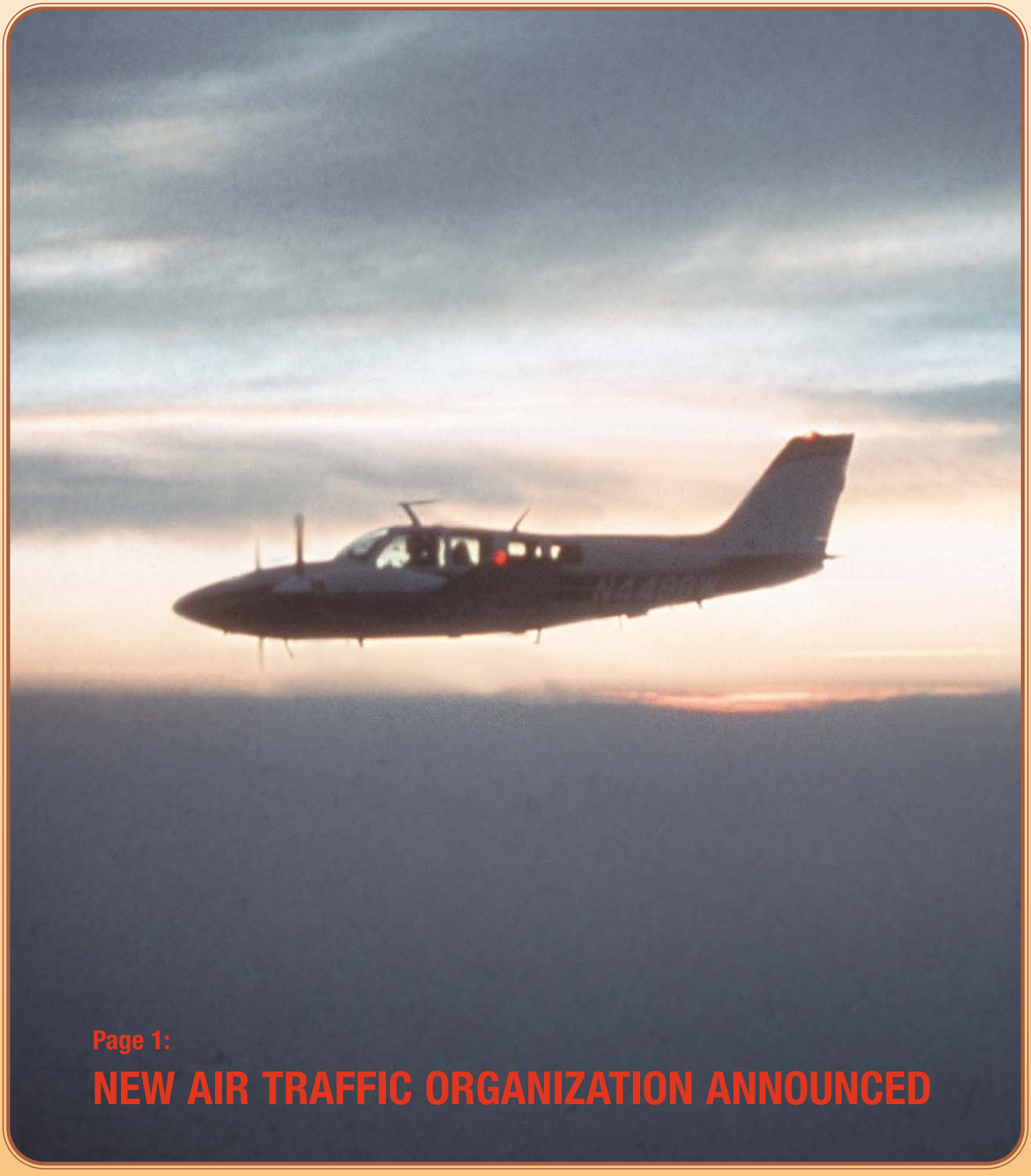
FAA AviationNews
AVIATION SAFETY FROM COVER TO COVER
JANUARY/FEBRUARY 2004



