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... and other features

# OWNER PILOT Advantage

A Magazine for Owner/Pilots from Skytech Publications

## TO JET OR NOT TO JET



What pilot does not want to fly a jet? Smooth power, quiet ride, and great performance – what's not to like? But here's the most important question. Is it the right airplane for you?

Airplane aerodynamic facts don't change. Lift and drag are still there on every flight. Different wing shapes come and go, based on our need for speed. At the end of the day, the advances we are seeing in new aircraft deal mostly with engines and cockpits. Virtually every new aircraft, jet, turboprop, or piston built today comes with a glass cockpit.

Aircraft systems, used on all types of aircraft, are getting better and more reliable. Cockpit displays, including navigation and weather information, are as good or better, in most general aviation aircraft, as they are in most airliners.

Clearly, there is no longer the need to buy a jet airplane to get top-of-the-line avionics

and systems. Finally, there are turbine engines with the combination of power, price, and economy that fit smaller general aviation aircraft. And that brings us back to which power plant is right for your type of operation?

If you're considering a jet, turboprop, or piston aircraft, there are some basic purchase decision parameters that have not changed. In most cases, when selecting the appropriate airplane for you, look at an airplane that is fully adequate for 80% of your missions. If the performance, cost and comfort aren't right for 80% of your annual trips, you probably don't have enough airplane.

On the other hand, if your aircraft will do every trip you throw at it, including the once a year, all seats, all luggage, long distance excursion, you probably have too much airplane. Let's look at some of the specifics regarding those common trips.

## THE FUTURE LOOKS BRIGHT!

Our lead article this month deals with selecting the right aircraft for you. We all know that different missions, and pilot skills, require different aircraft. To that end, Skytech has always offered a full line of general aviation products, designed to meet all piloting skills and needs. It now looks like we may be widening our product reach in the future.

At this year's Oshkosh fly-in, Honda Motor Company confirmed that their prototype Hondajet will go into full production. Moments later, Piper Aircraft announced a "Business Affiliation" with Honda for the purpose of marketing, service and customer support. Since Oshkosh, Piper has also indicated they will give full details of their recently announced single-engine jet, the Piperjet, at this year's National Business Aviation Association convention in Orlando.

At this point, full details of these exciting projects are unknown. What is apparent is that purchasers of new technology aircraft will have more to choose from in the near future; and we are likely to be involved. Stay tuned.

*Skytech, Inc., publisher of this magazine, is an aircraft sales and service company located in Baltimore, MD and Rock Hill, SC (Charlotte, NC metro area).*

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

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## TURBOPROPS STAY STEADY, PISTON-TWIN MARKET WEAK.

For general aviation to survive as a viable resource, it will have to evolve and reinvent itself. There are signs that it is doing just that with new avionics technology and industry leading projects such as Cessna's NGP (next generation piston), Eclipse's VLJ (very light jet) and the dozens of new LSAs (light sport aircraft).

One of the most positive trends we've seen is the effort to fractionalize everything, including fuel sold in bulk – almost everyone gets a discount. While the fractional concept has been successful in the jet market, dealers are now seeing more people sharing light aircraft such as Beech Barons, Bonanzas, twin Cessnas and Piper Navajos.

### THE TURBOPROP MARKET

We are frequently asked about the new VLJ market and its impact on turboprops. For now, VLJs are not applying downward pressure on any market. Even though more than 2,400 Eclipses have been ordered, it will be years before that quantity is delivered.

Some King Air or Pilatus shoppers will

probably opt for a VLJ. It works the other way, too. Many people will stay with a turboprop for its size and useful load. Ultimately, we do think that the VLJ is going to be some competition for the turboprop market. In the distant future, airplanes such as the single-engine Diamond D-Jet might even lure away a few piston-twin buyers.

Stability best describes the turboprop market in the recent quarter, as there were no large price changes detected.

### THE PISTON-TWIN MARKET

The piston-twin market remains the weakest segment. Owners are getting realistic and lowering prices. The logjam might be breaking. A few dealers report improved activity as buyers take advantage of some excellent deals.

The general trend continues down with the Beech B55 Baron reporting "dead as a hammer." The 58 is moving as prices come down. Older Cessna 310s are soft while later model twin Cessna prices stabilize. The 421C is up slightly. The Navajos and Chieftains remain unchanged, however, appraise carefully. We've seen some 1967

Navajo owners who are happy to get \$100,000 while a low-time, late model Chieftain with new everything can break \$900,000.

