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... and other features

WINTER 2009

OWNER PILOT Advantage

A Magazine for Owner/Pilots from Skytech, Inc. Publications



If Buying a New Airplane is Currently Out of the Question, How Can You Make Your Current Airplane Like New?



In a perfect world, everyone would be flying around in a brand new airplane complete with new airplane smell and the most advanced, modern and safe equipment known to man. In the real world, purchasing a new airplane isn't always in the cards. However, staying with your tried and true doesn't mean you can't enhance your current airplane's capability, reliability, appearance and most importantly safety. There are many options awaiting someone considering an upgrade, and many questions that should be asked before a decision is made.

The initial question needing to be asked when considering an upgrade is, "What part of the flight experience am I looking to enhance?" Is the purpose for the upgrade to improve the flight capabilities for the pilot, overall safety, experience for the passengers or maybe even to position the aircraft more favorably in the market place for a future sale? It is wise to consider the aircraft's status in the market place, and how a certain modification would affect its value. Consulting a trusted shop and dealer that are experts on your particular aircraft can help you navigate

see Like New on page 3

CHANGE: A TRUE CONSTANT

In our cover story, we discuss the concept of considering upgrades for your current airplane if a new airplane isn't a possibility. What once was a modern piece of avionics equipment might not presently offer the most advanced features you desire. A paint job might be showing its age. Whatever the reason, if upgrading your current airplane is a consideration, our cover story offers insight to many of the popular options available today, questions that should be asked and overall advice to ensure success in your endeavor.

Just as airplanes need updating occasionally, so does a business. After 33 years at the Martin State Airport, we have moved Skytech's Baltimore sales and service operation to their new location, along with a full service FBO, at the Carroll County Regional Airport in Westminster, Maryland. On page 4, Skytech's President, John K. Foster, addresses our move and the associated excitement in this new chapter of Skytech's history. Stop by and see us anytime, we look forward to showing you around our new home.

Skytech, Inc., publisher of this magazine is an aircraft sales and service company with FBOs in Westminster, MD (DMW), Rock Hill, SC (UZA - Charlotte Metro Area) and Administrative Headquarters in Baltimore, MD (MTN).

Your thoughts, suggestions, comments and criticism are important to us and we will always welcome reader feedback. Please respond to:

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MAGAZINE STAFF
REQUESTS YOUR
FEEDBACK!**

We would greatly appreciate hearing from you! Please tell us what you think of *Advantage* magazine and offer any thoughts you have for improving this publication. Our goal is to provide helpful, interesting information that you enjoy reading.

Your opinions, suggestions, as well as ideas for new articles and content are important for continuing improvement and growth that will serve all our readers.

Email us at:
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Thank you!

Vref

TIME TO COME OUT OF THE BUNKER.

It was a summer spent fishing – bottom fishing. Buyers searched for the bottom, while sellers just tried to snag a fish – preferably a fish that didn't require financing. The good news is the fishing trip was largely successful, no lie. Activity is up marginally in nearly every segment. Can the worst recession in history be fading in less than a year? Just a few months ago, some were predicting Great Depression II.

Piston Singles

Much of the piston single market appears to be bottoming. We are finally seeing the better airplanes bringing closer to what they deserve – no longer confused with the multitude of mediocre. The Vref Light Single Index lost only 1% in value during the past quarter. Complex singles fell only 1.6%. Turnkey is the name of the game. No one wants a squawk to fix. The list of airplanes with no price change in the past two or more quarters is very long. The Beech Sierra, most Bonanzas, most Cessna Skyhawks, Cardinals, Skylanes, Cessna 210s, Piper Warriors, Archers, Dakotas, Cherokee Sixes, most Arrows and most Saratogas were all unchanged through two of the darkest quarters in aviation history. To us that tells of good ongoing demand and long term viability for general aviation.

Indeed, recent innovations like synthetic vision and an auto land system for the Beech Bonanza, point to some very forward thinking – forward to a time when our children (or grandchildren) will board a light, single-engine jet in Kansas City and say, "Phoenix please." Many half-century-old airplanes will eventually go extinct finding their way to the salvage yard. These dinosaurs will be replaced by Cessna Columbia 400s, Cirrus SR22s and Piper Malibus, which will have morphed into jets – with autopilots on steroids.

Piston Twins

Not so much good news here. The Vref Light Twin Index dropped 2.5% in the recent quarter. The Pressurized Twin Index fell 1.5%. Those are relatively small changes. Most piston twins are ridiculously cheap, yet some are still a tough sell. Operating costs and a troubled economy continue to be a drag on this market.

