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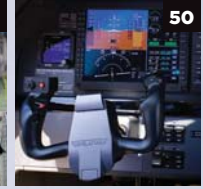
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From the President



LPOPA recently held a board meeting in Atlanta, the day before Pilatus' 2013 A-ROC (Atlanta Regional Operators Conference). Focus was on the framing for next year's convention in Savannah, and we believe it could be the best one yet! Some of the ideas for our 2014 conference came from your responses to the survey sent after the 2013 event. Thank you for responding and for your passion to help us continue to improve POPA.

Also of note, our website accessibility continues to improve, as does the conversations and topics discussed in the forums. If you haven't logged in lately, please do so. There is valuable information to be found in the forums. And, in an effort to enhance our magazine, we continue to pursue more Pilatus-specific articles. If you have an article you feel would be of value to the membership, please submit it to the POPA home office for possible inclusion in an upcoming issue.

Your board is constantly working on increasing the value of your membership. Our Pilatus Pilot Proficiency Program (PPPP) is one initiative we are attempting to improve. We are working with the insurance industry to offer a definable and/or a quantitative discount for those who complete the annual requirements of the PPPP. We're confident your participation in the program will be worth your time.

During this season of celebration, POPA is grateful to all its members — owners, pilots, operators and associate members, representing more than 375 aircraft. Thanks also to Pilatus, its service centers and all our industry supporting partners. You have all helped to create a strong association focused on the safety and education of all our members.

Happy Holidays to all...

A handwritten signature in black ink that reads "Joe Howley". The signature is written in a cursive, flowing style.

Joe Howley



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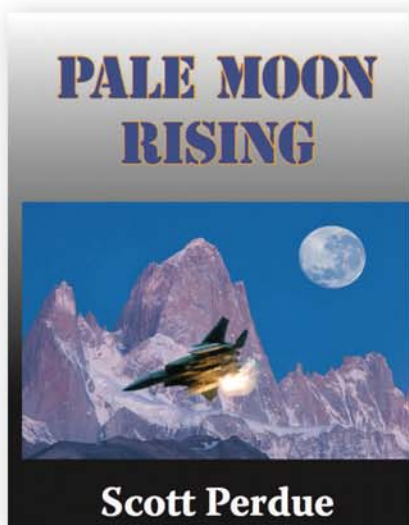
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F-15S OVER AFGHANISTAN

Ever picture yourself in the cockpit of an Air Force F-15E fighter or wonder what getting shot at is like? *Pale Moon Rising*, a military action-adventure novel by Scott Perdue, starts out with a chilling description of what could have happened onboard the hijacked airliners on 9/11. Fast forward to the barren hills of Afghanistan where Army Special Forces bring the war to al-Qaeda.

Perdue, ex-Marine grunt and Air Force fighter pilot, doesn't let the cobwebs grow before introducing the F-15E and Jenny Goode. Jenny always wanted to be a fighter pilot and has reached the top of the profession just in time to fight the War on Terror. You are right there in the cockpit with Jenny as she fights to save those on the ground.

Every detail, from the ground, to the inner workings of modern war, even to the buttons and switches of the F-15E, reeks with authenticity. Perdue's story is a fast-paced, action-packed thriller that doesn't let up until the last page. It's easy to see why his call-sign is "Gunny."

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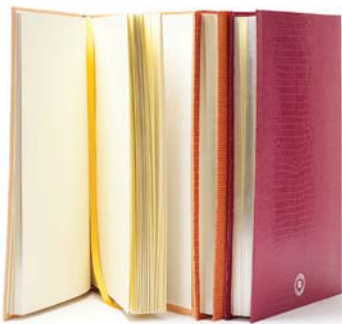
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The good news is that pilots flying behind PT6A engines have the sure knowledge that they're operating the most reliable turboprop engines above the planet. That's especially important in a single-engine propjet where reliability is everything.

FIVE THINGS YOUR ENGINE HATES

THE P&W PT6A ENGINE IS ALMOST UNBELIEVABLY DURABLE – ALMOST. ■ By Bill Cox

One of the major attractions of turboprop power plants is that they're difficult to abuse. Pilots transitioning from pistons to a turbine are sometimes amazed that the latter are so simple and easy to manage after serving an apprenticeship with often temperamental, complex, six-cylinder piston mills. The Pratt & Whitney PT6A has been produced in dozens of configurations, logged some 380 million flights hours, most of them trouble free, and been installed in some 50,000 aircraft.

Turbines can also suffer from the start process, but not for the same reasons. A turbine engine is delicately balanced and turns pretty much everything in the same direction, so unlike piston mills, there's little friction generated during start. As every turbine pilot knows, however, turbines are more sensitive to the dreaded hot start, a situation most often associated with low electrical power.



Hot starts are the bane of turbine engines. The start process is fairly straightforward, provided conditions are reasonable and the battery is at full charge. P&W engines are designed to start on battery power alone, but if the voltmeter suggests battery voltage is less than 24 volts or if the OAT is less than 0 degrees F (-18 degrees C), the manufacturer recommends using an auxiliary power unit.

In a standard, unassisted start, the starter-generator turns the engine to ensure an adequate flow of air before the pilot introduces fuel. If the engine isn't turning fast enough to provide cooling air (usually 12 percent) or if fuel is introduced too soon, the result may be a start that exceeds the recommended inter-stage turbine temperature or ITT (usually 1,000 degrees C). In other words, hot starts are caused by normal fuel flow at insufficient rpm, whether it's because of cold temperatures or a low battery. Overtensing an engine for more than about five seconds during start may result in a hot-section overhaul (typically at least \$25,000).

For that reason, pilots are rolling the dice when they insist on starting with low electrical power just because of the convenience factor. A few extra minutes to contact the FBO and roll out the start cart is a small price to pay for the confidence that every start will

have sufficient juice.

Another problem that can cause maintenance and performance deficits on turbine engines is dirty stator blades. This may be reasonably easy to remedy by simply treating the engine to regular wash jobs. This can actually restore some engine performance by eliminating stubborn deposits that might otherwise degrade aerodynamic efficiency of compressor blades.

Aircraft operated in saline environments may tend to accumulate salt deposits on the blades. Similarly, jet fuel contains sulfur, and the high temperatures (about 1,500 degrees F) of burning Jet A in the combustion chamber may leave sulfidation on the stators, a tough coating that can erode special preparations designed to protect the turbine blades. If these coatings are worn away, corrosion is a strong possibility.

A regular schedule of engine washes can restore EGT margin and improve fuel efficiency by one percent or more, reduce corrosion from salt-laden air and help to reduce overhaul costs. A one percent reduction in fuel burn can be more significant than it sounds. On a typical single-engine turboprop that burns 40-70 gallons per hour, a one percent improvement extrapolated over a 3,600-hour TBO can amount to as much

as 2,000 gallons of jet fuel, worth probably \$12,000 at today's prices.

Speaking of fuel, that can be another major problem for all manner of aircraft engines. Fortunately, turbines aren't as sensitive to misfueling as pistons. A turbine engine accidentally filled with AvGas will usually run reasonably well on piston fuel, though ITT will usually increase by 100-150 degrees.

Conversely, piston engines are totally intolerant of burning jet fuel. The great airshow pilot, Bob Hoover, lost a Shrike Commander because of misfueling with jet fuel, and I almost lost a Cessna 421 in the Canary Islands for the same reason. I was ferrying the airplane from Carlsbad, Calif., to Johannesburg, South Africa, and stopped for fuel and an overnight at Tenerife.

The next morning, I filed a flight plan for Abidjan, Ivory Coast, and returned to the airport to refuel. I didn't notice that the truck that pulled up to top off my Golden Eagle was carrying Jet A. The paint on the side of the truck facing me was worn away, and I made the mistake of assuming the lineman knew my airplane was piston-powered. I didn't check the opposite side of the truck to make certain I was receiving AvGas until one tank of the Golden Eagle had been filled, and I'd finished filling out paper work. I

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walked around to the opposite side, saw it was marked Jet A and stopped the fueling immediately. The boss of the fuel team made the lame excuse that they'd serviced a Cessna 425 Conquest the night before, and they assumed my airplane was the same model. It was totally my fault for not checking the truck in advance. The crew had to drain the left wing completely, using drums, then refill with AvGas, a very expensive mistake.

Even if you're using the proper type of fuel, you're partially at the mercy of the FBO on quality. You can check to determine that it's Jet A rather than AvGas simply by the smell and feel. Jet is greasier and smells like kerosene. But there's not much of a way to test its efficacy.

Foreign-object damage (FOD), on the ground or in flight, can be a critical problem, and contrary to popular belief, it's not always the result of a dramatic bird strike or something similar over the Hudson, off the island of Manhattan. Sometimes, you can FOD an engine and not know it until you land. In fact, ground foreign-object damage can be more insidious and, therefore, more dangerous.

FOD is rare on Pratt & Whitney power plants because of the engine's unique inertial separator, sometimes referred to as an



ice vane. It's a deceptively simple device, but it works perfectly. As PT6A fans know, the engine is mounted backwards in the nacelle. The P&W design employs reverse flow that provides it with an advantage over the Garrett power plants.

In normal configuration, air enters the inlet scoop and must make an immediate 90-degree turn. If the inertial separator is engaged, a door at the rear of the inlet opens and anything with significant mass exhausts straight through to the outlet before it has a chance to flow through the engine. The inertial separator is intended primarily for preventing ice from entering the inlet in flight, but it can also be used for sidetracking sand, dirt or anything else that might be bad for turbine blades. There is a

slight power loss with the inertial separator engaged, so P&W warns not to use the system on takeoff, but if you're operating from a rough, dirt strip, where max performance isn't required and you have a bad feeling about the possibility of FOD, by all means feel free to engage the separator.

Just as with piston power plants, one item that's often missed in any analysis of an engine squawk is prop balance. It's important to remember the prop on a PT6A is free wheeling, and any imbalance can impart a minor vibration, sometimes so insignificant as to be almost unnoticeable. For that reason, prop balance should be a mandatory check during any maintenance.

OK, there are actually more like six things turboprop engines hate. Partially plugged fuel nozzles are another concern

that can play havoc with a turbine engine. Turbine power plants are noted for smooth running, but plugged fuel nozzles can change that for the worse.

