldn't wait, and decided to board the other 3 TBMs. We split the bags and passengers between the TBMs and departed Cartagena while Daher was coordinating on the details.

AMBERGRIS CAY

TURKS & CAICOS ISLANDS

PRIVATE ISLAND

Private Island ~ All-Inclusive Luxury ~ Private Airport

Reserved exclusively for a select few, Ambergris Cay entices with a serene, natural beauty, from the endless turquoise blue waters of the Caicos Banks to starry nights with stunning views of the constellations, unobstructed by the glare of civilization.

Whether you seek a private, peaceful retreat to unwind and disconnect or prefer to stay active with water sports, fishing or nature walks, our attentive team will pamper you with bespoke service, all-inclusive gourmet meals and premium beverages, spa treatments, catered lunch on a nearby deserted island and more to ensure an unforgettable, one-of-a-kind, private island experience.

Private International Airport ~ 5,700 ft. Runway ~ Customs & Immigration Clearance Available

TURKS CAICOS COLLECTION

LUXURY RESORTS

WWW.AMBERGRISCAY.COM

Our flight took us over the Andes mountain chain, southwest bound, and we crossed the equator over Quito, Ecuador. The usual game is to set your G1000/G3000 on the GPS page and try to snap a picture of the N00.00.00 (equator line), but the TBM is too fast of a machine for the avionics to display all the digits at Zero. Landing in Guayaquil was hazy, but ATC lined us up on the ILS from 3,000 ft. Clearing customs, immigration, and the health department was a breeze with the prepared documents. Shortly after refueling, we were on our way to the hotel in our private transfers.

We flew to Baltra in the Galapagos Islands the next morning. The distance is 620 nm, but there is no fuel there. While a TBM can probably make it there and back without refueling, we didn't want to take on the extra risk, and therefore required a commercial flight to get us there. After arrival, we transferred to the Elite Private Yacht, an 8-cabin luxury Galapagos Catamaran with an incredible staff dedicated to make your experience very unique and memorable. For the next 4 days we cruised around the islands and had incredible land excursions and snorkeling time. We saw sea lions, frigatebirds, land and marine iguanas, Sally Lightfoot crabs, green sea turtles, Darwin's finches, giant tortoises, blue- and red-footed boobies, and many more. The most amazing part is that none are afraid of humans. You can get as close at 6 feet away (per law), and they are not bothered, which makes your experience even more amazing.

After our 4 days, it was time to head back to Guayaquil for the night, brief on our next flying day, and head over to Costa Rica for the last two nights. Daher had worked hard in the background and fixed the TBM 940 while we were in the Galapagos, so one TBM was heading back to Cartagena to drop off the pilot, then both would fly Liberia, Costa Rica from there. Flying over Panama was interesting as scattered storms were developing rapidly over the land mass. Transitioning from Barranquilla Control (Colombia) to Panama Control, the Panamean Control told us "Nxxx, all weather deviations are approved, report once back on the airway." This is always a very welcoming message when there is weather and no traffic around.

After deviating back and forth to stay in blue skies between cells, we were back on our planned route. Panama transferred us to CENAMER Control, the Air Traffic Control Center of Central America (CENtral AMERica = CENAMER) for the rest of our flight and descent into Liberia with a VOR-DME arc approach. The other two TBMs went nonstop from Ecuador to sunny Costa Rica. After refueling, we were on our way to our hotel in private transfers. Getting back together for dinner was very nice, as we felt our newly-created family was separated for a day.

The next day we boarded a 48 ft private yacht for the day, touring the Papagayo Peninsula, trying our skills at fishing and going snorkeling in private coves. It was such a nice way to finish our trip.

Then it was time to head home. We flew back to the USA the next day: some of us via South Florida and some via Brownsville, TX. Customs in the US was very nice,

and we had all our paperwork in order, which made them happy.

Air Journey organized all the overflight and landing permissions,

flight plans, ground logistics, COVID tests and paperwork. We only had to do PCR tests in the US that remained valid for Colombia, Ecuador, and the Galapagos. The only test required while on the journey was in Costa Rica for our way back into the USA. Masks and social distancing were required in each country as you walk through public spaces and enclosed areas.

Overall, it was a great journey filled with exploration, discoveries, laughs, and TBM talks. It was very nice to be able to start travelling again while remaining conscious of the current situation.

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. Enjoy a special preview of our journey.

TAKE YOUR BUSINESS HIGHER!

Personalized aircraft financing to meet your needs. As a market leader with over 30 years of service, we get businesses on their way!