Turboprops

Overall, this segment was down only 1.6% during the recent quarter. This drop is due in large part to the King Air 200, an airplane that seemed to launch all turboprops into orbit during the bull market between 2003 and 2007. (See the Vref Turboprop Index at VrefOnline.com.) Now there are more than 250 for sale, and prices slipped nearly 10% in just the last quarter. There is a lot of price compression. This is apparent in older jets like Citations, Lears, Westwinds as well as turboprops. The oldest models can't go much lower because they are nearing salvage value. This seems to put 1979-80 models in about the same price range as 1982-83 models. At present, Cessna Conquests and Piper Cheyennes have stabilized after losing ground early this year.

"How long until we are out of this thing?" You've probably heard that said at night, in thunderstorms. Prognosticators and armchair economists abound. Strict credit and an alarming number of bank repos remain a big anchor in this ocean of airplanes. That is keeping the cork in the bubbly. Otherwise, a stock market run up and continually improving economic news makes us optimistic. At this early stage of recovery there is an upturn in activity, but no price increases. Additional buyers have to arrive, and more airplanes have to go, for that to happen.

Some of the brightest spots in aviation have been during bubbles, i.e. dot-com and housing bubbles. Until very recently it seemed as if we were banking solely on a bailout bubble. Now, it looks like the next big wave might be "green". Since there is nearly no prospect of an electric Learjet, it is unclear how a green revolution will benefit GA. In the near term, however, the business of buying and selling is clearly moving forward – time to come out of the bunker. •

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PILATUS

THINKING ABOUT MOVING UP TO A PT6?

Fletcher E. Sharp

Pinnacle Air Network Engine Program Manager

For many operators of piston powered engines there is a natural concern over what's involved in operating a turbine aircraft like the Piper Meridian, or any similar PT6 powered airplane. With a small amount of proper training, operating a PT6 engine is actually easier than a piston engine. Some of the differences are subtle; others not so. Using the Meridian as an example, the following is a simple breakdown of the controls and operation of a turbine engine.

The engine controls on a Meridian are a Power Lever, Condition Lever and Manual Override Lever (MOR). The Power Lever operates exactly as the throttle on a piston engine airplane does in the sense that you push forward to go fast or pull back to slow down. On the Meridian, there is no propeller control; the prop works in conjunction with the power setting, so there's nothing for the pilot to do in regards to managing the propeller. The condition lever of a PT6, which is somewhat similar to a mixture control on your piston engine, allows only two settings: Fuel Cut Off and Fuel On. The FCU (Fuel Control Unit) automatically meters the proper amount of fuel to the engine fuel nozzles, and automatically adjusts the fuel air ratio to account for the thinner air. As the aircraft climbs or descends, the FCU ensures the proper fuel air mixture is being sent to the engine with no pilot input needed. The Manual Override Lever (MOR) is used to directly control fuel flow to the engine if a pneumatic malfunction occurs in the engine Fuel Control Unit.

The MOR essentially allows the pilot to operate the engine by manually controlling fuel flow in the unlikely event there is a FCU failure.

Like most engines, one of the most important methods to insure long life is

a proper starting technique. The good news is that the technique is extremely simple! The basic sequence is to turn (or wind) the engine, activate ignition and then introduce fuel. In the Meridian, after the starter is engaged by the pilot simply pushing a button, the ignition comes on automatically (if set correctly as part of

as high as the starter-generator will allow, which is around 15 to 18% Ng, then introduce the fuel and closely monitor the starting temperature on the IIT gauge (Interstage Turbine Temperature). Starting an engine in this manner will insure longevity of both the engine and hot section area. The hot section area is where the fuel is introduced and burned; hence the phrase hot section. It is also the area where there are a lot of high cost parts, and consequently the concern over always using the proper starting procedures.