Page 1:

## NEW AIR TRAFFIC ORGANIZATION ANNOUNCED

U.S. Department
of Transportation

**Federal Aviation Administration**

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# FAA AviationNews

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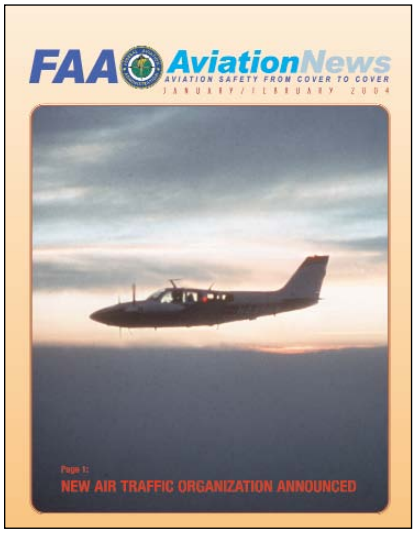
## FEATURES



## DEPARTMENTS






*FRONT COVER: Ready for winter flying?*
*BACK COVER: A Beech King Air B200 in flight. (Photo courtesy of the manufacturer)*

*Left to right, Secretary Mineta, Administrator Blakey, and Mr. Chew. (Dick Chomitz photo)*

# NEW AIR TRAFFIC ORGANIZATION ANNOUNCED

by H. Dean Chamberlain

FAA announced the establishment of its new Air Traffic Organization (ATO) on November 18 during a special presentation at FAA Headquarters in Washington, DC. Secretary of Transportation Norman Y. Mineta, FAA Administrator Marion C. Blakey, and the new Air Traffic Organization Chief Operating Officer Russell Chew discussed why the Air Traffic Service was changed.

Speaking to a standing-room only, filled auditorium of employees, Secretary Mineta and Administrator Blakey explained what prompted the government to restructure the Air Traffic Service into the performance-based ATO and what it means to be a performance-based organization. Cable television monitors provided viewing for overflow seating in other areas of FAA Headquarters. Internet access and satellite closed-circuit broadcasting permitted FAA employees across the nation to see and hear the ATO announcement.

In her introductory remarks, FAA Administrator Blakey said, "It really is the first critical step that we're taking here to create a true performance-based organization for Air Traffic Services and for the FAA. We all know we have to improve the way we're doing business, how we manage our resources, and how we can become more accountable to the public. We need to make real progress towards evidencing performance on a measurable basis. That's why the work that's being done here today with a new air traffic organization is so important. It will make the FAA, as a whole more business-like, more accountable, and more efficient. And that's what we all want."

In introducing Secretary Mineta, Administrator Blakey told of the Secretary's past work as Chairman of the National Civil Aviation Review Commission. She quoted then former Congressman Mineta's statement about the future of aviation in which he said, "Meeting the demands of a growing complex aviation system is no small task. Without change, passengers will pay more and receive less efficient air traffic control services in the form of more delays."

The change to a performance-based ATO is designed to make the services ATO now provides more efficient while controlling the cost of providing those services.

The following excerpts from the Secretary's remarks outlines the goals for the new ATO. He said, "For nearly three years, all of us in the Department of Transportation have been working

together to create a safer, more responsive and more robust transportation system for America: Safer by placing a singular focus on saving lives and reducing accidents; more responsive by consolidating and streamlining programs; and improving program delivery. It will be more robust by improving system performance, building new infrastructure, and introducing advance technology.

Now, all of these efforts are tied together by a Department that places a premium on producing remarkable results, and then embraces the accountability that goes with them."

"In creating the new Air Traffic Organization, Administrator Blakey has taken a huge step towards reaching President Bush's goals of improving federal programs and delivering results that matter to the American people. Seeing this happen fulfills an important personal and professional objective for me. I want to thank Marion [Blakey] and Russ Chew for taking the ATO from a dream, or a thought on a piece of blank paper, to reality," he said.