Perhaps surprisingly, a not uncommon problem is fuel nozzle tips that are the wrong part numbers. Many nozzles have a nearly identical physical appearance, and it's possible to confuse one nozzle with another. In the worst case, improper or worn nozzle tips can cause extensive hot section damage. A small, dedicated, ultrasonic cleaner will usually do a good job of restoring a nozzle, and a second cleaning often results in resumption of normal flow patterns.

The good news is that pilots flying behind PT6A engines have the sure knowledge that they're operating the most reliable turboprop engines above the planet. That's especially important in a single-engine propjet where reliability is everything. *POPA*



INTERACTIVE AIRCRAFT TRAINING

YOUR CFI SHOULD ALWAYS BE LOOKING FOR INNOVATIONS IN TEACHING. ■ By Eric Cannon





We live in an age where information is at our fingertips. Hard-copy textbooks and manuals have given way to tablets and computers. Infinite knowledge and ideas are only a click away. The face of classroom instruction in nearly every field has evolved to incorporate technology including online courses and distance learning, and now even ground instruction for aviation is beginning to see this change. However, complex manuals and wordy handbooks continue to pre-occupy many pilots, while nearly all of the hands-on instruction continues to take place only in an aircraft or flight simulator.



I currently work in a flight-operations training department, training pilots on both the Legacy and NG PC-12. When I first began instruction on the Pilatus aircraft, I was tied to the standard black-and-white textbooks provided for the ground training. While the manuals and diagrams work well to transfer a large amount of information to the pilot, they lack the ability to convey a practical comprehension of an aircraft's systems to pilots. When instructing, I noticed a void between what I was teaching on the ground and the hands-on application of that knowledge in the aircraft. I could tell that the pilots were able to understand the basic concept of each system, but weren't quite able to fully grasp how they interact with and use that system. It seemed like what was missing was the ability to not only teach the fundamentals of the system, but to also allow the pilot to interact with and manipulate those systems.

As an instructor I am always looking for new and innovative ways to teach the mate-

I wanted to have the ability to show not just a system diagram and all the associated switches and levers, but to also be able to move a switch and show how that affects the entire system.

rial for the Pilatus, and I am continuously brainstorming ideas for more effective ways to explain the systems while in the classroom. That's what gave me the idea of using online interactive system diagrams. I wanted to have the ability to show not just a system diagram and all the associated switches and levers, but to also be able to move a switch and show how that affects the entire system. For example, I wanted to move each switch on the electrical system and demonstrate to

the pilots which busses would turn on and which relays would close. I knew that this would be a huge benefit in the classroom and would solidify a greater understanding of how the aircraft works.

This is what led to the creation of my website, AircraftTrainingAids.com. The concept of the site was to create a place where instructors and pilots can view and use this type of training material for their own reference. I aimed to create interactive diagrams that were simple to use and understand, yet had enough complexity to garner a well-rounded understanding of the system. I expected that these diagrams would work well as a training aid in the classroom, but could also be beneficial for self-study.

The electrical-system diagram found on AircraftTrainingAids.com is a prime example of how these diagrams could be used for training. Before the creation of the site, I had struggled to explain to pilots what happens in the event of a generator failure. Some pilots found it difficult to visualize



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Aircraft Training

what would happen to the system during the failure. Now with the interactive diagram, I can demonstrate precisely what will happen and also what will take place if the pilot were to make additional inputs to the system during the failure.

This type of interactive training has great potential, not only as an introduction and review of the systems, but also as practical training for how to handle emergencies in a safe and controlled environment. Being able to present a failure and allow pilots to work through the emergency checklist adds correlation between the understanding of the system and handling emergency procedures for that failure.


When I first launched the site more than a year ago, I began with a few diagrams of the Legacy and NG systems, a systems-review section and a limitations-review section. Since then, I have added many diagrams

and also improved on the existing diagrams. Many of the recent updates and changes to the site have come from the input of Pilatus pilots and the POPA community. The version of the AircraftTrainingAids.com site you see today is a result of collaboration from pilots, instructors and others within the Pilatus community.

I continuously modify the site's diagrams and add new ones based on needs that I find in the classroom. Recently, while teaching a lesson on cabin-pressure altitude control, I noticed I had difficulty explaining exactly how the system works and found it necessary to review with the pilots how to use the system over and over. Since then, I have created a fully functioning Cabin Pressure Control System interactive diagram. The instruction has been much smoother, and comprehension of how to set cabin altitudes and rates has come more quickly.

When I began creating AircraftTrainingAids.com, I never expected to receive the overwhelming response that I've gotten. I

am grateful to POPA for much of that, as I was fortunate to have my site featured on the POPA website under the Knowledgebase section, as well as being invited to speak at the 2013 convention. Since then, AircraftTrainingAids.com has seen an increase in traffic, and I have received many more emails and comments from other Pilatus pilots.

I am proud that so many have found the site to be useful, and I appreciate all the feedback that the POPA community has given me. I believe that I am barely scratching the surface of this type of training and look forward to developing new and innovative methods of instruction. Technology is ever-changing and enhancing the way we learn, which can only help to further the knowledge of the community and in turn, make for a safer industry for us all. 

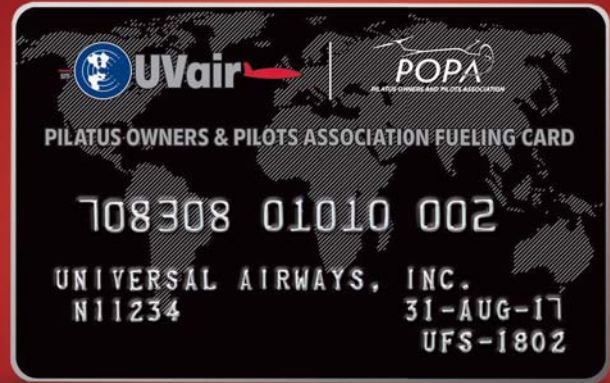
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NEW IRS REPAIR REGULATIONS IN 2014

WHAT QUALIFIES FOR CURRENT WRITE-OFF VS. DEPRECIATION? ■ By Jonathan Levy

In September, the Department of Treasury released long-expected final regulations governing what expenditures can be deducted as repairs in the year incurred, versus what must be depreciated over multiple years. These new regulations, effective starting in 2014 and governing this area of law for the foreseeable future, span several hundred pages in length. As a result, this article provides only a basic introduction and leaves out numerous special rules and exceptions. These regulations contain fairly sparse rules, accompanied by voluminous examples. One goal of this article is to draw from these examples principles that may be relevant to aircraft, even where the particular example may involve a different type of property. The regulations are significant to aircraft owners because the timing of the deduction of aircraft maintenance and upgrade expenses can have a large effect on tax liability.

At the core of the new rules is the concept of a property “improvement.” If work done fits within the definition of an “improvement,” then the cost of that work must be capitalized, instead of being currently deducted.





N686PC



IDENTIFYING THE UNIT OF PROPERTY

Before determining whether an expense is for an “improvement,” the applicable “unit of property” must be identified. The benchmark for what constitutes a unit is the “functional interdependence test.” The concept of the unit-of-property question can be conveyed with a simple example: If you replace a screw on your aircraft, do the tax rules focus on just the screw (in which case you have totally replaced the property) or on the whole aircraft (in which case you have made only a trivial change)? The regulations define the unit of property as comprising all the components that are functionally interdependent in the sense that one component cannot be placed in service for its intended business function without placing the other components in service, as well.

This framework illustrates that, for aircraft owners, the unit of property will be the aircraft — not the screw, as in the above example, nor even more significant, discrete pieces of equipment such as a propeller or an engine. The interdependence of each part’s use on the use of the aircraft itself renders the aircraft a single unit of property. Even to a company that owns a fleet of aircraft, each individual aircraft is a distinct unit. The various components of an aircraft (such as engine or propeller) are not units; the aircraft is the unit.

ROUTINE MAINTENANCE

Routine maintenance for non-building property is not an improvement (and it need not be capitalized). Routine maintenance is defined as the recurring activities that a taxpayer expects to perform as a result of the taxpayer’s use of the unit of property to keep it in its ordinarily efficient operating condition. These include inspection, cleaning and testing, as well as the replacement of damaged or worn parts with comparable and commercially available replacement parts. The activities are routine only if, at the time the unit of property is placed in service by the taxpayer, the taxpayer reasonably expects to perform the activities more than once during the class life (six years for non-commercial aircraft, 12 for commercial). Work is not routine maintenance if either it is primarily required as a result of a prior owner’s use of the property or it restores to ordinary operations property that has deteriorated to a dysfunctional state. Work fitting into the definition of a betterment, or that adapts the property to another use, is also not routine maintenance.

A helpful example of routine maintenance identified in the regulation addresses a hypothetical airline whose engines require expected “engine shop visits” every four years.

During these visits, the engines are removed from the aircraft and sent off for inspection, cleaning, repair or, potentially, replacement with a comparable engine. The repaired/replacement engine is then returned to the airline for installation on another aircraft. The regulation holds that, because the class life of the commercial aircraft is 12 years, and it was expected that the engines would make shop visits multiple times within this period, the visits constitute routine maintenance — even those continuing to occur more than 12 years after the airline acquired the aircraft and engine. However, if the airline had acquired the aircraft/engine used, when it was approaching an engine-shop visit, the first visit would not be routine maintenance because it resulted primarily from a prior owner’s use.

WHAT IS AN IMPROVEMENT?

An improvement occurs if the unit of property undergoes, other than through routine maintenance: (1) betterment, (2) restoration or (3) adaptation to another use. Each of these three categories is further explained below.

I. BETTERMENT

Work is a betterment if it: (1) ameliorates a material condition or defect that predates the taxpayer’s ownership of the property,

2013 YEAR-END TAX UPDATE AND A LOOK AHEAD TO 2014

(2) is for a material improvement to the property's capacity, or (3) is expected to materially improve the property's productivity, efficiency, strength, quality or output. Work that involves replacing parts with improved, but comparable, parts is not a betterment if the taxpayer cannot practically replace with the same type of part (for example, because of technological advancements or product enhancements). In applying this definition, all facts and circumstances are taken into consideration. Minor repairs needed shortly after acquisition may not be betterments where the defects corrected are not material. Examples of non-material work from the regulation include equipment inspection, retuning, minor-component replacement, oiling, cleaning and a manufacturer-recommended triennial maintenance event.