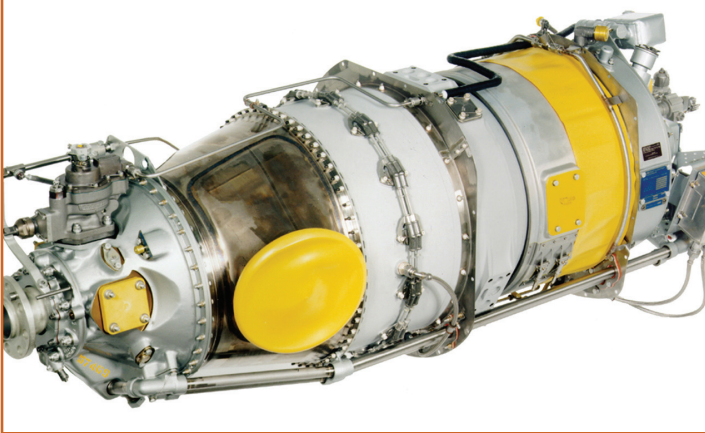
A huge difference with a PT6 powered aircraft is that upon landing, or during other ground operations, one can pull the Power Lever beyond idle by lifting over detents, and move the propeller to a flat blade angle setting. This is called Beta operation. Moving the Power Lever further aft from Beta sends the blades into a reverse angle. This allows the pilot to control the amount of reverse thrust during landing and taxiing on the ground to increase stopping power. Caution has to be the primary concern when taxiing to insure Beta or reverse thrust is not used if the ramp area has gravel, small stones, or a grass parking area, as the propeller can blow small objects forward and upward where there's the chance some debris may be ingested by the engine.

The PT6 series of turboprop engines are extremely reliable and have an exceptional track record. Don't be bashful about stepping up to the smooth running and quick, responsive power of a PT6. No need to worry about shock cooling,

either...a pilot can pull the Power Lever to idle at altitude and descend as quickly as you wish, with NO concern about shock cooling...it doesn't exist on PT6's! Fly one, you'll love it!! •



The engine control quadrant of a Piper Meridian



the pre-start checklist) and then fuel is introduced at the correct time. The most important rule...NEVER select fuel on with the engine rotating at less than 12% Ng. Ng is the percentage of Gas Generator RPM. Typically, one allows the Ng speed to go

Like New
continued from page 1

through any market analysis questions. This consultation can help you determine if a modification would add a return to a future sale or simply provide value for your current situation.

Avionics Enhancements = Increased Capability and Added Safety

Choices abound in the category of avionics upgrades for general aviation aircraft. Almost universally, new technology for the panel is aimed to increase capability and safety of flight. Ancillary benefits of newer avionics can be a reduction in weight and the replacement of old, worn wires. The king of enhancements is turning a standard "six pack" of gyro instruments into a modern, reliable "glass cockpit". Aftermarket "glass cockpit" systems such as the Garmin G500 are becoming increasingly popular as they give owners the capabilities found in new aircraft and replace failure prone gyro equipment with reliable solid state hardware such as Garmin's GRS 77 Attitude and Heading Reference System (AHRS). Options such as Synthetic Vision Technology, weather datalink, Chartview and others can bring major advantages to future flights. The benefits of this upgrade can be immense. It is imperative to consult a shop that has intimate knowledge of not only the unit being installed, but also your type of airplane. A top quality installation is more than just connecting wires and bolting equipment in place, and a good shop can make a significant difference in reducing any post-install headaches. The following are a list of the most popular current avionics enhancements:

- "Glass cockpit" systems: Garmin G500 and Aspen Avionics Evolution Flight Display
- WAAS GPS: Take advantage of the increasing number of WAAS approaches available.
- Audio panel upgrades
- Traffic systems
- Weather avoidance (XM, NEXRAD, Graphical, Textual)
- Ground Proximity Warning Systems (GPWS)
- Enhanced vision systems (Infrared forward vision)

Engine Upgrades Promote Reliability and Increased Performance

Performance and safety are the defining factors in engine upgrades, but knowing what you hope to achieve is paramount. Changes may be small, but small changes over time can affect TBOs and other life

limiting events very favorably. Combining any upgrades with scheduled maintenance or upcoming TBO's may prove the most cost effective approach. Popular engine upgrades include:

- Engine monitoring systems: Helping you and your maintenance department spot trends early and head off any future problems.
- Prop upgrades: Depending on your aircraft, many propeller options may exist offering increased performance with reduced noise and weight.
- Cooling modifications: Excessive heat is a cumulative enemy. Reducing heat can go a long way in prolonging engine life and reaching TBO.
- Total Engine replacement: Certain engine upgrades may exist such as the Victor series of engines which are built to such exacting standards that there is a noticeable performance and reliability improvement.

Cabin Entertainment: More Than a Passing Matter

Depending on the mission your airplane performs, updating the cabin features can make a big difference in a passenger's experience. On the entertainment side, DVD players and music systems may be available for seamless integration into the existing cabin. Cabin lighting and audio intercom systems can increase comfort and safety. A flight display system can keep passengers aware of progress and arrival times. Sometimes installing an inverter is a good option that provides power to a wide variety of portable electronics. Whatever option you are considering, sometimes the experience of passengers in the back is paramount in furthering any business or personal opportunities in the future.