"Now, the formation of the ATO is the culmination of years of efforts by the Congress and the FAA to improve the delivery of air traffic services. It was first recommended by the National Civil Aviation Review Commission, which, as Marion [Blakey] mentioned, I had the honor to Chair.

"When the Commission issued its report six years ago, the aviation system was at a critical crossroads, approaching gridlock as we mentioned in the report. Congestion was clogging our airports and airways, infrastructure projects were falling behind, and air traffic delays were mounting.

"And then to make a bad situation worse, rampant increases in operating costs were beginning to eat into the FAA's Capital Investment Program. Now, there were several reasons for this, but all 21 members of the Commission agreed on the solution, and we recommended the establishment of a performance-based organization for air traffic services and appointing a chief operating officer to lead it.

"Today's launch of the ATO comes at a time when aviation is at yet another critical crossroads.

"Over the past two years, the aviation industry has endured crisis after crisis.

"Many in our aviation community are still trying to recover. Yet even in the difficult times, we always knew that the good times would return. We're already seeing very good news in several key economic indicators, beginning with record growth and the creation of three quarters of a million new jobs in the third quarter. And when the economy takes off, so does the traveling public.

"And it is our job to accommodate them.

"And that's why we need the Air Traffic Organization, the ATO. It was created to ensure that the FAA has the people and the machines needed to allow our aviation community to grow and thrive so that our citizens and economy can benefit from that growth.

"As a performance-based organization, the ATO has been given the flexibility to operate the way a top-notch business would. In exchange, the ATO commits to specific measurable goals with targets for improved performance.

"It is the first organization of its kind in the Department of Transportation, and one of only three in the entire federal government.

"Now, this past summer, Administrator Blakey and I selected Russ Chew to head the ATO. Russ brings to the FAA nearly two decades of aviation experience at American Airlines. He served as a line-qualified Captain. He was also the managing director of Strategic Operations Planning and manager of Technical Flight Operation and System Support Technology," the Secretary said.

The Secretary concluded his remarks by saying to the predominantly air traffic audience that "...in sharing the begins of an exciting and productive journey, I want our traveling public to be able to travel safely, and in your competent hands, I know they will."

Administrator Blakey made clear one point as part of her introduction of Russ Chew. She said, "Let me be very clear about one thing. The Air Traffic Organization will continue the FAA's exceedingly strong record of safety in air traffic services. We're building safeguards all along the way to be sure of this. The Air Traffic Organization itself will have new internal safety functions. The quality assurance functions that have been there are going to be even stronger in the future. The ATO safety functions will report directly to the chief operating officer (COO). At the same time, the FAA is also creating a new, independent air traffic services safety office. The new safety office will report directly to the Associate Administrator for Regulation and Certification (AVR). AVR has established a stellar reputation for safety in flight in many other facets of aviation. As they expand into all aspects of air traffic services, I have great confidence that they're going to help Russ achieve the kind of wonderful safety organization you have come to expect of the FAA. AVR's ability to oversee and monitor the ATO is going to be so critically important in terms of maintaining our credibility and our safety record with the flying public."

In describing Russell Chew, the Administrator noted his operational background as both a pilot at American Airlines as well as his management experience at American, the world's largest airline. She said, "I know from the last month we've been working together, he's got the passion for public service that is going to make him so effective as our new chief operating officer with the ATO."

After being introduced, Chew briefly explained his background. Not only was he an airline pilot, but also for those who don't know him, he is one of the few dentists in the country who has been an airline pilot. A fact he occasionally points out to his former dental colleagues.

His challenge for the ATO is maintaining the high standards of quality and safety of the air traffic system while leading the change to a performance-based organization. As he said, the key to the transformation is the dedicated employees across the air traffic organization who have been



doing the job over the years.