In determining whether a betterment has been made, the post-repair state is compared to a baseline state. If the need for repair arose from damage that occurred during the taxpayer's use, the baseline is the property's condition immediately before the damage. If the need arose from normal wear and tear during the taxpayer's use, the baseline is either (1) if the taxpayer has repaired this aspect of the item before, its condition immediately after that repair, or (2) if not, the property's condition when it was placed in service by the taxpayer.

One example states that replacement of a building's asbestos insulation with health-safe insulation that is no "more efficient or effective than the asbestos insulation" is not a betterment. The example states that the building was built before the dangers of asbestos were known, and that the replacement neither corrects a defect, nor improves the building's capacity, productivity, efficiency, strength or quality. This example seems to indicate that post-repair increases to property value do not necessarily signal a betterment, as well as that later-discovered technical or scientific problems with property may not be defects.

Another example makes clear that a modification needed to meet a regulatory requirement is not necessarily a betterment. In the example, a meat-processing plant was told by the fire marshal that it needed to add a concrete lining to its walls to prevent a fire hazard. This was not a betterment because the plant was able to fulfill its function before the work, and the work did not aid its function. The existence of a regulatory requirement to perform the work was not relevant to the question of betterment. This could be particularly relevant to air-

For current aircraft owners, the fourth quarter is a good time to perform an annual inspection of your tax records. The following is a checklist of items that may apply to your business aircraft:

FLIGHT LOG - This is the single most important document to support the business usage and deductions of your aircraft. A detailed and timely kept flight log is required to provide support and justification for your aircraft deductions. When one reviews tax-court aircraft cases, lack of supporting documentation is one of the most common errors committed by taxpayers. Meeting notes or agendas, expense receipts and other explanations of each business flight should be retained and organized.

BUSINESS AND PERSONAL USE COMPUTATION - The IRS finalized regulations governing the personal entertainment use of business aircraft, affecting tax returns starting in 2013. Every passenger on every flight should be classified as a business or personal passenger, and allocation of all aircraft expenses, including depreciation and interest expense, is required based on the computed business use percentage. These regulations are complicated and should be reviewed with your tax advisor.

RELATED PARTY RENTAL RULES - In recent years, the IRS has stepped up its audit activities of business aircraft owners. One of the strategies to "slow down" the amount of depreciation available to aircraft owners is to invoke a rule regarding leasing of an aircraft to a related company. Since leasing an aircraft to an operating business is a common structure for many aircraft owners, you may want to review these rules with your tax advisor. This rule may require the adoption of a straight-line depreciation method and the re-computation of depreciation deductions for prior years.

STATE SALES AND USE TAX COMPLIANCE - If your aircraft is claiming rental or a charter-use exemption or interstate commerce exemption, computing and meeting minimum rental, charter or business hours by year end and filing the necessary sales tax return with state taxing authority will be critical.

BUYING A NEW PILATUS IN 2013

If you are in the market for a new PC-12 and your dealer has a plane available in inventory, purchasing and placing the aircraft in service before Dec. 31, 2013, will generate significant income tax deductions.

The timing of delivery in the fourth quarter is significant. Only a few weeks or days remain in the tax year, and you can take full advantage of 50 percent bonus depreciation by maintaining 100 percent business use on the aircraft.

Below is the depreciation schedule for a new PC-12 at \$4,600,000, placed in service in the fourth quarter, with 100 percent business use and combined federal and state income tax rates of 45 percent:

Depreciation Deductions	2014	2015	2016	2017	2018	2019	TOTAL
50 percent Bonus Depreciation	2,300,000						2,300,000
MACRS Depreciation Expense	115,000	874,000	524,400	315,100	250,700	220,800	2,300,000
Total Depreciation Deduction	2,415,000	874,000	524,400	315,100	250,700	220,800	4,600,000
Percentage of Purchase Price Depreciated	52.50%	19.00%	11.40%	6.85%	5.45%	4.80%	
Potential Income Tax Savings	1,086,750	393,300	235,980	141,795	112,815	99,360	2,070,000

LOOKING AHEAD TO 2014

The 50-percent bonus depreciation is scheduled to end on Dec. 31. There is a planning opportunity for prospective aircraft buyers to preserve the option of taking 50-percent bonus depreciation in 2014:

- Signing a binding contract to buy a new aircraft by Dec. 31, 2013
- Making a non-refundable deposit, the lesser of:
 - 10 percent of the cost, or \$100,000
 - The aircraft should have an estimated production period exceeding four months
- Taking delivery and placing the aircraft in service for Part 91 operation by Dec. 31, 2014
- 50-percent bonus depreciation can be taken on your 2014 income tax return

If completing a purchase in 2013 is not possible, this is an excellent opportunity to take advantage of bonus depreciation in 2014.

craft that are required to undergo changes due to airworthiness directives or service bulletins. The example suggests that, if the aircraft was operating effectively before a change became mandated, that change may not be a betterment.

Yet another example that may have relevance to aircraft considers the owner of a chain of retail stores who undertakes a “building refresh” that includes cosmetic layout changes, paint and redecorating of the building’s interior. These changes are found not to be a betterment. This could have application in analyzing aircraft paint and interior work.

II. RESTORATION

Work is a restoration if: (1) it returns to ordinary operating condition property that has deteriorated to a dysfunctional state of disrepair; (2) it replaces a major component or substantial structural part or set of parts; or (3) it restores property after the end of its class life to a like-new condition (as defined in either a federal regulatory guideline or the manufacturer’s specifications). Following a comprehensive maintenance program generally does not cause property to meet the like-new test. In particular, a regulation example describes an airline that performs routine maintenance, as well as heavy, extensive maintenance once every 10 years, and holds that the heavy maintenance does not cause the aircraft to experience a restoration under the like-new test.

Of these tests, the most frequently relevant to aircraft is the “major component” test. A “major component” is defined as “a part or combination of parts that performs a discrete and critical function.” However, an “incidental component,” even if it performs a discrete and critical function, will not, by itself, constitute a major component. An example given of an incidental component is the “power switch assembly” of a piece of equipment. The regulation notes that, although this piece is critical in that the equipment cannot function without it, it is incidental, and its replacement is not a major-component restoration.

Application of the “major component” rule to aircraft poses significant challenges because many aircraft parts serve discrete and critical functions. Presumably, this test requires the function to be both “discrete” and “critical.” Natural questions include: Is an aircraft item “critical” only if the aircraft cannot fly (even illegally) without it? Perhaps the focus on functionality, irrespec-

tive of regulatory requirements, that was expressed in the context of the betterment test has an analogy here. Further, when redundant equipment is present, does this prevent both the primary and the back-up equipment from serving a “discrete” function (e.g., the compass and the heading indicator are redundant. Does that make them both non-discrete)? Examples in the regulation suggest perhaps so. Replacement of three out of 10 HVAC units in a building is not replacement of a significant portion of a major component.

The major-component rule presents an interesting question for aircraft engines, which are almost certainly major components. In focusing on “replacement” rather than “repair,” does the major-component test treat the substitution of an engine due for overhaul with another recently overhauled engine differently from the overhauling of the existing engine? If so, overhauling the existing engine (possibly with the aid of a loaner) may be much more advantageous.

III. ADAPTATIONS TO NEW USES

Adaptations to new uses are improvements subject to capitalization. This test is concerned with changes that adapt property to a new or different use that is inconsistent with the taxpayer’s ordinary use of the property at the time originally placed in service by the taxpayer. This test would not seem to often apply to aircraft. Most aircraft modifications or repairs will be consistent with its existing use. An example would be certain changes needed to bring a Part 91 aircraft into compliance with Part 135. Even though a taxpayer, perhaps, would not have made the changes if the aircraft were to remain solely Part 91, the changes are likely consistent with Part 91 use and, therefore, are likely not adaptations. Examples of probable adaptations include converting an aircraft from use in carrying passengers to use in carrying cargo or refitting an aircraft to serve as an air ambulance.


AMOUNT SUBJECT TO DEPRECIATION/EXPENSING

The treatment dictated under the new rule applies to all direct costs of the improvement plus all indirect costs that either directly benefit from, or are incurred by reason of, the improvement. Amounts that might otherwise have been presently deductible can be rendered only depreciable if they are for work done in conjunction with work that needs to be depreciated.

There is no allocation. Thus, for example, if, an aircraft is disassembled for installation of an improvement, and the owner decides to take advantage of the disassembly to perform other non-improvement work that can be conveniently accessed due to the disassembly, the cost of the non-improvement work becomes a capital item (rather than a deductible repair) because the non-improvement benefited from the improvement. This does not, however, mean that any given shop visit will be either entirely deductible or entirely capitalized. If there is an improvement that occurs at the same time as non-improvement work, but that non-improvement did not benefit from, and was not incurred by reason of, the improvement, the non-improvement may still be currently deductible.

The amount to be capitalized may be incurred over more than one taxable year, and whether different amounts are related to the same improvement (and must therefore be depreciated) depends on the facts and circumstances of the activities being performed and whether the costs are incurred by reason of a single improvement or directly benefit a single improvement.

CONCLUSION

The issue of whether the costs for repairs, improvements or modifications of tangible property must be capitalized or may be presently expensed has long been fraught with ambiguity; to some extent it remains so. The new regulations establish a clear framework for undertaking the analysis. Work may be depreciable if it is non-routine, and either better the property, restores it or adapts it to another purpose. Each of these descriptions carries with it a great number of specific rules. This memorandum is not a definitive treatment of the subject and has omitted discussion of various rules. Be sure to consult the regulations themselves, and a tax professional prior to making any decisions. 

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COMBATTING SULPHIDATION IN PT6A ENGINES

By Tony Rossi, Engine product line specialist for Jet Support Services, Inc.

Every Pilatus operator should know the importance of regular engine desalination and compressor washes. But are you aware that you should be doing a compressor-turbine wash in conjunction with your compressor wash? Pratt & Whitney Canada Service Information Letter PT6A-206-Revision 1 was released April 25. In it, PWC emphasizes the importance of an effective washing procedure (and drainage) for your engine in accordance with the Engine Maintenance Manual. You can find this procedure outlined in section 71-00-00 – Cleaning.

Every one of us has probably seen, at one time or another, the pictures of the four CT Blades showing the four different stages of sulphidation. Stage 1 is basically a minor coating loss with no action required. Stage 2 shows more deterioration and what appears to be a blistering of the surface. This requires repetitive inspections, according to the Engine Maintenance Manual. At Stage 3, open blisters can occur, and the EMM recommends removal of the blades. Stage 4 is where a loss of structural material may be evident along with the possibility of component failure.