Airframe Updates: Fresh Looks and Modern Safety

Nothing dates an airplane more than an old paint job or a worn interior. If your airplane is in need of some cosmetic care there are many options to choose from. Sometimes all it takes is a professional cleaning to bring back the luster of past years, but other times more drastic measures are required. If a new, fresh look is desired, consult a professional service such as Scheme Designers to see what your imagination coupled with their experience can create. The selection of the paint shop is extremely important in ensuring satisfaction with the final product. Ask for references and make sure the job is well within the capabilities of the facility before

you commit.

Interior refurbishment can come in three distinct forms: professional cleaning, factory part replacement and custom work. There are many resources for each option, but every situation is different. Consultation with your shop or other trusted resources can ensure that other's experiences and learning curves can work in your favor.

Safety of flight can be improved to new aircraft standards with several aftermarket modifications. Updating your ELT to the new 406 MHz variety will ensure fast and reliable response during an accident, and could be all the difference when seconds count. Amsafe airbag crew seatbelts help to prevent an otherwise survivable situation from becoming tragic. LoPresti Boom Beam nose and wing tip lights can illuminate ground operations and departure/arrival hazards. It is very hard to avoid something that you can't see. Finally, pulse lights can help bring attention to other passing aircraft and decrease chances of potential conflict in low visibility or high work load environments. A pulsing light is much more perceptible to the human eye than a steady one.

The Parts May Be Worth More than the Whole Airplane

Be sure to look at your upgrades in total. Many a time an owner has slowly "over improved" an airplane to the point of an economic disaster at sale time. If the total cost of your upgrades begins to exceed 20% of the value of your airplane, it may be time to re-evaluate the situation. How long are you going to keep the airplane? If it will meet your needs forever, go for it. If you're looking to upgrade in two or three years, take a hard look because chances are you will get only a small amount of your investment back. Some upgrades, such as new paint, will hold their value better than others. Safety items are worth more than entertainment to most people. The good news is that there are plenty of options to choose from.

The advantages of new airplanes with their modern equipment, safety advances and overall feel are undeniable. However, there are many options awaiting an owner looking to update their current airplane to the newest technology or refurbish for a fresh look. Working in conjunction with a knowledgeable shop is paramount to the success of any upgrade. Ultimately, upgrades aim to enhance capability, reliability, appearance and most importantly safety of flight. •

SKYTECH'S NEW FULL SERVICE FBO SALES AND SERVICE FACILITY AT THE CARROLL COUNTY REGIONAL AIRPORT (KDMW)

The Next Chapter

Skytech's Founder and Chairman, Frank Stephenson, recently celebrated a unique milestone: Frank has had a personal presence at the Martin State Airport for 50 years. Of course, it was simply The Martin Airport - privately owned by the Martin Company – when he came to work here in August of 1959.

Back then the Martin Company's Chief Pilot got all out of sorts trying to figure out how to run the new maintenance system that accompanied their ultra-modern Gulfstream G-I. The maintenance was "computerized" and no one in the company had any idea how to use it. So they went looking for someone with experience in automated aircraft maintenance systems. Frank, a 23-year-old Pennsylvania native and fresh out of the Air Force, had been running the Air Force version for about 5 years.

What they did not tell Frank was that their other Corporate aircraft were Martin model 202 and 404 Airliners that had been converted from Experimental Flight Test. As such, they had no Standard Airworthiness Certificate and thus no formal maintenance plan. So every time they needed a part Frank had to go into the factory and "requisition" one for the Corporate Flight Department. His only salvation was a badge that showed his Department as 0001 – because there was no such thing as the Corporate Flight Department, only some test pilots with converted airplanes that hauled the Execs around. So resourcefulness at Skytech goes way, way back, and it was a cornerstone of the business when Frank founded Skytech in 1976.

Skytech's business partners also display a great deal of resourcefulness and we are fiercely loyal to them. When there is an exception to that behavior it invariably comes down to the same issue: we outgrow a partner and they aren't willing or able to change to keep our business. As cases in point, we spent 12 years with the same insurance agent, 17 years with the same bank, and 10 years with the same IT provider. And we've literally outgrown the capacity of all three in the past 5 years.

And now we have undertaken the most dramatic change in Skytech's 33 years in business. We've outgrown the Martin State Airport. Skytech moved to Carroll County Regional Airport (KDMW) on August 31st. Truth be told, we probably outgrew Martin a decade ago but did not want to admit it. Plus, we wanted to be sure that we had successfully learned how to build and operate a world-class, full-service FBO complex that could concurrently support our aircraft sales and service business. If you have ever visited our Rock Hill, SC (Charlotte area) campus you know that we are off to a great start. And there's plenty more evidence if you read the customer comments on Airvav.com.