PERSONALIZED | FLEXIBLE | EXPERIENCED | EFFICIENT

Contact:
Dave Hudak, President, Aircraft Division
Phone: 574-235-2037
Email: hudakd@1stsource.com

1st Source Bank
Specialty Finance Group
1stsource.com/aircraft
Member FDIC

ABLE FLIGHT: HOW TBM MAKES A DIFFERENCE

By: Ashley Maxwell

Able Flight is a 501(c)3 non-profit organization for people with physical disabilities founded by Executive Director Charles H. Stites. The focus of this organization is to provide assistance and training through scholarship programs for individuals interested in flying and careers in aviation who need adaptive resources. They offer scholarships for both flight training and career training in the aviation field. Able Flight has provided over 100 scholarships and licensed over 70 individuals, and everyone sent for a check ride has passed. They are able to accomplish these impressive numbers through charitable donations, a vetting process, the right mentoring and peer support, and through the sheer determination and motivation of its participants.

I had the privilege of interviewing Charles and discussing how he founded Able Flight, the amazing support his organization has received, especially from TBM and TBMOPA, and the inspiring success stories of individuals who completed the programs.

How did Able Flight get started and how has it evolved?

In 2006, Charles was a pilot and writer for aviation magazines and journals when he was approached by someone at an aviation event who showed him a set of adaptive hand controls. Charles told this man, "let me know when you have them in an aircraft and there would be a major story to write." This got Charles thinking, there must be some organization that supports these types of aviation accommodations for individuals with disabilities, but his search turned up nothing. Just before this encounter, the FAA announced the Sport Pilot Certificate, which allows individuals to use their driver's license to qualify for medical certification to fly.

In 2006, knowing about this new option, Charles got to work researching the world of non-profit organizations. Within a week, he came up with Able Flight, deciding from the beginning it would be a scholarship program that provided mentorship and support for people with physical disabilities to fly, and in less than a month, the structure of the organization was there. He realized early on that he would need the help of corporate sponsors and donors, which he started to accumulate after just 6 months; a lifetime in his eyes, but an impressive feat to most. Thus, at the end of 2006, Able Flight awarded its first scholarships, and by the end of 2007 had its first 4 licensed pilots. As of now, Able Flight awards an average of 6-10 scholarships a year.

In the beginning, Able Flight worked with local flight schools, training one or two students at a time, until a partnership was established with the aviation department at Purdue University

in West Lafayette, Indiana. Charles says Purdue was the obvious choice because it "has a great history training pilots." Purdue provides the bulk of pilot training, with over 50 volunteer instructors over the past ten years.

It sounds like you have a great network. What motivates you, your volunteers, and participants to be involved?

Charles could not speak highly enough of the volunteers and the participants in these scholarship programs. He stresses how important the flight instructor is because each student receives their own instructor during training. Most of the instructors are Purdue graduate students who volunteer to stay and teach these courses outside of their university hours. The curriculum was also developed by Purdue graduate students and enhanced to provide an intense training experience.

Able Flight awards scholarships to participants who are carefully vetted, and who can perform all aspects of flying safely. This process begins with application reviews, followed by applicant rankings and an in-person interview. Able Flight looks for a high level of motivation and dedication from its applicants, due to the intensive nature of the training. The program requires 6-8 weeks away from home without a break and is not for those seeking a "weekend adventure."

"These are the kind of people you want to see. The instructors and students are so engaged and excited about what they are doing," says Charles.

Can you speak to your participants, and their successes in and out of your program?

Able Flight participants have physical disabilities that range from amputees (mostly veterans), those who utilize wheelchairs for various reasons, including quadriplegics, individuals born without upper limbs, and those that are deaf or hard of hearing. Some of the special adaptations that are required for their training include adaptive controls to replace what you would do with your feet with your hands. In addition, for those who are deaf or hard of hearing, towered airports use light gun signals, and flight instructors are side by side with students to read lips, use sign language, or write instructions on a clipboard. Whatever the physical disability, Charles says they always figure out a way to accommodate.

At the end of flight training and the passage of FAA required tests, students are rewarded a Sport Pilot Certificate. For those participating in career training, students can earn an FAA-issued Light Sport Repairman Certificate with Maintenance rating or an FAA Dispatcher License. The Career Training Scholarship is fairly new but most who have completed it (10-12 recipients) have received jobs within the aviation field. They have gone on to work for the FAA Commercial Space Transportation Program, American Airlines, or pursued graduate degrees at Purdue.

How are you able to finance the operation of the organization?