4 CT BLADES IN PROGRESSING LEVELS OF SULPHIDATION

When you do a compressor wash, much of the contaminants and salt deposits removed from the compressor end up on the turbine! Keep in mind that the reduction gearbox housing is also prone to corrosion and is the reason you should remove your exhaust-duct drain plug to ensure all wash fluids are drained from your engine. When the washes are done at one time, the compressor wash always comes first. The turbine wash is done in a similar manner to the compressor, but a special nozzle is used and inserted directly into an igniter port.

These internal engine washes are always accomplished while the engine is running at 10-25 percent Ng, using water or a cleaning solution. If you aren't sure of the quality of your tap water, use distilled water instead. Most washes with water-only are considered "desalination" washes. When a soap mixture is added, the wash is usually referred to as a "performance recovery wash." That term is used because a dirty compressor can and will degrade your engine performance. The cause of this is the dirty compressor's poor efficiency, which leads you to burn more fuel to and raise internal (T-5) turbine temperatures to achieve the performance you want.

Stage 1 – Mild sulphidation



Stage 2 –Oxide failure



Stage 3 -Severe sulphidation



Stage 4 - Perforation





Stages of Sulphidation




North American Corrosion Severity Map, extracted from FAA Advisory Circular 43-4A,

A once-per-week schedule should be in place for preventive desalination washes (water only) for engines with minor sulphidation problems or those not operating in an environment where sulphidation can be extreme. In severe environments, once a day is recommended. Periodic borescope inspections can help you evaluate the effectiveness of your engine-washing program. All these recommendations can be found in your maintenance manual. If you operate your aircraft within 150 miles of a coastline in the U.S., you are at even more risk for sulphidation. (See the map to the right)

How important are these washes, really? The main cost driver for your hot section or overhaul maintenance is the compressor turbine (CT) blades. List prices for PT6A-67B/P engine models:

PT6A-67B:	\$76,703.40
PT6A-67P:	\$82,069.80

Most FBOs charge in the range of \$450-\$500 to do both a compressor and compressor-turbine wash. One prominent FBO I contacted recommends the washes be done as part of every phase inspection or at least every 200 hours. Considering the CT blade costs, even if you don't have the facilities or equipment to do this preventive maintenance yourself, it would be a wise investment. And remember, the word "corrosion" is never going to be something you see covered under your warranty! 

Tony Rossi is a seasoned sales and service professional with nearly 25 years' experience in the aerospace industry. As a product line specialist for JSSI, he is responsible for facilitating high quality, cost effective, and timely turbine engine repairs and overhauls specific to the Pratt & Whitney product line. He is an expert on the PT6A and JT15D engine lines on both the maintenance and sales sides and has worked for such companies as Pratt & Whitney Engine Services, Inc., Dallas Airmotive, Inc. and Timken Aerospace Aftermarket Solutions.

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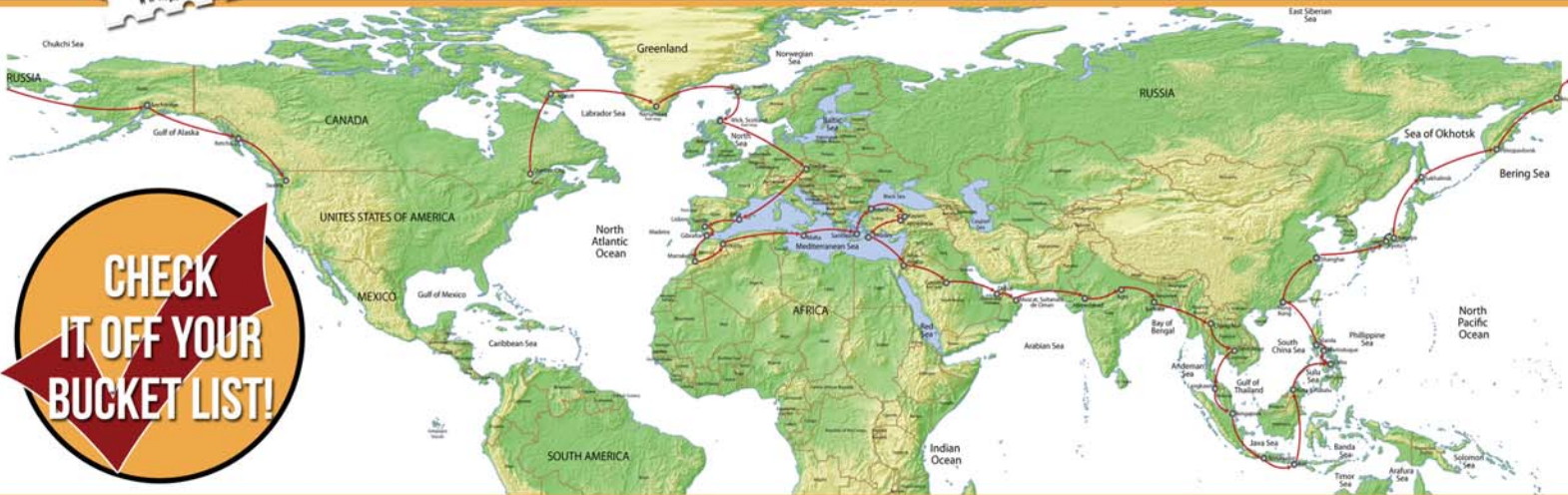
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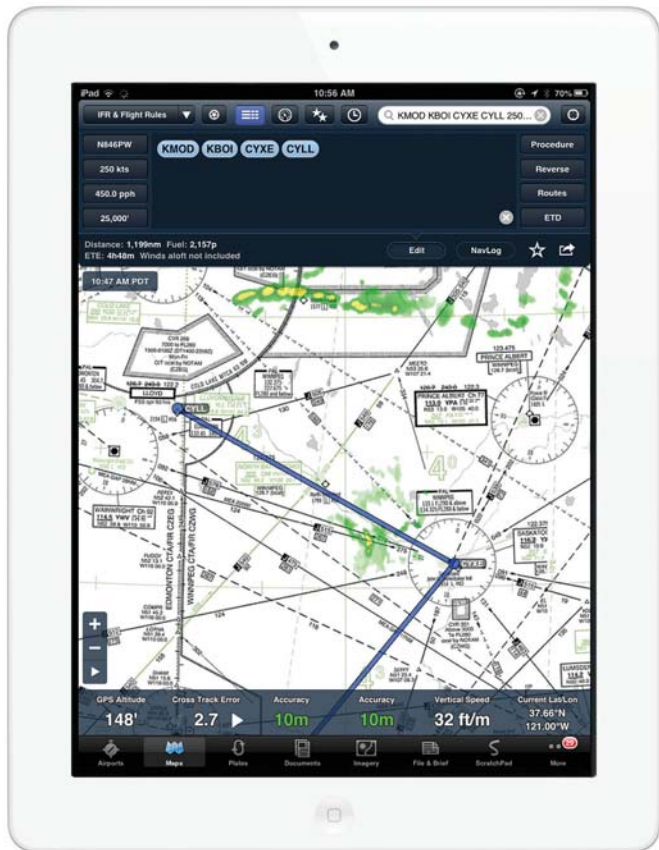
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As with U.S. charts, ForeFlight allows you to display Canadian en-route and visual charts with overlays showing graphical weather and TFR data. Canadian plates include aerodrome charts, approaches, arrivals and departures, all in a format very similar to U.S. FAA plates. The airport info pages are similar to those for U.S. airports, except that U.S. Airport/Facilities Directory (A/FD) info is replaced by Canada Flight Supplement (CFS), which is generally similar. The app lists FBOs, including fuel prices where available – which may look too good to be true until you realize they’re listed in Canadian dollars per liter.

A couple of ForeFlight’s features that aren’t specific to Canada are very useful as we plan this trip: Altitude Advisor lets you preview head/tailwinds at various altitudes and look at the effect on trip time (in this case, better up high). And a Route Advisor will show recent ATC clearances, which gives

you a good idea what to expect before you file. A Canadian data subscription for Foreflight runs \$150 per year, which is less than Jeppesen charges for a one-time trip kit. For more information, see the iPad App store or browse Foreflight.com/canada.

INTERNATIONAL IFR CHARTS AND APPROACH PLATES:

Choice 2 – Jepp FD

Jepp FD hasn’t changed too much since we looked at it last. It’s basically an electronic replacement for all the information you’d otherwise find in the ubiquitous Airway Manual binders, and that’s significant, because there’s more in those binders than charts.

The (mostly) text Airway Manual pages are invaluable when flying outside the U.S. because they include a ton of information that’s hard to find otherwise. In this case, how the Canadian airspace is organized (for IFR purposes, by Flight Information Centers, with boundaries that mostly follow

THE BEST IPAD APPS: WINTER, 2014

CANADA TRIP KIT ■ By John D. Ruley

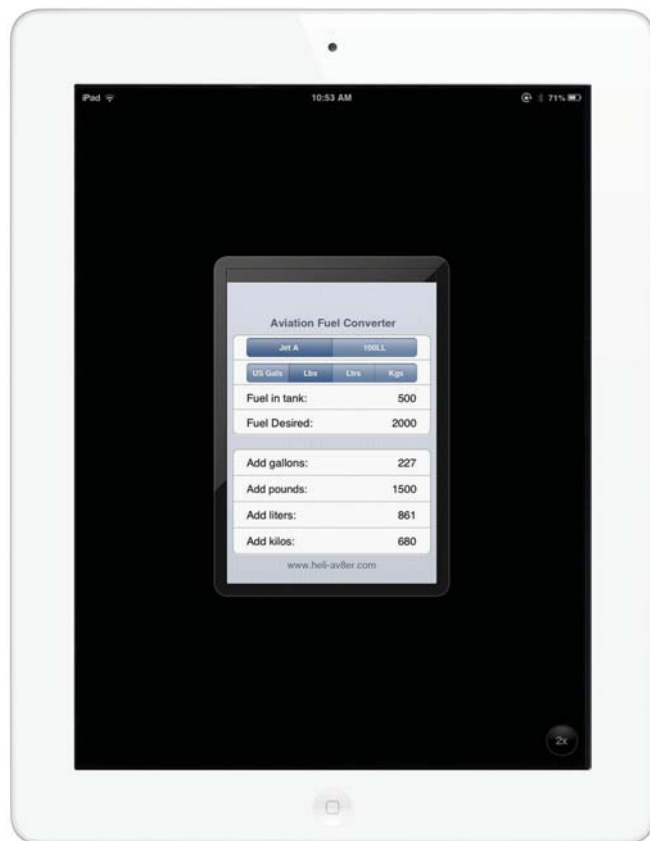
Almost exactly one year ago, my column described an electronic “trip kit” for a visit to Mexico. This time I’m headed north of the border rather than south – departing from my home base at Modesto, Calif., (KMOD) to Lloydminster, Alberta, (CYLL) with fuel stops at Boise, Idaho, (KBOI) and Saskatoon, Saskatchewan, (CYXE) – about 1200 nautical miles, which looks like four and half hours at FL250 and 250 knots.