So our next objective is to duplicate – or amplify if we work hard enough – our FBO success in Rock Hill. That effort is personified by our brand new facilities at the Carroll County Regional Airport (KDMW) in the Baltimore-Washington metropolitan area near Westminster, Maryland. It's 5,100' runway with WAAS approaches brings you to a new, 22,000 sq. ft. Maintenance and FBO facility dedicated solely to Skytech's customers – both existing and not yet introduced to us. The same great personalized service that we have given our customers at the Martin State Maintenance facility will now include your Line Service experience. In addition, we will have one of the only dedicated Aircraft Sales showrooms east of the Mississippi River. While we will keep an Administrative presence at Martin State, Carroll County is – from a customer perspective – our Baltimore-area home. So come see us! Literally and figuratively, we'll be waiting on you.

John K. Foster
President
Skytech Inc.

Advertorial

CUSTOMER REPORT

PIPER MERIDIAN: FAST MEDICINE.

Health care is a frequent topic of conversation these days. While politicians debate various options for delivering health care to the public, dedicated experts are working hard to improve the health care that the public receives. Renowned academic medical doctor, Dr. Robert Odze is one of those experts. As a teacher, lecturer, and clinical research physician, Dr. Odze travels frequently throughout the United States, Canada and the Caribbean to share his knowledge with other professionals in his field. He relies on his Piper Meridian to meet a demanding schedule.

To say Dr. Odze wears many hats is an understatement. He is Chief, Gastrointestinal Pathology Service at Boston's Brigham and Women's Hospital and a Professor of Pathology at Harvard Medical School. With his schedule, Dr. Odze's pilot's license and aircraft have given him flexibility that would not otherwise be possible. As his medical expertise expanded, so grew the requests for his engagements in lectures and clinics to share this specialized knowledge and further research. Needing to go further and faster led to an aircraft partnership, a Piper Meridian, and a new relationship with Skytech.

When he's home in Boston, Dr. Odze's days include duties at Brigham and Women's Hospital in Boston to Harvard's Gastrointestinal Pathology Service and GI fellowship training program. This means teaching diagnostic gastrointestinal, liver and pancreaticobiliary pathology, as well as directing courses, developing teaching sets, writing articles, and editing field publications. Off campus and beyond, Dr. Odze evaluates more than 600 cases/year and he provides courses, lectures, symposiums and moderates conferences in pathology. Among many significant accomplishments in his field, Dr. Odze was voted one of "Boston's Best Doctors" (Pathology) Boston Magazine, 2009.

The need to cover more locations and reach remote campuses led Dr. Odze down the private pilot path. After obtaining his VFR certificate, he purchased his first airplane, a Cherokee 180, opening up a new world for travel. With instrument training

underway and travel requirements growing, Dr. Odze sought out a more versatile airplane and chose a Beechcraft Bonanza. In the northeast, this was largely a VFR airplane with no de-ice capability. He next purchased a Mooney to add some weather capability with its weeping wing de-ice system and newer avionics. Though, since the Mooney isn't pressurized, he needed to use supplemental oxygen to get above the weather, or accept a ride in the clouds if the use of oxygen wasn't desired. Now, as an experienced instrument-rated pilot with better than 2000 hours and a schedule that is busier than ever, Dr. Odze needed

and CFI ratings who was currently flying a Cirrus. He runs multiple business interests in the northeastern United States and in California, and enjoys traveling with his wife and children. The two Robs found their needs for performance and weather handling were similar, and decided to team up. They looked at pressurized pistons, jet-prop conversions and turbo-props. They determined that for their needs, the Meridian had the reliable turbo-prop engine, the best airframe for the engine, better avionics, higher resale value and a higher cruise speed.

Finding the right balance of performance, features and amenities was the next step. At the time, there were plenty of good new and pre-owned choices in the market. They agreed that a few intangibles were key to finding the right aircraft. Dr. Odze emphasizes the importance of relationships, trustworthiness, and reputation; and he was impressed with the Skytech facility. "The place was clean, the floors were clean, and the maintenance staff was professional". He listened to the word of mouth and heard Skytech has a great reputation with a long history of experience. And, he enjoyed the professional relationship with Derek Windle "A singular source of the anything we needed to know. Derek not only had the details on the aircraft we were seeking to purchase, but all of the other aircraft in the field. I felt very comfortable. I was not going to buy an aircraft from someone I was not comfortable with...reputation is critical." Dr. Odze and Rob Valteau purchased a pre-owned 2004 Meridian from Skytech in August of 2009. We are glad to have Dr. Odze and Mr. Valteau as part of the Skytech family.