### THE SINGLE-ENGINE PISTON MARKET

Although most sellers may not realize it yet, it is a buyers' market in the single-engine piston segment – at least for older airplanes. Normally, if it's a good, low-time airplane with no blemishes, it's a quick sell. However, we are hearing reports from dealers and owners that even good airplanes are lost in a sea of complex singles. This may be more than just the summer doldrums – it could be a major long-term correction. •

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## HEARD IN THE PILOTS' LOUNGE



Stop by the pilot's lounge for intriguing anecdotes, fascinating facts and a dash of hard-earned lessons.

• Did you know? Ryan Airlines, the company that built Charles Lindbergh's Spirit of St. Louis, was housed in a dilapidated old building that used to be a fish cannery. By the way, the 80th anniversary of the 1927 non-stop transatlantic flight will be celebrated in May 2007.

**Q:** What's the air traffic call sign when the Pope's onboard an aircraft?

**A:** Shepherd 1.

**Q:** True or false, the light, fluffy contrails left behind by aircraft can turn into clouds?

**A:** True. According to the EPA, persistent contrails, which cover about .1 percent of the Earth's surface, can evolve and spread into extensive cirrus cloud cover leading to long-term changes in the climate.

• Have you heard? Pratt & Whitney Canada's PT6 turboprop family is the world's most popular engine in its class with nearly 34,000 engines produced to date, according to the company. The PT6 turboprop engine powers corporate, utility, agricultural and training aircraft as well as airliners.

**Q:** What phenomenon causes the atomic clocks aboard Global Positioning System satellites to read 38 microseconds out of sync with their earthbound GPS receivers?

see **PILOT'S LOUNGE** on page 6



# TIME FLIES WHEN YOU'RE HAVING FUN!

That familiar (and very true) expression is about the only way that I can explain how five years have passed since Skytech opened our Rock Hill, South Carolina (Charlotte Metro Area) facility.

It was not an auspicious start. We received the Use and Occupancy Permit for a brand new, dedicated maintenance facility in mid-August 2001. Starting slowly and building business over time was something that



*A new 25 year lease will serve as the springboard to Skytech's next phase at the Rock Hill, SC facility.*

we had anticipated. We had not anticipated that we'd be challenged with growing an aviation service business without airplanes. Like everyone else in the industry, after September 11 what we had was more like an Aviation Museum than an aviation service business. Somehow or other our museum did not attract much traffic. Maybe it was because people tend to expect something old at a museum, and what airplanes we had were – well, part of the newest technology in the industry.

Exacerbating the situation was the location of our other facility – in Baltimore, squarely under the Washington, DC “no-fly” zone. It was sort of like having a high-tech boat dealership in the middle of the Sahara Desert.

## NEVERTHELESS, WE SURVIVED

And, I'm happy to say, we have since prospered. By 2001 we had already figured out that, from a business perspective, General Aviation was nothing more than an adaptability contest. So we exercised another opportunity to adapt. The inauspicious start in Rock Hill has given way to conspicuous expansion. In the past three years we have completed a large addition to the original building, added ramp space, and built the first of several planned community storage hangers. And we have a shiny new 25-year lease which will serve as the springboard to Rock Hill's next phase.

Kudos to our Mike Fitzgerald, the former President of American Beechcraft in Leesburg, Virginia, without whom none of this would have happened. Mike's long-term expertise in facilities construction and FBO operations, not to mention 30+ years in Aircraft Sales, are directly related to our success in Rock Hill.

Today, with 30 years of experience under our belt, we continue to receive opportunities to adapt. And to grow. New products serve as the gateway to our future expansion, and new powerplants lead the way.

## THE POWER TO PROPEL

Engines are always the key to new aircraft innovation. As an example, it's easy to name over 20 new models of aircraft spawned by Williams' successful conversion of a cruise missile engine to civilian use. The new Pratt & Whitney 600-Series engine is already having the same effect as, for starters, it supplies the thrust for the Cessna Mustang as well as the Eclipse 500. And consumers as well as businessmen have come to learn that the new player on the stage is called the Honda Motor Company for a reason. True to their name, the new Honda/GE powerplant is destined to be a winner – and to spawn new models of aircraft.