INTERNATIONAL IFR CHARTS AND APPROACH PLATES:

Choice 1 – ForeFlight Mobile

When I last looked at this topic, there really was only one choice for international IFR charts and plates, Jeppesen’s Jepp FD. It’s still a good choice, which I will get to shortly, but there is now

a viable alternative: ForeFlight Mobile offers Canadian data including both low- and high-altitude instrument charts, visual navigation charts (the Canadian equivalent of sectionals), plates and airport information, all based on data from Nav Canada.



provinces, meaning we will deal with two when traveling from Saskatoon to Lloydminster). Spending some time with the Airway Manual is a very good idea, especially the first time you fly outside U.S. airspace.

As I noted in our Spring 2013 column, Jepp FD now includes weather features, and these appear to work in Canada as well as in the U.S. Unfortunately, the app continues to lack fundamental flight-planning tools. It doesn't give you an estimated time-enroute, and it lacks the kind of information ForeFlight provides about FBOs and fuel prices.

On the other hand, Jepp FD has one huge advantage for international flights: The coverage is seamless, continuing north and south of the border. ForeFlight will show either U.S. or Canadian charts but not both. You have to switch manually as you approach the border, which seems needlessly crude.

Which to choose? For this trip

the captain is bringing paper Jepp charts, and I'll be using ForeFlight from the right seat. For more information, look for Jepp FD on the iPad App Store or browse jeppesen.com

CANADIAN AIRPORTS: Canada Aviation Airport Guide

When we started planning this trip, some months ago, I looked for a resource along the lines of Flight Guide, a book (or app) that would list Canadian airports and FBOs, with helpful information such as which airports have a nearby hotel, rental car, etc. Over the years, I've found this sort of thing invaluable for diversion planning. I was surprised – and a little disappointed – to find that nothing quite like that exists for Canada. The closest I've come is Canada Aviation Airport Guide. It's an iPhone app that also runs on the iPad, though only in portrait mode. The app allows you to select airports by province, identifier or location.

Once an airport is selected, basic text information is available, and the app also provides links for ground directions from Google Maps, download airport diagrams in PDF format, and view METAR/TAF and NO-TAM data from Nav Canada's aviation weather site. In effect, the app is a gateway to publicly available information, but it does provide a convenient way to find it, though in all honesty, ForeFlight (with a Canada data subscription) provides more information. On the other hand, the price for Canada Aviation Airport Guide is quite reasonable: Just 99 cents on the iPad App store. For more information, iTunes.Apple.com/us/app/canada-aviation-airport-guide.

CONVERTING POUNDS TO GALLONS AND KILOGRAMS TO LITERS:

Aviation Fuel Converter

One potential problem when traveling to Canada is confusion

over fuel orders. Both AvGas and Jet-A are sold by the liter. In turboprops, we mostly think about fuel in pounds and use rules of thumb (6.7 pounds per gallon) to convert from weight to volume for fuel orders. Of course, you can look up a similar rule of thumb (1.6 pound per liter), but since we've got an iPad, why not let it do the math? Aviation Fuel Converter is a very simple app that lets you enter how much fuel you've got and how much you want to wind up with, and then tells you how much to add – in gallons, pounds, liters or kilos. It's designed for the iPhone, but works fine on my iPad – and set me back another 99 cents. You can look it up on the iPad App store or browse iTunes.Apple.com/us/app/aviation-fuel-converter for details. *POPA*

John D. Ruley is an instrument-rated pilot, freelance writer, and a volunteer pilot with Ligainternational.org and [Angel Flight West \(AngelFlight.org\)](http://AngelFlightWest.org). You can reach him by email to jruley@ainet.com.

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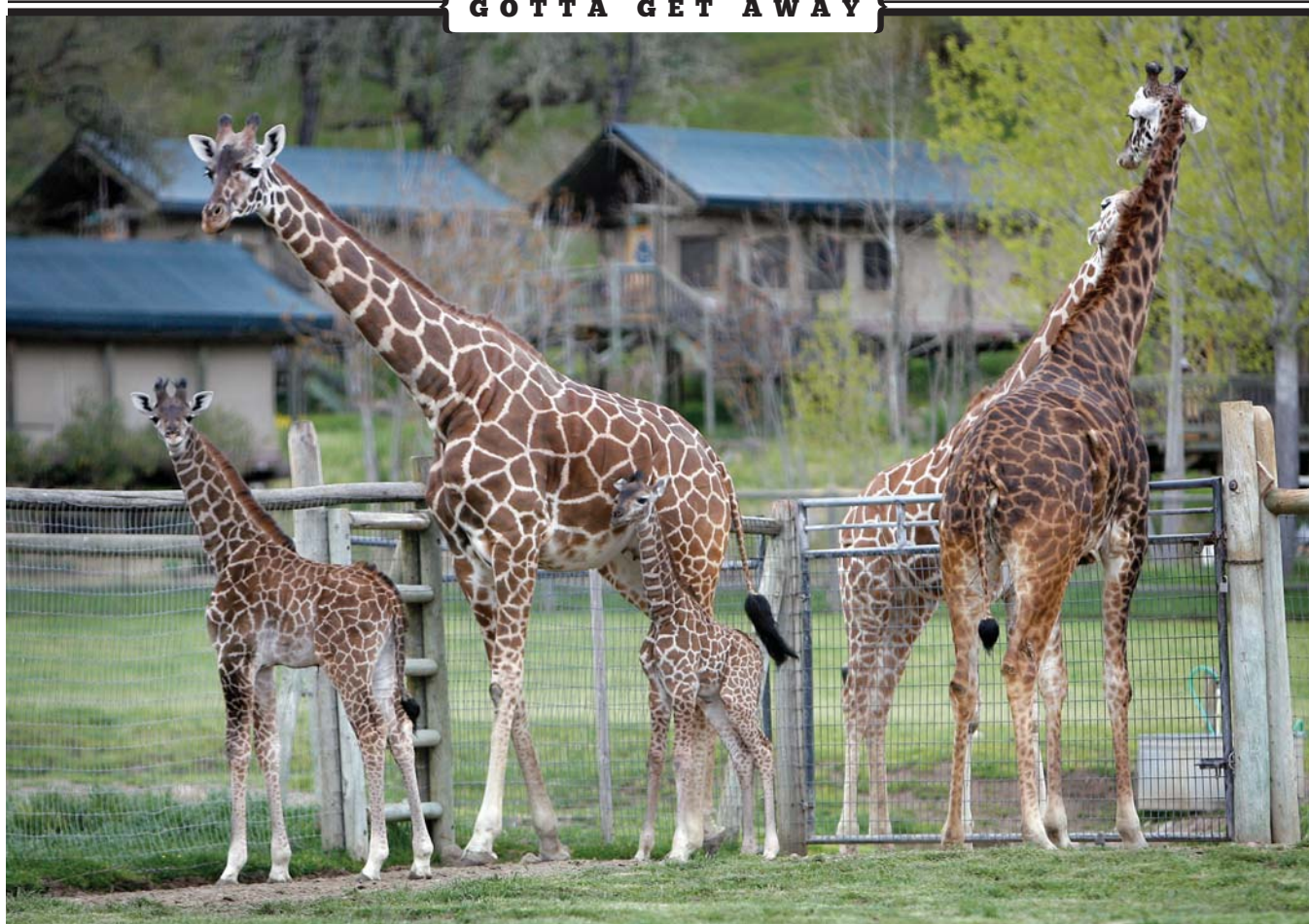
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ENJOY YOUR SAFARI IN MEASURED DOSES

BY MICHELLE CARTER

Ready for an African safari experience — without the shots, malaria drugs and jet lag? Then head for the Sonoma County Airport (KSTS) and Safari West in Santa Rosa, Calif.

Safari West offers more than 900 exotic animals from 90 different species spread over 400 acres of dramatic landscape of the Sonoma County Serengeti, and you don't even have to update your passport.

Established by Peter Lang in 1989, Safari West gained full accreditation in the American Zoo and Aquarium Association, one of only six private facilities in North America granted that privilege. Under the direction of Peter's wife

Nancy, Safari West also is breeding several endangered bird species. The ongoing mission of Safari West continues to be wildlife preservation through breeding, education, research and public interaction.

In the middle of Northern California's Wine Country, you can climb into open-air trucks (actually 1950 Korean War vintage safari craft) and take

a three-hour drive through zebra, gazelles, oryx, antelopes, cape buffalo and wildebeests. With good timing, you can get eye-to-eye with the giraffes! A walking portion of the three-hour tour will introduce you to exotic birds in an open-air aviary and cheetahs in a unique preserve.

Should you like to learn more about the cheetahs' desperate



battle to avoid extinction, you can schedule a Behind the Scenes or Fast Cat Alley visit with the cheetah handlers and hear why the world's fastest land animal is becoming Africa's most endangered big cat and how it's losing its natural habitat and prey base to the encroachment of people and livestock.

The best part of Safari West may be an overnight stay in one of the luxury tents, imported

from Africa where they are the mainstay of the nicest safari camps. Prepare to "glam-camp" in one of the canvas-walled tents with its own viewing deck. Each unit features unique, African-motif decorating, polished wood floors, gleaming copper basins in the private bathrooms and one-of-a-kind hand-hewn furniture.

A massive outdoor grill is the centerpiece of the onsite restaurant that will complete the

overnight package. And did I mention the Sonoma County wines?

A whole host of tour packages are available at Safari West with themes of romance, photography and ballooning. This last tour allows you to soar above the beautiful Napa Valley just after sunrise with Calistoga Balloons-Napa Valley, followed by a champagne breakfast with your pilot(s) at Solage Calistoga.