After settling in with the new airplane, Dr. Odze recommends the Meridian's affordability. "It's hard to believe it goes that high that fast for 35 gallons/hour!" What will the future hold? It is hard to say, but the two Robs are enjoying their new partnership with the airplane and, though it will be years down the road, they have already started talking about the next one. For now, though, Dr. Odze says, "The Piper Meridian suits me perfectly". •



enhanced weather capability and additional range. He looked for a pressurized airplane that could comfortably top weather and make most of his trips non-stop.

To acquire the right performing aircraft he needed to make it work financially, and thus looked into finding a partner. Shoreline Aviation, where the Mooney was hangared, introduced Dr. Odze to Rob Valteau, a local businessman who was also looking for additional capability. Rob Valteau is an experienced pilot with commercial



BONUS DEPRECIATION UPDATE.

Bonus depreciation is scheduled to expire on December 31, 2009. However, if certain conditions are met, the tax code allows bonus depreciation to be taken on 2010 aircraft deliveries. With income tax rates expected to increase, you should consider placing an aircraft order in 2009 and qualify for the generous 50% bonus depreciation in 2010. The after tax savings can be significant.

Following are the requirements that must be met for a 2010 delivery to qualify for bonus depreciation:

- Signing a binding contract to purchase a new aircraft by December 31, 2009
- Factory demonstration aircraft will qualify as new
- Making a non-refundable deposit of the lesser of:
 - 10 percent of the cost, or
 - \$100,000, and
- Taking delivery and placing the aircraft in service by December 31, 2010
- Aircraft will be used in Part 91 business operation
- Depreciation deduction will be taken on your 2010 income tax return

FLORIDA SALES AND USE TAX UPDATE

Florida Department of Revenue continues its aggressive approach in taxing new aircraft purchases that occur "outside" Florida. The enforcement and assessment of Florida use tax to purchases that occur outside Florida catches most aircraft owners by surprise; and many times it can be a very expensive surprise.

Florida statute states that an aircraft entering Florida within the first six months of purchase will be presumed to be purchased for use in Florida and subject to Florida use tax. The Department of

Revenue has stated that this rule will not be enforced for aircraft that are in Florida for training, for a brief family vacation visit or attending a convention like Sun 'N Fun in Lakeland, if the aircraft owner does not have other "ties" or "connections" within Florida.

As reported by AOPA, the Florida Department of Revenue does not attend "fly-ins" like the AOPA Aviation Summit or Sun 'N Fun for the purpose of enforcing Florida use tax, nor do they conduct "ramp-checks" for this purpose. Rather, their use tax enforcement efforts are directed at property owners with significant connections to Florida.

If you own a second home in Florida, you are an owner of a Florida business, or you have a satellite office in Florida, Florida Department of Revenue will consider these activities sufficient for Florida to assess use tax on your aircraft purchased outside Florida, if your new aircraft visits Florida within the first six months of purchase.

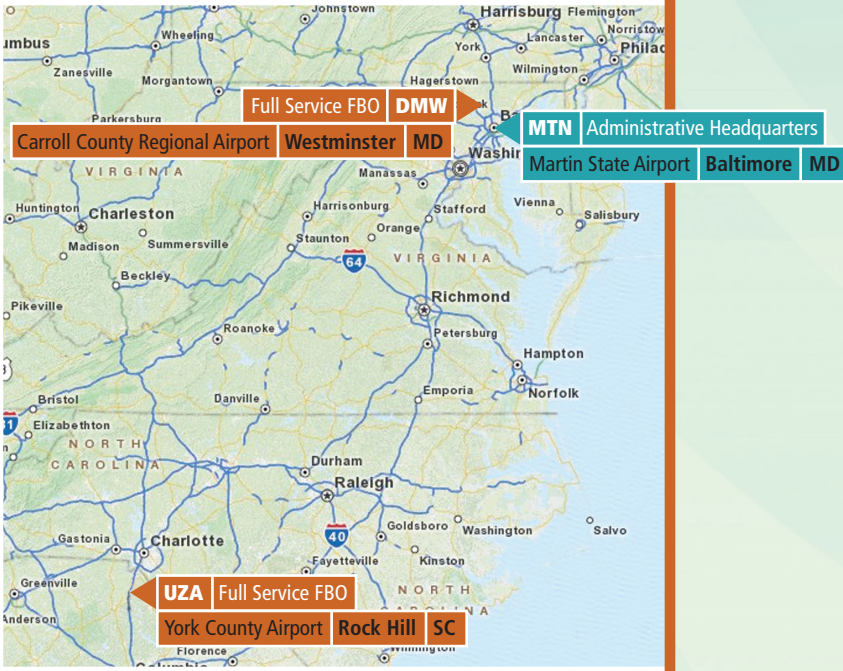
If you have previously paid sales tax to your home state, Florida will allow the

sales tax paid as a credit to reduce your Florida use tax liability. However, if you live in a no sales tax state, like Delaware, Massachusetts or New Hampshire, this credit will not reduce your Florida use tax liability.