## YOUR SKYTECH ADVANTAGE

The end result is that Skytech is very enthusiastic about our existing product lines and the aircraft that might be added to them. What that means for you is continued progress toward a unique customer experience, access to some of the most advanced aircraft in the world, and exceptional facilities to back them up. •

*Skytech, in both Baltimore and Rock Hill are top-level aircraft sales and service facilities. Rock Hill is also an FBO – a favorite stop for operators of business and personal aircraft visiting the Charlotte, NC metro area.*



## WHERE DO YOU FLY AND HOW FAR?

Jets are made to go high. Even the newer, fuel efficient, high-bypass turbofans, need altitude to operate efficiently where true airspeeds increase and fuel flows decrease. In most cases, you need a 500-mile or greater average stage length to get the most out of your jet. Turboprops do not give you the top end speed, but are still efficient at the lower altitudes. Take a close look at where you go, and what the airspace will allow. If you live in a rural area where unrestricted climbs are the norm, the minimum trip length may come down. If you're going from Washington, DC to New York, you'll be excited to get to 15,000 feet.

Some airplanes fit better in different flying environments. Take that into consideration. Also, remember that every manufacturer's range numbers are best-case scenario, utilizing an immediate climb to an optimal cruise altitude and a power off descent. If your travel patterns don't allow those, and most don't, you may want to reduce the published range by 10 or 15 percent.

## WHAT ABOUT THE AIRPORTS?

Jet airplanes, by regulation, require the pilot to look at worst-case scenarios for the takeoff and landing phases. Takeoff distance, by itself, is only a small part of the equation. Take the time to go to the books and check your most common airports. Use the 80% rule again to determine if the airplane in question can

safely, efficiently and legally make your most common trips. Don't be like the individual who bought a jet based on speed and range, only to find out that he couldn't use the airport nearest his favorite Colorado ski area, and the closest useable airport turned out to be over 100 miles away! Also, remember that contaminated runways can increase landing distances dramatically. Many of the new light jets and VLJ's do not have thrust reversers, relying completely on braking to stop the airplane. Turboprops with reversible props can be the safer answer to shorter or contaminated runways.



## THE INSURANCE MAN COMETH

If you own an all-weather, high performance airplane, the insurance companies don't expect you to just fly the pattern on Sundays. They assume you will be using it through the complete flight envelope, and

they will price your premium accordingly.

With the purchase price and operating costs of the new light and very light jets coming down every day, more and more owner pilots are exploring jet ownership. That being said, jet airplanes have historically been the playgrounds for professional pilots only. So if you want to own one and fly it yourself, you need to be prepared to act like a professional. That means initial and recurrent training, IFR currency, thorough preflight planning, maintenance tracking, etc. You will be expected to transition with a qualified pilot and continue to fly at an acceptable rate to keep you current. Plus, you may want to have a copilot in the right seat until your experience level dictates otherwise.

Always select a broker who knows you and is familiar with the aircraft type you are considering. There is far less science and far more negotiating in aircraft premiums than we all want to acknowledge.

We started by saying that every pilot wants to fly a jet – and that the question is, “Should you buy a jet?” Every type of aircraft does certain things well. If a jet is what you need, then the good news is the selection is getting better every day. Just be sure you don't catch the fever and end up with the wrong airplane. Don't ask a jet to do a turboprop mission and visa versa. Take the time to be realistic and get the right airplane for your missions.

In the past, many people have set their sights too high, and are either out of the airplane business, or they've learned an expensive lesson. •





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# TAX FACTS FOR OWNER/PILOTS

## SUPPLEMENTING AIRCRAFT LIABILITY INSURANCE WITH LIFE INSURANCE.

The ownership and operation of an aircraft necessitates the assumption of risk of loss. To some extent, this loss can be covered by insurance, provided the terms of the insurance contract are complied with. Aircraft insurers are reluctant to extend adequate liability protection to owner-flown aircraft. Liability limitations are generally less than \$2,000,000 and generally contain reduced per seat limitations. Pilots often find they have less liability coverage on their aircraft than on their auto.

### Consider the following review of fatal aircraft accidents over the last 20 years:

- a) In over 94% of fatal aircraft accidents the pilot perishes;
- b) In over 95% of fatal accidents there are three or fewer fatalities;
- c) Over 98% of the fatalities in aircraft accidents are passengers.

**Pilots who are insurable should consider life insurance to supplement aircraft liability insurance.**

- a) Life insurance will generally be less expensive than increased liability coverage;
- b) Because loss of life in an aircraft is far less likely than death by other causes, proceeds are more likely to reach the pilot's family;
- c) Because the most serious liability will result from fatal accidents, the pilot's life insurance proceeds will be available;
- d) Through an agreed settlement contract with your passengers you can increase the effectiveness of your coverage and protection of your family.