He said having the world's largest and safest air traffic control system is a two-edge sword. "We've set a high bar of expectation, and we have tremendous challenges ahead of us, not the least of which is financial." The challenge he said is, "Trying to not only to find a future where we're going to be able to accommodate the future demand for traffic, but also where we can improve it, make it safer, and one where you define a future that we can afford."

*Mr. Russell Chew speaks as Administrator Blakey looks on. (Dick Chomitz photo)*

In outlining the new ATO, Chew defined it as a service organization that has to satisfy three requirements. It has to satisfy its customers. It has to meet the expectations of its owners. And it has to meet the needs of its employees.

He said the ATO is about choice. The users or customers such as the airlines, general aviation, or the military flying in the airspace have to make choices on what services they need or want. Then based upon the financial support provided by the ATO owners, the taxpayers and the traveling public, the ATO has to make choices on the types of service it can provide based upon the most cost effective means. Whether developing new equipment or procedures or training its employees, the ATO will have to balance its funding support with its responsibility of operating the safest air traffic system in the world.

As he said, "Doing our job is about service, and it is about value. Value is about producing something at a certain cost. If I produce the exact same service or product at a lower cost, I increase its value. Or, if I could produce a better service for the same cost, I increase its value. Cost is a common denominator in everything we do. What we have to make our owners understand is that we need to set performance against value, not just against output. We have to effectively factor in what it costs for us to produce it."

He said, "If we plan properly for our future, then we can invest in our customers and our owners and in our employees in a transparent way that will satisfy all three."

In discussing the new ATO and his observations during the short time he has been at FAA, Chew said, "One thing I did notice is that the people of this agency are so committed to public service and so committed to performance, that it is a matter of just setting goals."

In outlining the new ATO, Chew said there will be five line organizations and five support organizations. He said the new structure is "...organized around what we produce." A significant change from past practices is that the new line organizations will now be responsible for their respective acquisitions within their service units.

Although a transition team will coordinate the changes inside the new ATO, the primary line units are En Route and Oceanic, Terminal Operations, Flight Services, Systems Operations, and Technical Operations. The five support organizations are Communications, Finance, Safety, Operations Planning, and Acquisitions and Business Services. Although some of the functions of the line organizations will be transparent to the user groups, the other organizations will be developed over the next several months.

As the new COO said, "A performance-based organization implies accountability. Once you set up metrics for what you are suppose to do, when you don't meet the metric or are not making it, people are held accountable for that."

"Accountability is also about fostering performance," he said.

In wrapping up his extensive remarks, Chew reminded everyone that the ATO is about focusing on the customer. He said, "Don't waste anything because every dollar you save is a dollar we get to reinvest into ourselves, into our business, into our customers, and for our own good. It's a passion for value."

*Editor's Note: For more information about the new ATO, you can check its Internet web site at http://www1.faa.gov/newsroom/newato.cfm*

# Getting Older

by Bill O'Brien

It's 4:50 am on the first workday in the second week of October. The clock radio pops on, right in the middle of a country and western song sung by a Patsy Cline wanabee. As the wailing assails my ears, I intuitively know that the best part of my day is over. So with a superior effort, I shove an arm out of the warm covers and smash the "off" button on the radio with a badly aimed fist.

Since I am on the serious side of 60, experience dictates that before I dare to stand up, I must sit on the side of my bed, and take a minute to carefully check out all my systems. First I wiggle my toes to see if the feet are still attached and to make sure that one or both of my limbs are still not asleep. Okay, they work. Arms and most of the fingers working? Okay. Rotator Cuffs still rotating? Okay. Heart beating at least a couple of times a minute? Okay. Are the eyes open, but seeing is optional? Okay. Next, I take a couple of deep breaths to wake up my lungs and reward myself with a cough. System check completed. I slowly stand up, wait for my internal gyros to come up to speed and then make my way in the dark to the bathroom with all the grace and coordination of Imhotep's mummy.