For a Safari West adventure, fly into KSTS

where two FBOs (KaiserAir and Santa Rosa Jet Center) offer every service for General Aviation pilots, including Av gas and jet fuel. Rental cars are available but, if you make arrangements ahead of time, Safari West will be happy to pick you up!

And if you'd like to work in some winetasting, call Wine Country Journeys and choose from several different winery tours in an

eight-person van. The service is door-to-door so you won't have to limit yourself.

IF YOU GO...

SAFARI WEST
3115 Porter Creek Road,
Santa Rosa CA 95404
707.579.2551
SafariWest.com

WINE COUNTRY JOURNEYS
707.478.7317
WCJourneys.com

SONOMA JET CENTER
6000 Flight Drive,
Santa Rosa CA 95403
707.523.2800
SonomaJetCenter.com

KAISERAIR SANTA ROSA JET CENTER
2240 Airport Blvd.,
Santa Rosa CA 95403
707.528.7400
KaiserAir.com

STEAMBOATING IN THE HEARTLAND

BY MICHELLE CARTER

Feeling the pull of America's Heartland? Then the Pulse of Middle America, the Mississippi River — all 2,500 miles of it — should satisfy that itch. Whether you've got a taste for the delights of naughty New Orleans, the wide prairies of Minnesota (where the river is just a trickle and you can actually step across it!) or the upbeat



WEEKENDERS

tempo of Memphis, the Mississippi will take you there.

With a nod to the time when life in the Heartland moved to the swells and shallows of the river, you can still board a steamboat and feel the river beneath you as you travel. The American Queen, the only authentic overnight paddlewheel steamboat in the country, delivers that experience in three- to 11-night cruises.

Steamboating is a unique blend of American beauty and history, acclaimed cuisine, lively showboat-style entertainment, and the adventure of exploring Mark Twain's riverside America — from the water!

Although you can launch off on a steamboat adventure from such cities as New Orleans, St. Paul and Cincinnati, Memphis is the American Queen's homeport and a great destination city on many levels. Such diverse attractions as Elvis Presley's Graceland and the National Civil Rights Museum will

occupy time before and after the cruise if you have it to spare

Once you're on the Father of the Waters, the American Queen offers most of the amenities you've come to expect from ocean cruising: Several dining rooms, nightly dancing to swing and Big Band music, showboat style entertainment, daily lectures by the onboard river historian and all the white-enameled wrought-iron in filigree patterns that you expected. But unlike some other cruises, you can leave your tux at home; "elegant casual" (whatever that means) is the dress code for traveling with the Good Lady.

Six decks (including one with nothing but a pool and work-out facilities) offer en suite rooms from the cheap seats (inside single cabins) to elegant staterooms with their own bay windows and verandas overlooking the water.

The dining options on the First Lady of the Mississippi offer a movable feast, starting with the J.M. White Dining Saloon where Chef Regina Charboneau holds court three meals a day, the Front Porch Café and the River Grill and Bar. According to the brochure, "Should you be feeling peckish in the wee hours, you will find the Moonlight Supper in the Engine Room Bar offers surprising midnight delights." Hmm. And you can always find sweet tea over ice in the Main Deck Lounge. (I mean, it is the South after all!)

Perhaps the best way to enjoy the American Queen is on one of



the themed cruises. For example, the Gardens of the South cruises stop at Natchez, Miss., to show you the antebellum beauty of the Rosalie and Stanton estates, at St. Francisville for a tour of Rosedown, at Memphis for the Dixon Gardens and then New Orleans to see Long Vue House and Gardens. Rosarians and other horticulturists will join the group to offer insights.

If you're movin' on the river, you might as well soak up the atmosphere.



IF YOU GO...

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40 S. Main St., 21st Floor,
Memphis TN 38103
901.654.2600
AmericanQueenSteamboatCompany.com

GRACELAND
3765 Elvis Presley Blvd.,
Memphis, TN 38116.
901.332.3322 or
800.238.2000
Elvis.com/Graceland

NATIONAL CIVIL RIGHTS MUSEUM
450 Mulberry St
Memphis, TN 38103
901.521.9699
CivilRightsMuseum.org



COLD WAR HISTORY ALONG THE ATOMIC TRAIL

BY MICHELLE CARTER



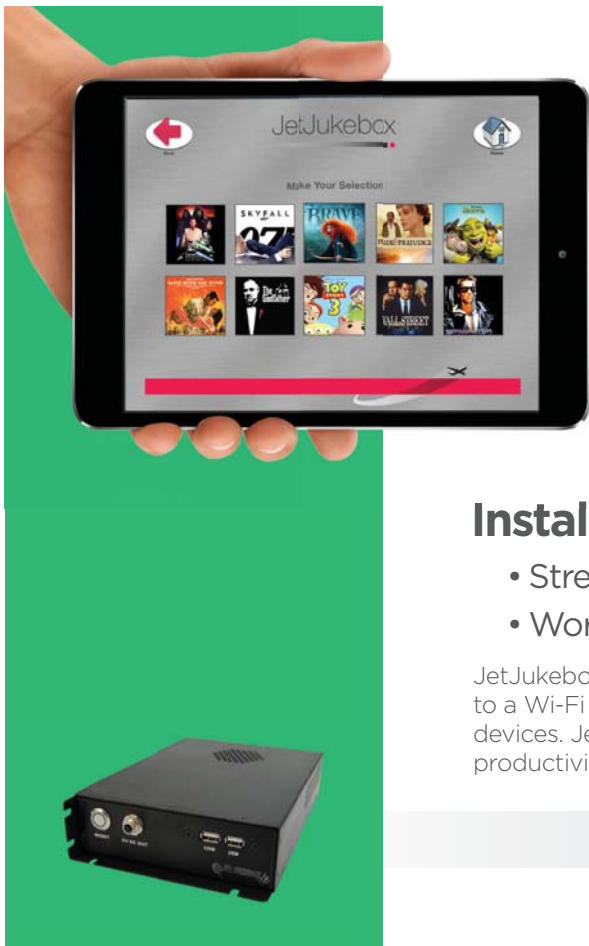
Now that we're three generations removed from Hiroshima and Nagasaki and another generation from the end of the Cold War, America's race to build, test and deliver catastrophic weapons has developed into an Atomic Tourism industry in the American Southwest.

If you're ready to look at the development of nuclear weapons from what now seems like a safe distance, Tucson, Ariz., is a good place to start. Ryan Airfield (KRYN) serves as the General Aviation reliever airport for Tucson International Airport. It's about 10 miles southwest of the city.

Pick up your rental car from Enterprise and head out to Davis-Monthan Air Force Base five miles southeast of Tucson. The Pima Air & Space Museum is just next door.

A key attraction at Pima is a bus tour through the Boneyard, the repository of thousands of retired military aircraft managed by the Aerospace Maintenance and Regeneration Group.

Hangar 3 at Pima is dedicated to World War II aircraft. Exhibits include a B-24 Liberator heavy bomber and a Mitchell B-25 of the type used in the Doolittle raid



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WEEKENDERS



on Tokyo, an A-25.

Also accessed through Pima is the 390th Memorial Museum, which celebrates the 390th Bombardment Group (H), an Eighth Air Force unit that was based in England from 1943-1945. It just re-opened after a complete renovation and is chock-full of World War II images, memorabilia and personal histories.



At the Titan Missile Museum in nearby Sahuarita.

This preserved Titan II missile site, officially known as complex 571-7, is all that remains of the 54 Titan II missile sites that were on alert across the United States from 1963 to 1987.

If you're sufficiently intrigued by now, head back to Ryan for your plane and hop over to the Los Alamos County Airport (KLAM) on the high mesa of the Pajarito Plateau. The airport was built in 1947 to

serve the growing needs of the Los Alamos National Laboratory after it had completed its original task — the Manhattan Project.

This is where you'll find the Bradbury Science Museum

(named for the second director of the lab Horace, not science fiction author Ray).

The museum traces the story

of Robert Oppenheimer and his team of scientists who built the history-altering bombs known as Fat Man and Little Boy, here in the shadow of the Jemez Mountains, 35 miles northwest of Santa Fe.

IFYOU GO...

PIMA AIR AND SPACE MUSEUM

6000 E. Valencia Road
Tucson, AZ 85706
520.574.0462
PimaAir.org

390 MEMORIAL MUSEUM

6000 E. Valencia Road
Tucson, AZ 85756
520.574.0287
390th.org

TITAN MISSILE MUSEUM

1580 W. Duval Mine Road
Sahuarita, AZ 85629
520.625.7736
TitanMissileMuseum.org

BRADBURY SCIENCE MUSEUM

Mail Stop C330
Los Alamos National Laboratory
Los Alamos, NM 87545
505.667.7000
LANL.gov/museum



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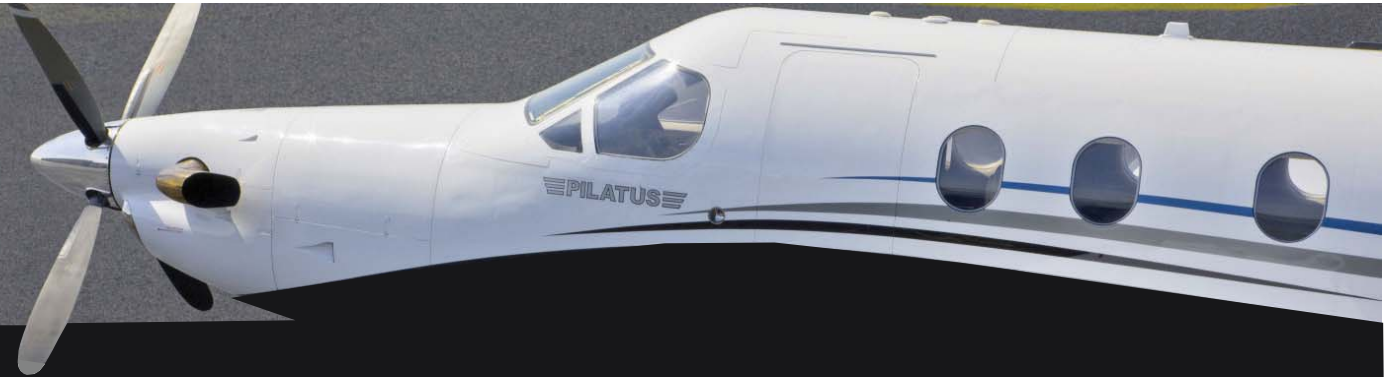
MEMBERS:

Convention details will be announced in the monthly e-blasts. On-line registration will be available in March.