This is a significant problem for many unsuspecting aircraft owners, as many do own a winter or vacation home in Florida, or they are owners in corporations that regularly conduct business in Florida. You should consult your aviation tax advisor regarding the taxability of your recent aircraft purchase if you have "significant connections" to Florida. •

*Daniel Cheung, CPA,
Member*

Aviation Tax Consultants (ATC) assists aircraft purchasers in acquiring aircraft in a tax efficient manner. Our services include the elimination or reduction of sales tax at the time of purchase, maximizing income tax savings, controlling the cost of personal use of the aircraft, avoiding passive activity loss rules and complying with Federal Aviation Regulations. Cooperation with client's current tax and legal advisors is welcome and encouraged.



THE NEW G1000 PIPER MERIDIAN: A FLIGHT REVIEW.

A sports car is only as responsive as the tires it drives on. A song is only as crisp as the speakers it's played through. To put it simply, in order to experience something to its fullest, all aspects must be accounted for. From its inception, the Meridian was designed as a head-turning airplane with forgiving and predictable flying characteristics. Advances to the Meridian have sought to improve upon the impressive original design by offering increased benefits to owners and operators. Following a trend found through most of general aviation in the past decade, many of the advances to the Meridian have come by way of the avionics package. Each avionics advance elevated the capability and overall pilot experience of the airplane. In 2009, the announcement of the G1000 avionics suite coupled with the fully integrated GFC700 digital autopilot to the proven Meridian design has the airplane figuratively "running on racing treads" while delivering "sharp notes" at every turn.

Flight Review

In our last issue, we covered the details of the G1000 system and its installation in

the Meridian. The G1000 upgrade aims to enhance the pilot's overall experience through maximizing the Meridian's capabilities and simplifying general operation. This piece will focus on the flight experience that one should expect when operating the G1000 Meridian and how it may compare to previous models.

Every Meridian pilot must wait for certain engine reporting parameters and other various systems to initialize prior to engine start. An Avidyne equipped Meridian displays the needed engine parameters for starting on an MFD engine page that can take a few moments to become available. The G1000 system displays all engine parameters needed for start on the PFD, which initializes in seconds. After starting the G1000 Meridian, the MFD is brought online through the avionics master switch and the engine information transfers to the normal location on the left side of the MFD.

Next in sequence is the alignment process of the Attitude Heading Reference System (AHRS). The G1000 AHRS system initializes quickly, enabling the pilot to taxi without significant pause. The fully integrated network of Garmin components comprising the G1000 surely helps in this

department. The Air Data & Altitude, Heading Reference System (ADAHRS) of Avidyne equipped Meridians requires a longer initialization period of non-movement than the G1000. You may taxi prior to complete initialization, but must bring the aircraft to a stop prior to takeoff to finish the process. The Meggitt avionics system's initialization period is even longer than the Avidyne, and must be completed prior to taxi.

Loading a flightplan with the GCU 476 Keypad located just aft of the power lever is very intuitive. A full keypad makes loading intersections and airports easy, and its location should feel natural for most pilots.

GFC 700 Autopilot

The fully integrated GFC700 autopilot offers marked performance upgrades over earlier systems. The entire control is centered under the MFD in the middle of the panel and is easy to use and reach. Two improvements are evident when flying the new set-up. The autopilot is incredibly crisp and gives the Meridian a certain smoothness to its movements that is reminiscent of larger airplane capabilities.

Turns are subdued by limiting maximum bank angle to 22 degrees (previously 30 degrees on earlier models), easing into and out of banks and introducing a "Half-Bank" feature to further reduce the angle for increased passenger comfort and high altitude operations. The autopilot is rock solid and allows the airplane to maneuver smoothly through all flight regimes.