Turning on the light, I lean on the sink with both hands and stare red-eyed into the bathroom mirror and was surprised to see my father's reflection staring back at me. Alarmed, I straighten up, but I am still held captive by the image in the mirror. Standing there on the cold tile floor, I am forced to inventory the ravages to my body caused by mankind's most common inherited genetic disorder. It is called aging. I can no longer continue to lie to that face in the mirror. Today was the day I realized that I am no longer the man I always thought I was.

Airplanes, like people, also age with time. But, like people, it is sometimes hard to tell just by looking if the airplane has been flown hard and fast and put away wet or treated each and every day with tender loving care.

The average age of a general aviation (GA), single-engine aircraft in this country is 34 years old, with the age for multi-engine recips sitting just shy of 30 years. That means that half the GA fleet is older than 30 and the rest is younger, with the majority of the bell curve sitting in between the 25 to 45 year old age bracket. We have approximately 180,000, active GA airplanes registered. So if I do the math right we have approximately 90,000 aircraft that have been working and flying for 30 plus years. That's a long time defying gravity. If airplanes were people, most of the GA fleet would have been retired by now. I am sure that Clyde Cessna, Walter Beech, and Bill Piper never thought the aircraft they built in the fifties and sixties would still be flying today.

FAA has been concerned about our aging civilian fleet. In 1991, FAA started a comprehensive program to address age-related problems with air transport aircraft. Several Airworthiness Directives (AD) and required inspections for specific aircraft were some of the actions taken because of this on-going program to look into age-related problems plaguing the air carrier fleet. Recently, FAA and industry groups joined together and put together a *Best Practices Guide for Maintaining Aging General Aviation Airplanes*. This guide can be downloaded from the Internet at <www.faa.gov/certification/aircraft/agingbestpractices.pdf>.

FAA and industry both recognized that, like people, airplanes—especially training airplanes—can age 10 years in one calendar year. On the other hand, some aircraft age gracefully over the decades, always looking factory new. One of the major factors between the two kinds of aging processes is maintenance, good maintenance, and like, older people, older aircraft need additional maintenance in order to perform as advertised. The FAA's *Best Practices Guide* stresses this idea of good maintenance practices by recommending two specific areas to help assess the condition of an aircraft. They are: aircraft record research and special attention inspections.

## RECORDS RESEARCH

For many owners and mechanics, an in-depth records review is about as exciting as watching the water in your denture cup turn blue, but it has to be done. The FAA *Best Practices Guide* recommends the following documents to review:

**Type data/specification sheets:** The aircraft's type certificate data or specification sheet is in reality the aircraft's birth certificate. These documents have all the relevant facts and figures for your aircraft, engine, or propeller. They list required equipment, optional engines and accessories, approved alterations, etc. You can access the FAA web site for type certificates at <http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgMakeModel.nsf/MainFrame?OpenFrameSet>.

**Logbooks:** You must lock down the total time in service for the airframe, engine(s), and propeller(s). These type certificate (TC) products time-in-service will serve as your research baseline. Next, review the Air-



worthiness Directives (AD) list and check for compliance, including AD's requiring repetitive inspections. While most mechanics and owners stay up with AD's for the airframe, engine, and propeller, very few spend the time to check AD for the accessories. For example, the last time I checked, there were 14 AD's against seatbelts. You can review AD's on the FAA web site at <http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet>.

**Supplemental Type Certificates (STC)** are major changes to the aircraft, engine, or propeller's type design and require a Form 337 to be sent into the FAA. The majority of STC's are for major alterations such as avionic installations, installing different engine and propeller combinations, or modifications to the airframe such as interiors, camera mounts, etc. What most owners and mechanics do not realize is that an STC approved by the FAA after January 1981 has Instructions for Continued Airworthiness (ICA) as part of the STC package. These ICA are, in fact, a maintenance manual for the components installed under the STC. Any inspections called out in the ICA must be performed at the required interval usually during the annual inspection. For example, you check the logbook and find that a three-axis autopilot was installed in this aircraft in 1990. I am willing to bet the ICA for that autopilot installation requires that the bridle cables that attach the autopilot servo to the primary control cables must be checked for the proper tension. If no inspection is recorded, then the aircraft is not airworthy. So you have got to make sure all the ICA's are complied with. This requirement also includes FAA Field Approval ICA's for alterations performed after September 1999. You can view all kinds of STC information on the FAA web site at <http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgSTC.nsf/MainFrame?OpenFrameSet>.