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CAPT. A. G. LAMPLUGH,
FOUNDER BRITISH AVIATION INSURANCE GROUP, LONDON.
CIRCA EARLY 1930S
By Lance Toland



It's not surprising that this famous aviation quote originated in the early days of aviation insurance. Today it still holds a powerful message for those responsible for obtaining aviation insurance for a company's department with the largest potential for catastrophic loss. Engaging an aviation insurance broker is a very important decision that must be weighed not on comparative pricing but rather established verifiable experience and world-wide support.

The Large Alphabet houses, Aon, Marsh and Willis and others, operate aviation-insurance departments and offer good services usually collateral to larger client property and casualty insurance placement. Typically, they claim they are pumping millions (airline premiums) into the aviation-insurance market and have clout, but usually you will find your account filed and, in their eyes safe, knowing your policy is safe from competition and market review. Sadly, several

of the afore mentioned agencies have been fined heavily for favoring markets to support undisclosed contingency fees, whereas engaging a specialized General Aviation insurance practice, at least in this writer's opinion, provides a transparent, focused, personalized aviation option.

My firm operates two turbine-powered aircraft, and I certainly do not want my aviation-insurance placement getting lost in the enormity of a larger brokerage house. Additionally, your close investigating here will reveal a revolving door filled with agents and support staff jumping ship, running from company to company as corporate policies and personnel swings ebb and flow.

When approaching aviation-insurance specialists, you should feel confident in questioning them on their experience and asking for specific examples



of cases they have dealt with in the past to include physical damage claims as well as casualty losses involving litigation and loss of life. Make sure you explore the following.

TENURE: HOW MUCH AVIATION EXPERIENCE DO THEY HAVE? HOW LONG HAS YOUR BROKER BEEN WITH THE FIRM?

Interestingly enough, if you ask your agent how long he or she has been in the business, you may be surprised. Many have been with the firm for a while but not in aviation. Many of the large insurance houses are realigning and cutting back their aviation departments because of lower revenues and lack of production. Many aviation agents are scurrying off to other firms, hoping to drag some business with them.

LARGEST CLAIM INVOLVED IN? ANY ERRORS AND OMISSIONS CLAIMS?

Few agents have ever been involved with more than a small incident claim involving physical damage. Dig deep and see what experience your agent has with catastrophic loss, especially loss of life or bodily injury. Look into any adverse law suits that were filed and get the real story. It's easy to track. In the case of Errors and Omissions, these claims are sometime settled with mutual NDAs. Seek answers.

DO THEY HAVE SUFFICIENT SENIOR UNDERWRITING CONTACTS?

Consider their relationships with underwriters and close proximity to them. Most agencies work off emails and faxes, and many have never spent more than a few

minutes of chit-chat with underwriters at the NBAA. They rarely see them in their respective offices. Why? It costs money to travel and is time consuming. You need an agent who is up-close-and-personal with his underwriters and receives close attention and support, not just email and fax responses to details and quotes.

DOES THE BROKER HAVE A BACKGROUND AS A PILOT?

Does their firm operate aircraft? In my opinion, having a solid aviation background provides knowledge of our unique industry. There are so many areas and subspecialties in aviation that having no experience is frightening at best. Any firm that does not operate aircraft is lacking in overall understanding of your basic risks and unsupportive of our business aircraft industry.

CAN THEY PROVIDE CONTRACTUAL ADVICE?

This is a tricky one. Think about the experience comments above, but more importantly ask if your agent has any legal background especially contracts. You need an agent who understands and has the internal resources to review and provide good advice. A cute voice over the phone could land you on the rocks.

Now with aviation-insurance premiums at historic lows, it's easy to become complacent with your aviation-insurance placement. Now — not next week — is a great time to look into this most important aspect of a flight manager's responsibility. *POPA*

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AVIATION ETRAINING

COMPUTERS ARE AN ECONOMICAL WAY TO LEARN
 MORE ABOUT AVIATION ■ By Ron Cox

eTraining has been around the aviation community for a number of years. It has been presented under some old terms as CBT or computer-based training or electronic-enhanced training. These terms bring up some very visceral feelings in the aviation community, depending on whether you are trainer or the recipient of the training.

eTraining or CBT appeals because it's an economical way for aviation trainers to reach a wide audience at minimum cost. The pilot being trained also sees it as a way to standardize his or her training time. In pre-laptop or iPad days, CBT was delivered via old floppy disks and later updated to the CD-ROM disks being used in today's desk or laptop world. The problem to this approach is that the training was tied to specific machines that could be perceived as cumbersome. The other deficit to this mode of training is that the training pilot had very little interaction with the instructor. Pilots felt isolated in the learning environment. Face-to-face involvement in the learning process was — and is still perceived to be — a highly sought after commodity.

The digital world has advanced rapidly in the last seven years with the onset of “smart phones” and tablets used to transmit data in a very mobile society. Universities, large trade organizations and governments early on recognized the value and need for eTraining in order to enhance and, in some cases, replace the standard classroom lecture. Escalating prices at the private and public colleges

have prompted some of the most prestigious centers of higher learning to offer their classroom courseware in an electronic or digital format and thereby reduce the cost per student.

The aviation world has not been immune to the digital world of high visual graphics in the modern classroom environment. Aircraft manufacturers such as Boeing, Airbus, General Dynamics and Canadair have long used enhanced graphic presentations in their engineering, maintenance and pilot-training programs. In the last 10 years, this trend has been drifting down to the General Aviation community as witnessed by digital programs sponsored by Pilatus, Socata, Cessna, Beech, Cirrus and Piper in marketing their products to the aviation community and training pilots.

Since cost is a major factor in developing electronic-training programs, companies such as Sporty's, King and AOPA have developed digital programs aimed at aviation general subjects such as weather, engines, flight maneuvers, aircraft electrical systems and general in-flight safety issues. These programs have been received with little enthusiasm in the aviation community except for pilots seeking Private, Instrument, Commercial or ATP ratings or most recently to renew their CFI ratings.

Some of the larger simulator companies have, or presently are, using eTraining to supplement their ground training programs to reduce the time the

pilot spends at the training center. A pilot undergoing Cessna Citation X Refresher Training is sent an electronic training package 30-45 days before he or she shows up at the training center. Most of the systems review is outlined in the electronic training package to include preparation for the simulator session's line-oriented flight training programs. Thus the pilot is well-prepared when he or she begins the training session, reducing his or her time away from primary flight jobs. The eTraining provided is presented via tablet or laptop, making the pilot's prep before the refresher training very productive. Pilots are able to review the training material between flights, at home or in their hotel. Much of the pre-training electronic material can be used in the simulator as part of the training via a portable tablet such as the iPad.

The advantages of eTraining are sometimes obvious but still need to be stated.

It fits your schedule. Time is a commodity that most of us just don't have in the fast-paced business world. Multi-tasking is not just an option to survive in a highly competitive world, but a necessity to link a strong professional life with your personal and social needs.

Train anywhere. As stated in the example above, training can be accomplished in a variety of settings: home, travel, commuting, remote office or hotel. Physical limitations such as classrooms or conference rooms are removed from the learning formula.

Automated record-keeping. Chapter and end-of-course exams are codified for verification by employers or insurance companies as to the attendance and competency of the training pilot.

Aircraft manufacturers such as Boeing, Airbus, General Dynamics and Canadair have long used enhanced graphic presentations in their engineering, maintenance and pilot-training programs.

Learning assurance. Chapter tests or course quizzes ensure that the training pilot understands and comprehends the topic and subjects being addressed in each learning module.

Enhance learning. This is another aspect of eTraining that is unique to the use of enhanced graphics to emphasize complex training concepts through visualization using digital graphs, videos or illustrations to break down the learning to understandable modules easily digestible by all training pilots.

Courses such as the Pilatus Owners and Pilots Association PPPP, Malibu Mirage Owners and Pilot Association Safety Foundation, TBM Owners and Pilot Association Safety and Proficiency Program, and BBBP are aircraft-specific safety-enhancement programs. These programs utilize combinations of traditional ground-school lectures, in-flight aircraft training or supplemental electronic programs authored by organizations and individuals recognized as experts in their respective fields. Many of these programs provide participating pilots, aviation-insurance premium discounts to offset the additional costs to participate in these programs. Nor-

mally, as previously stated, these programs are enhancement programs to insurance-required annual refresher training. For the most part, these programs are not presented in an eTraining mode, but some are internet-dependent for their presentation method.

My own company, Ron Cox Aviation Services, has developed a combination electronic eTraining and in-aircraft program, that allows the pilot to complete the ground training before the flight instructor arrives. This has the added benefit of reducing the time the instructor has to be on site and thus the cost of the training. For those who like the traditional method of learning, a combination of the electronic eTraining is used in the ground school along with instructor input to teach the course. Presently, the eTraining programs are ready for the P-12, but will be ready for the TBM, Meridian and King Air in the near future.

Pilots transitioning into flying and later into more sophisticated aircraft are familiar with the digital world. They have used digital devices and programs in their previous educational courses and continue its use in their professional lives. They are predisposed to use it in their flying career. One only has to look at the Technical Advanced Aircraft used in today's training and business world, and number of aviation "apps" available to smartphone users to see the results the digital world has had on the aviation community. The advancement of Honeywell's Apex, Garmin's G-1000, and Collins Pro Line 21 avionics are a direct result of this digital development in the cockpit of today's aircraft.