### Don't void your aircraft insurance by failing to meet contractual terms including:

- a) The aircraft must hold a valid airworthiness certificate, which requires maintenance to be current, and VOR checks every 30 days for instrument flight;
- b) The pilot must be qualified to fly the subject flight including ratings and medical, but for instrument pilots also currency requirements such as approaches and holds;

- c) If your policy is noncommercial, it prohibits the receipt of consideration; courts have denied coverage for nominal financial benefit.

There is no substitute for a properly designed aircraft insurance policy; but when coverage is not available, life insurance may provide a viable alternative. •

Louis M. Meiners, Jr., CPA, JD – August 1, 2006

Louis M. Meiners, Jr., is an attorney and CPA who serves as president of Advocate Aircraft Taxation Company. Advocate's practice is limited to serving the needs of owners and operators of aircraft. Services include aircraft operational analysis, sales and use tax management on aircraft acquisitions, income tax planning, federal excise tax planning, and representation before taxing authorities. Meiners can be reached at (888) 325-1942, or [loum@advocatetax.com](mailto:loum@advocatetax.com).

This article is designed to provide information of general interest to the public and is not intended to offer specific legal advice. You should consult Advocate Aircraft Taxation Company or your tax and aviation advisor if you have a matter requiring attention.

### PILOT'S LOUNGE from page 2

**A:** According to TechRepublic.com, the culprit is related to Einstein's theory of relativity, which indicates that gravity, as well as motion, can affect the intervals of time and of space. "GPS satellites make two complete intermediate circular orbits of the Earth every day, maintaining a constant velocity (about 4 km/s) relative to the Earth. This velocity – although representing only 0.0013 percent of the speed of light – nonetheless presents measurable effects of relativity within the context of GPS tracking."

**Q:** What was the output of Orville and Wilbur's engine that powered the Wright Flyer?

**A:** 12 horsepower. The 170-pound, four cylinder, four stroke cycle powerplant was designed by Charlie Taylor and Wilbur Wright. Although it had enough power to keep the famous aircraft aloft for a few seconds, today it would barely power a riding lawn mower.

- Have you heard? Researchers are investigating "cloaking" technology that one day could be used to hide in-flight aircraft from enemies. The journal *Science* reported that

two separate teams have proposed ways to cloak objects by scattering light waves around them. This "Star Trek" type idea is in an early stage and research is now focusing on dust-size particles.

- The Pilatus PC-12 can cruise at 30,000 feet. Aside from the fact that you're moving along at nearly 500 kph, what else is going on up there? Depending upon when and where you're flying, the outside air temperature could be minus 45 degrees Fahrenheit. And a supersonic jet in your airspace would create a lateral sonic boom spread of about 30 miles.



# HOT SECTION INSPECTIONS.

When you see the acronym HSI and the topic isn't avionics, it usually means Hot Section Inspection. Operators of PT-6 powered aircraft are probably already familiar with this term. For those just transitioning into turbine aircraft operations, you may have heard references to the "hot section" but are somewhat mystified as to what this encompasses. This article will provide a basic understanding of what the engine hot section is, along with background information on its inspection requirements and what you can do to protect your investment.

## HOT SECTION OPERATION

The hot section of the engine is where the power is produced. In most small PT-6 engines there are two turbines. One drives the propeller through the reduction gearbox



and the other drives the compressor. These turbines are called the Power Turbine (PT) and Compressor Turbine (CT) respectively. Additionally, there are also stationary discs inside the engine called "stators". The purpose of these stators is to guide the hot gases to impact the respective turbines at an angle that ensures maximum efficiency.

There are several factors that influence the operating condition of the hot section components. As a result of the combustion process, carbon can accumulate inside the fuel nozzle passages. This carbon can degrade the fuel nozzle spray pattern. This could result in a non uniform combustion and localized high temperature peaks or

"hot spots". The carbon accumulation is progressive and can affect all nozzles. Another common occurrence is Sulphidation. This is a type of hot corrosion that can affect the turbine area components of gas turbine engines. It occurs at engine operating temperatures when sodium and sulphur are present. Most aviation turbine fuels contain sulphur in sufficient amounts for sulphidation to occur. Sodium is easily ingested during flight along coastal areas (because of seawater), atmospheric pollutants and volcanic discharges.

## PREVENTIVE CARE

There are a couple of things that you can do to minimize the chances of damage caused by dirty fuel nozzles or a sulphidation attack. As stated in most PT-6 maintenance manuals, it is recommended that the fuel nozzles be removed for inspection at 400 hour intervals. This inspection involves checking the spray pattern of the nozzles and making sure there is no "spitting" of fuel. The spitting or dribbling of fuel is what can cause the hot spots (and subsequent burn through of CT stators and discs). As for the sulphidation issue, the maintenance manual calls out for regularly scheduled compressor washes.