**Service Bulletins and Letters**: A good source to find information on potential aging problems is the manufacturer's service bulletins and letters for your make and model airplane. These bulletins and letters serve as a head's up for in service problems that could be pre-cursers for an AD or just they could be an overall notification for a product improvement.

**Other Information sources:** Pull up your aircraft on the FAA's Service Difficulty Reports (SDR) system at < http://av-info.faa.gov/isdr/>. Click on "Query SDR Data" and punch in your make and model. The system will give you a list of all the problems other mechanics have found on your aircraft. It's like having a crystal ball in your toolbox. Another good, but largely untapped, source of where to look for information is the probable causes of aircraft accidents identified on the National Transportation Safety Board web site at <http://www.ntsb.gov/ntsb/query.asp>. You will be surprised how many accidents could have been avoided by knowing were to look during the preflight or annual inspection. A couple of other good sources are the FAA's General Aviation Airworthiness Alerts and FAA's Special Airworthiness Information Bulletins at <http://av-info.faa.gov> and clicking on the applicable hot link.

## SPECIAL ATTENTION INSPECTIONS

The *Best Practices Guide* strongly urges maintainers of older aircraft to take the information gleaned from the records search and use it to prepare a checklist for a special emphasis inspection. This special inspection should zero in on aircraft systems and components that are susceptible to aging. Examples of such systems are wiring, instruments, fuel system, and flight and engine controls. Appendix 1 in the guide has identified a generic list of these systems to help you get started preparing a personalized special inspection checklist for the aircraft in your care.

The guide recommends that the mechanic should be aware that not all of these checklist items need to be done every year. Particularly difficult inspections, such as inspection of wing spars, and fuel tanks could be scheduled every five years or so depending on flying time between inspections and environmental variables, such as industrial pollution, exposure to saltwater, or extreme cold or hot weather.

Many actual and potential problems areas caused by aging have already been identified by organizations known as Aircraft Type Clubs. These organizations are composed of aircraft fanatics who have an on-going love affair with a particular make and model of aircraft. Over the years, I have dealt with several of these organizations and I am pleased to report that these folks know their aircraft inside and out and are quite happy to provide mechanics and owners with an easy access to all available data on their particular aircraft.

Several type clubs will sell you, for a minimum fee, the TC production drawing for aircraft no longer in production. Having the manufacturer's approved drawing is nice to have when doing a major repair or making a replacement part. A list of type clubs and contact information can be found on the web site at <http://www.airaffair.com/Library/type_clubs.html>.

In closing, may I offer a suggestion? Run off several copies of the guide and hand them out to owners of aircraft built prior to 1973. Tell them to give the guide a good read and maybe one or two of them might decide, in the interest of safety, to have a special inspection on their aircraft done. After all, if airplanes are like people, then they need a little more special attention as they get older, especially if they want to last a little bit longer. Which reminds me, I have to sign off right now. I have just enough time left in my day to make a doctor's appointment and schedule my annual special inspection and blood test.

*Bill O'Brien is an Aviation Safety Inspector in Flight Standards' Aircraft Maintenance Division. This article was also published in the* Aviation Maintenance Technician *magazine.*

# Shelf Life: What Does It Mean?


by H. Dean Chamberlain

A lesson about shelf life—or how I learned to buy two new turn coordinators. As a relatively new aircraft owner, I have learned many expensive lessons. Most of those lessons were discussed in my previous hopefully humorous attempts at explaining the joys of being a new owner of an old aircraft. I would like to add a postscript to my last article on the subject.