It is only the beginning of how we will train and fly well into the 21st Century. If you have not experienced digital use in your own aviation career, try some of the offerings available in today's aviation marketplace. It will allow you to enjoy the thrill of flight each and every time, "we slip the surly bonds of earth." *POPA*



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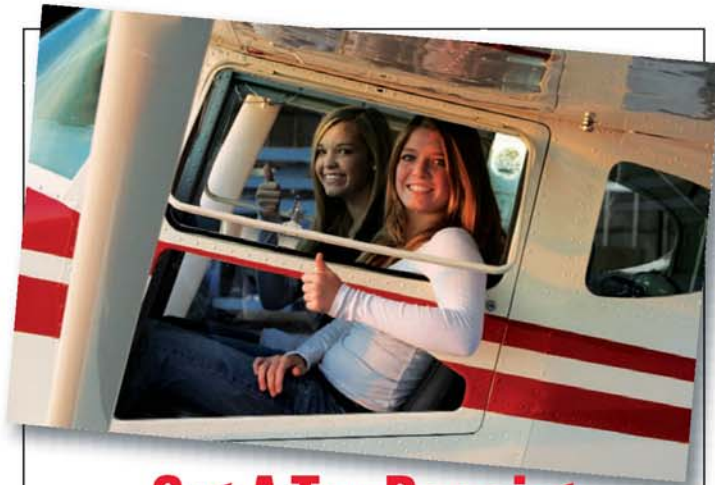
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2013 DEPRECIATION PLANNING

By Harry Daniels, CPA, CFP, PFS, CVA

As we head to the end of 2013, you should be mindful of a couple of things regarding your airplane. All aircraft owners are interested in their depreciation deduction and how any 2013 additions will impact their return. Let's have a brief discussion regarding the 2013 depreciation rules and methods and the brand new FINAL regulations pertaining to repairs and capitalization that are hot off the press and became effective on Sept. 19. The new regulations generally apply to years beginning Jan. 1, 2014, with possible application back to Jan. 1, 2012. Already confusing, isn't it.

Several recent tax court cases in Again we have the 50 percent bonus depreciation for NEW equipment purchased in 2013. And, in the case of noncommercial airplanes, if you make the down payment and enter into a binding contract to buy the plane in 2013, you can take delivery in 2014 and still be eligible for the bonus depreciation for 2014.

This is significant for airplanes because at this time I don't know if Congress will leave the bonus depreciation on the books in general for 2014 or not. Bonus de-

preciation has an advantage over Section 179 expensing elections in that bonus depreciation can be taken even if there is a loss or if it creates a loss. This opens the door for the possibility of a carryback of the loss to a prior year for an immediate tax refund. Or you can elect to carry the loss forward to offset future tax obligations.

For 2013, we have a fantastic Section 179 option. The maximum Section 179 deduction is a phenomenal amount of \$500,000 based on a maximum \$2 million of 2013 purchases. Another beauty of Section 179 is that it applies to both NEW and USED equipment. A serious drawback is that the deduction is limited to income and cannot be used to create a loss. This can take some planning if you have a large amount of qualifying property being purchased in 2013. The downside for Section 179 is that for 2014 the amount is scheduled to be reduced from \$500,000 all the way down to \$25,000. Ouch! Keep in mind that it is possible to combine Section 179 and the bonus depreciation to create a customized result. Thank you for computers and tax software.

Shortly after the FedEx case in 2005 involving that company's aircraft, the IRS started a project that has taken them seven years and four attempts to finalize. The IRS has now issued the final regulations pertaining to expensing and capitalization decisions.

While we have all of these nice depreciation options and new requirements, they are useless if the IRS comes in and denies your deduction for the business use of your plane. Can they do this? You bet they can, and it is easy for them to do so.

The beauty is that the final regs retained the provision that recurring and prescribed maintenance (TBOs and annual inspections) do not have to be capitalized.


It is also possible that you can apply this to your 2013 return and maybe even go back and amend your 2012 return and expense the annual or TBO.

It is expected that the regs will impact all businesses that have depreciable assets. It is also expected that the IRS will be flooded with a rash of Form 3115s requesting an automatic change in accounting to comply with the new regs. While the final regs have been "improved" over the temporary regs to remove some of the kinks, there are still many things that will drive you up a wall such as several new year-by-year elections that will need to be made on your return for these regulations. By the way, do you have a written policy for your company's guidelines for capitalizing or expensing your expenditures? I hope so because you will need one for 2014.

While we have all of these nice depreciation options and new requirements, they are useless if the IRS comes in and denies your deduction for the business use of your plane. Can they do this? You bet they can, and it is easy for them to do so. Section 274 requires that the business use of your plane be documented. The IRS wants to see the who, what, where, when and most importantly the WHY of the business flight. Without the documentation, you have just given the IRS the ability to deny your aviation-expense deduction, and you are dead in the water.

If you are like most pilots, the notes in your pilot's log book pertain to the flight conditions (VFR, IFR, etc.) and are not related to the business aspects of the flight. Your pilot log generally will not be adequate. This has been proven by the large number of

IRS audit cases that have been reported for 2013 where the taxpayer failed to meet the compliance rules of Section 274.

Do your planning now while time is on your side and clean up your flight logs. You and your tax preparer will both appreciate it. 



O. H. "Harry" Daniels Jr. is a CPA, a CFP licensee, and a certified valuation analyst. He is a partner with the firm of Duggan, Joiner & Co., Certified Public Accountants, and can be reached at 334 N.W. 3rd Ave., Ocala, Fla., 34479, telephone 352.732.0171, fax 352.816.1370, email OHD@DJCoCPA.COM. He has held his license as a private pilot since 1991. This article is available for reprint upon request.

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DECISION-MAKING WHEN YOU'RE FACING THE ULTIMATE DECISION

BE HONEST IN YOUR SELF-EVALUATIONS ■ By John Morris

From the moment one entertains the idea of flying as pilot-in-command, either professionally or privately, decisions are being made. From gathering pre-flight weather information, through the flight and continuing after landing, the decision-making process will affect the outcome of the flight.

And then there is the Ultimate Decision: Should I be flying solo PIC or should I have right-seat support?

Earning the approval to fly solo as a student private pilot is a tremendous accomplishment, not only for the individual's confidence but also for the ego. Then passing the private and instrument certification rides (along with possibly many more ratings) boost the confidence and ego even more. As they should! But the ego now also needs to be held in check.

Continued successful flying and the level of confidence built up over possibly decades can make it difficult, if not impossible, for self-determination (ego-check) of diminishing skills.

The Ultimate Decision



Since the individual pilot will most likely be unwilling to admit to possibly diminishing skills, an outside source will be needed to help make the difficult decision. The obvious source would seem to be the FAA. Surprisingly, it is not, as it relates to solo PIC. The FAA, for commercial purposes, has regulations in place for annual skills and medical checks but, when all else fails, it will default to age. And the age requirement may be more for work fairness and politics than for the pilot's well being. But the age regulation is for Part 121 operations, which require a two-person cockpit so solo PIC is not an issue. Part 135, however, allows for a single-pilot cockpit and the flight checks are done twice annually, with medical most likely done annually, with no age restriction.

As for the Part 135 (single-pilot) check rides, once past the initial check, the FARs tend to focus on the certificate holder's particular areas of operation and therefore the pilot can be prepared before each re-check. Of course, if he or she is flying for a busy

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commercial enterprise, the currency checks generally pose no undue burden on the pilot for proving required skills. More than likely the number of hours allowed by FARs will force the single pilot to self "retire" because of burnout before diminishing skills become a factor.

The pilot can continue flying as solo PIC in the Part 91 world unless he or she loses his or her medical certificate. A solo PIC can continue to fly for as long as the FAA medical can be retained (except sport/glider or balloon) and the pilot maintains required currency (unless the aircraft being flown requires a type rating

with its annual recurrent training). With the exception of the bi-annual Flight Review, the solo PIC is self-regulating regarding currency, including instrument proficiency.

Who is going to help the solo PIC make the ultimate decision now?

The primary source would be the aviation-insurance industry. The aviation-insurance industry has a fiduciary responsibility based on the policy underwritten for the value of the aircraft and the liability limits for its occupants. So protecting its interests the industry will require training that it considers sufficient for the aircraft underwritten.

If the solo PIC is denied insurance, he or she cannot fly solo — as it relates to liability coverage, not regulatory. The aviation-insurance industry, like the FAA, uses age as a factor in denying coverage. But unlike the FAA, it may not be age alone but rather a combination of factors, including type of policy underwritten and who the insurance and training providers are. But these requirements are not regulatory, and as long as the

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insurance and training providers approve the pilot then all is well.

An important component of this discussion is the pilot himself/herself. It assumes that pilots are being honest, to themselves especially, about all aspects of their flying/medical currency and proficiency. Why? When doing the required training, the solo PIC usually will have sufficient time to prepare for the “usual” training. The amount of actual flying done prior to training will probably determine how much prep may be needed.

But what kind of flying was that? VFR/IFR, high/low altitude, long/short cross-country, day/night or a combination of all? Only the pilot knows what has been done between training cycles since flying Part 91 solo PIC. Records are usually only kept by the individual and not required to be presented to anyone.

What does the training provider require? Current medical is all that is really required since an Instrument Proficiency check and possible Flight Review sign-off are issued at the completion of training. But usually the trainer will also request past flight currency times. Why do that? It will help the training instructor assess some of the potential areas for more concentrated training. But this request assumes honesty (ego check) on the part of the pilot. And again, it is in the best interest of the pilot to supply the requested

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information for a successful training event.

Which takes us back to the Ultimate Decision. The training provider may never actually know how proficient/competent the solo PIC is since the job of the trainer is to teach/train and refresh, not to fail, unless absolutely necessary. And in a training environment, the instructor is not seeing the “whole” picture of how the solo PIC operates in the actual ATC environment. The whole picture consists of prior personal activities, including rest patterns, radio scan/communications during cross-country, etc. So unless the pilot self-assesses, who or what will help?


Increasing training cycles, three in 24 months or twice a year, certainly can help but

I believe an equally useful tool for all Part 91 pilots, but specifically the solo PIC, is a Safety Management System. Originally developed in response to safety issues with Part 121/135 pilots, the tool has been adapted for General Aviation use. There are several versions available, and it is up to the individual to locate the best one for him or her. Used correctly and consistently, it is the best method to start facing the Ultimate Decision without waiting for an outside source to make the choice for you.

SMS asks the questions that only the pilot can honestly answer. The SMS will then show whether the pilot is safe to fly or have assistance in the form of a co-pilot — or just take the day off. The aviation-insurance industry absolutely endorses the use of SMS by all pilots but especially solo PIC. Of course, the catch is that the industry only knows that the pilot used an SMS if the pilot notifies them.

No matter how you look at the choices, one of the most painful “hits” to the pilot’s ego is to be told that he or she cannot act as solo PIC.

So the greatest, most important decision a pilot can make is to make the Ultimate Decision for him or herself.

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Left to Right: Charlie Huggins, Pilot, and Bob Wilson, President and Founder of Wilson Air Center

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