When Charles first began this endeavor, he took a different approach from a traditional funding model of going after foundation money and grants. Instead, he found steady sponsors

New wheel & brake kit for Daher TBM

Stronger and lighter with many improvements for easier maintenance

Use the 199-291 upgrade kit, only offered by Cleveland Wheels & Brakes

Upgrade benefits

Wheel: Higher-strength forging and 14.7% optimized weight reduction

- Rupture discs added, help prevent accidental tire over inflation
- New sleeker and bold wheel design

Brake: Redesigned housing to incorporate wear-pin indicators

- Brake house is free of helical inserts
- No tools required to check minimum wear-life thickness
- 3.7% weight reduction
- Optimize the number of nuts and bolts to fasten the torque tube and housing together

Parts readily available through our worldwide distibution network: Contact your local distributor for lead time and pricing

Applicability: Approved through OEM for TBM serial number 433 and up on models 850, 900, 910, 930, & 940. (TMB700 A, B, C2, & 850 legacy models excluded)

40-489 **wheel assembly**

30-311 **brake assembly**

Cleveland
Wheels & Brakes

CONTACT

Parker Aerospace
Aircraft Wheel & Brake Division
Attn: Customer Support
1160 Center Road
Avon, Ohio 44011
+1 (800) 272-5464 TOLL FREE

Parker Aerospace

by concentrating on corporate sponsorship from marketing departments by contacting senior managers and VPs, and asking for referrals. This model worked because Able Flight was not asking for huge amounts of money (scholarships are $9-10,000 dollars) and when donors started seeing the successes of individuals completing the program, it became personal.

TBMOPA is a foundation that Charles says changed the game for Able Flight, as they are by far the largest source of funding. TBMOPA was unique because they approached Able Flight offering support, something that rarely happens in nonprofit organizations. Through their relationship with TBMOPA, Muncie Aviation became an important sponsor, and several TBM owners began donating as well. This funding allows Able Flight to plan up to a year and a half in advance and have a buffer during trying times (2008 market crash and COVID-19).

What is important for our TBM member to know and how can they get involved?

"I want TBM members to know how important our relationship is with TBMOPA and to take pride that their association and foundation support Able Flight" says Charles. TBMOPA has had pilots visit Able Flight training, so they can see how important their donations are to the participants in the program. Some TBM owners also give support on their own. In particular, TBM owner Jeff Goldberg has been donating for 7-8 years and has flown his TBM plane to visit the students in training. This provides a great opportunity for students to see a nice plane, and Charles cannot stress enough how welcome donors are to attend and see the program in action.

There are various ways that TBM members can help Able Flight continue its success. Able Flight does not own any adaptive planes, opting instead to rent them to avoid the costs of maintenance. However, if a TBM owner ever wanted to donate a trainer airplane to assist the program, they could donate it to Purdue for Able Flight's use. In addition, some participants may need transportation to attend the program, opening the door for TBM members to provide transport in their airplane to the training facility.

If you want to get involved in any capacity, just contact Charles Stites at CStities@ableflight.org or info@ableflight.org. You can also visit ableflight.org/ to see videos from the various participants over the years and hear their personal stories.

The New and Used TBM Experts

Elliott Jets has been selling new and used TBMs for over 15 years. We are the exclusive new dealer for IA, MN, ND, NE, and SD. Contact us for new and used TBM sales.

- We have 85 years of experience selling aircraft.
- We have over 15 years of experience selling TBMs.
- We are the exclusive new dealer in Iowa, Minnesota, Nebraska, North Dakota, and South Dakota.
- Our parent company, Elliott Aviation, is an Authorized Service Center for all TBM models.

Contact Me for More Information:

Steve Davis
Executive Sales Director
515.865.2790
sdavis@elliottjets.com

HUSKY®

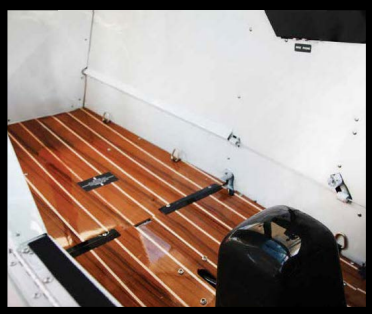
STRONGER, FASTER, MORE.

OFF THE WATER IN JUST 6 SECONDS | CERTIFIED DAY/NIGHT - VFR/IFR | 2250# GW

ELEVATOR TRIM TAB

ADJUSTABLE FRONT SEAT

LARGE CARGO ROOM



EXTENDED LANDING GEAR

GARMIN TXi PANEL

CERTIFIED DAY/NIGHT IFR/VFR

307-317-5550

AVIATAIRCRAFT.COM/TBM

AVIAT AIRCRAFT INC