Vertical navigation ability is addressed in this new autopilot as well. A wheel on the unit allows the operator to adjust not only rate of climb or descent (VSI), but also the Flight Level Change (FLC) or speed during climbs and descents. In other words, you can select a climb or descent to a specified altitude, set the airspeed and the autopilot will adjust the vertical rate to hold the selected airspeed until your altitude. As part of the full integration concept of the G1000/GFC700 unit, the Meridian is equipped with an over-speed recovery mode which essentially predicts an imminent over-speed situation, issues a warning on the PFD and commands the Flight Director bars to pitch up. The functionality of the GFC700 autopilot is superb with seamless and straight-forward operation. It is an outstanding compliment to the Meridian's turbine powered cabin-

class performance capabilities.

Synthetic Vision Technology (SVT)

Do you remember the first time you flew a glass panel airplane? For most everyone, the impression left after the flight is: "How can I go back to steam gauges after this?" The same can be said about flying with Synthetic Vision Technology. Much has been written lately about Synthetic Vision Technology. Basically SVT is a direct boost to a pilot's situational awareness. Terrain, obstacles, traffic, airports, flight plan depiction and other pieces of information are displayed on the Pilot's and Co-pilot's PFDs. You are viewing a 45 degree vertical and 60 degree lateral 3D representation of your flight environment. Two features of the SVT stood out on my initial flight.

Airport environment awareness is greatly improved with SVT. Runways are shown on the PFD, complete with numbers and local terrain. This 3D airport depiction would give pilots an extreme advantage over a non SVT equipped airplane prior to breaking out of a cloud base while on an instrument approach. For example, let's consider you were crabbing on an ILS due to strong winds aloft while riding the

glideslope to DH on a low IFR day. The SVT image displayed on the PFD would show you exactly where to look for the runway, as well as the terrain image surrounding the airport environment. It's like having a sneak peak of a pop quiz before the class.

Garmin's SVT displays a green circle with three tick marks, referred to as a Flight Path Marker. The Flight Path Marker's sole function is to show the pilot where your airplane's track is pointing. This information is extremely useful in ensuring clearance from terrain and obstacles as well as course alignment. Additionally, it isn't a coincidence that when properly aligned for an approach, the Flight Path Marker is securely planted on the runway depiction on the PFD. This is a confidence inspiring tool that can provide heightened situational awareness in a multitude of ways.

The addition of G1000 avionics to the Meridian further enhances the pedigree of an already proven design. Through fully integrated components such as the very capable GFC 700 autopilot, and state-of-the-art features like synthetic vision, the future of the Meridian looks very bright. •





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A WORD To The WISE

by Dave Conover



STRIKE A BALANCE.

Dynamic propeller balancing is certainly nothing new and when performed by experienced technicians, it is a relatively simple process that can pay big dividends. The centrifugal forces that manifest from even the slightest out of balance condition between an engine and propeller can be quite significant and the associated vibration can induce a myriad of insidious failures, commonly referred to as “gremlins”. However, dynamic balancing is a commonly overlooked service element.

Firewall forward induced vibration can be directly tied to a litany of powerplant issues including: cracked engine baffles, premature engine component failure and engine mount stress. Furthermore, as engine isolator’s age, vibrations will transmit into the cabin area causing a reduction in the service life of gyroscopic flight instruments and other avionics components. Additionally, vibration even at slight levels will induce pilot and passenger fatigue.

Engines and propellers are statically balanced during manufacture (or overhaul). However, when they are installed together on the aircraft, the result of the normal allowable tolerances leads to a slight mismatch. This mismatch is amplified as the propeller rotates at normal operating rpm. Dynamic prop balancing tracks the mismatch at the normal operating rpm with a sensor installed by the technician and the equipment calculates not only the “magnitude” of the vibration, but also the “phase angle” that corresponds to the location of the imbalance. Once the level and location is determined, the technician calculates and adds counterweight to offset the imbalance. The reduction or improvement can be verified by simply performing an additional engine run-up. Your service facility should be able to provide you with the pre and post measurements to indicate just how much vibration they were able to reduce. In some cases, the results are felt

immediately in the cockpit, while in others the improvement is gauged over time with reduced maintenance costs.

Most service facilities that specialize in turboprop and high performance piston aircraft maintenance will recommend performing a prop balance after an engine and/or prop overhaul. Additionally, if frequent propeller dressing is required or a nick needs to be “aggressively” removed, a periodic balance is not out of the question. Technicians typically utilize equipment from Chadwick Helmuth or ACES and under normal circumstances, the process only requires a few hours.

Piston or turbine, virtually every aircraft will benefit to some degree from prop balancing. Today more than ever, reducing downtime, extending component life and controlling service costs is an integral part of aircraft ownership. In short, evict the “gremlins”. •