There are two types of compressor washes: desalinization (water only) and performance recovery. If the aircraft is operated (flown daily) in a continuously salt laden environment, a daily desalinization wash is highly recommended after the last flight of the day. In a less salt laden environment, a weekly wash should suffice. A performance recovery wash uses chemical additives to help remove tougher deposits not removed during desalinization. The frequency can also be determined by engine trend indications. The trend indications are usually slightly elevated ITT, NG and Fuel Flow. If you are not on a trend program, a good rule of thumb is to do a performance recovery wash every 100 hrs.

The best way to determine if there are hot spots or sulphidation present is to look inside the engine. According to Pratt and Whitney, a borescope inspection is recommended to be done in conjunction with the 400-Hour Fuel Nozzle Inspection. A

borescope inspection entails inserting a flexible scope through a fuel nozzle opening to access the Compressor Turbine and Guide Vanes. A true Hot Section Inspection involves splitting of the engine and removal of the main components for a complete visual inspection. The Pratt Service Bulletin for the model engine in your aircraft should be referred to for the proper inspection interval.

## HANDLING THE HSI

A Hot Section Inspection can actually be performed by an Airframe and Powerplant mechanic using the appropriate engine maintenance manual. An A & P can do the disassembly/reassembly of the engine. However, most service facilities will utilize the expertise of a Pratt and Whitney Authorized shop to do the actual inspection of the individual parts. This will also help maintain optimum engine performance as well as add an inherent value to the aircraft. Some of these outside repair/overhaul facilities will also coordinate an onsite visit to your location and perform the work from start to finish, so other maintenance events can be performed simultaneously.

If you are new to turbine engines you will find that when obtaining quotes for a Hot Section Inspection you will be given a wide range of cost rather than a specific number. This is because until the hot section components are inspected, it is unknown what parts if any will require replacement or repair. Your service facility should be able to discuss with you what typically can be expected based on your specific engine and operating parameters.

The information and recommendations provided in this article should help you minimize the chances that damage will go undetected until the hot section inspection interval and help keep your operating costs in line. Until next time, safe flying! •



# A WORD To The WISE

from Dave Conover



Satellite, uplink and onboard are options to provide us with the latest weather in our cockpits. Ask any 10 pilots and you will most likely get 10 different opinions of what is the best option and method to display the information. However, could so much information be exceeding our ability to interpret it properly and then react accordingly (especially in a single pilot IFR situation)? With all this current meteorological data streaming into our cockpits could we be guilty of not listening as intently to flight service and potentially developing a false level of confidence?

## IT'S ALL ABOUT FLIGHT SAFETY

There is little doubt that current weather data in the cockpit can make for a much safer flight when it is used appropriately. Regardless of the aircraft you're flying, your comfort level of being able to accurately verify the weather along your flight path is immeasurable, even when you can't see your wing tips. On the flip side; it is becoming

more common to hear stories of pilots venturing much closer to weather than ever before or departing on trips they would have previously never attempted, and this is the potential pitfall we all must avoid.

In most cases, the data-linked weather information we receive is merely a collection of "snap shots" and does not present the total picture. Depending on the type of weather system in our aircraft, it may not be possible to accurately determine the height and exact movement of weather.

## SOME OF YOUR DATA IS AGED

With the exception of an on-board weather radar system, any information received via satellite or uplink is "aged data". With delay times that normally exceed 15 minutes by the time we receive the information in our cockpit, the conditions we are expecting to encounter could be significantly different should we choose venture too close to weather systems.

With all the high performance piston

and turbine aircraft available today and the expected influx of new turbine aircraft options over the next few years, many owner pilots will be transitioning into a new wave of faster and higher-flying aircraft. This will propel many of us into a new flight environment, presenting new weather and atmospheric challenges.

## ONLY YOU CAN MAKE DECISIONS

Since most of us are not trained meteorologists, we should spend whatever time is needed to thoroughly understand the weather equipment in our cockpit. Having an in depth knowledge of the attributes and limitations of our equipment will help us make better decisions, and regardless of what equipment is on board, nothing replaces our flight service briefings and in-flight advisories. When we are equipped with detailed weather information before we take off and then utilize our on-board equipment to avoid hazardous weather, our decisions will lead to safer, smoother flights. •



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