The week before Thanksgiving, I had the "pleasure" of buying a second new turn coordinator (TC) from Mid-Continent Instruments in Wichita Kansas. The first unit was dead on installation (DOI), which should not be confused with dead on arrival or DOA. As I explained in my other articles on the upgrading of my old Piper *Tripacer*, the project took much longer, years longer, then expected. The project included the replacement of all of the flight, navigation, and engine instrumentation.

Buying a new instrument is not the same as having a new instrument. When I ordered all of the new instruments from various suppliers, the last thing I thought about was the term "shelf life." However, shelf life can be critical when working with aircraft. Basically, shelf life is how long an item can be shelved or stored while remaining usable. In the case of my DOI TC, I dutifully boxed it up a few weeks ago and sent it back to the factory after having exchanged emails with a company representative. When I never received any word about the TC, I called the company and talked with a customer service representative. A day later, I was contacted with the post mortem report. The TC was dead. The apparent cause was the expiration of its shelf life. According to the woman who called me, the bushings had died and some other items were not working.

Although never used, the unit failed to operate on its first flight. The woman I spoke with said it had been manufactured years earlier and was out of warranty. The unit had "died" in its shipping box.

She offered to repair the unit with the exception of correcting a small, visual defect, for about $190. The blemish would cost more she said. The repaired unit would come with a 90-day warranty. In discussing my options with her, I chose to buy a new unit for almost $500. The reason I chose to buy another new unit was its one-year warranty. If this unit failed, I wanted some recourse.

When I purchased my TC and all of the other items, I really didn't think about warranties and limited shelf life. But then, I didn't think my upgrade project would stretch out over three and a half years. So, when I was buying items for the aircraft, I had no idea that all of the warranties would expire before the items were installed.

The result, in the case of my DOI TC, was the cost of buying another new unit. It was an expensive lesson. Now, I pay attention to manufacturing, shelf life, and warranty dates.

A lesson I have learned. Three days



before I bought my second new TC, I bought new tires for my sport utility vehicle. Having remembered a recent network news story about recommended tire life dates, one of the first questions I asked the dealer installing the tires was when were the tires manufactured. I wanted 'new' tires, not unused tires made several years ago.

The folks at Mid-Continent were pleasant and very helpful to work with. It was not the company's fault my first TC was not installed upon receipt. It was my fault for not thinking about why some items come with a shelf-life date. The date is there for a reason. Just like bread has a sell by date to ensure its freshness, so do some aircraft products. My problem was the uncertainty and delay that comes with a part-time major upgrade project.

If your aircraft goes into the shop for work, warranty dates should be no problem. But if your aircraft is a 'basket case' or is a kit project or undergoing a major upgrade, then your completion date may be unknown.

In such a case, my recommendation is to avoid buying date limited items until the absolute last minute. In my case, I would not have bought my limited warranty instruments that were out of warranty before installation or my now two-generation old IFR GPS until the day before the plane was ready to fly. If I had waited until last June when the aircraft finally flew, my instruments would still be in warranty, and I would have a different GPS in the aircraft.

All of my efforts to save on buying my instruments and GPS when I had the money and for what I thought were good sale prices turned out to be very costly mistakes. In hindsight, it would have been cheaper to have saved the money and bought the instruments just before needed for installation.

As I have written before, please learn from my mistakes and save yourself some money. So read and understand all warranties before you buy and buy just before flight. The time, money, and warranties you save will add to your project's enjoyment.

# A REPRESENTATIVE WARRANTY

As I said, the people I dealt with at Mid-Continent Instruments were very professional. Even though they don't sell direct to the public, I appreciated being able to contact them directly. I purchased their equipment through a major aircraft parts supplier. The following warranty was downloaded from the company's Internet web site. As noted, the company's gyros have a shelf-life limit of six (6) months. Please note when purchasing any item, or having an item repaired, it is important to know and understand the meanings of new purchase, overhaul, exchange, core exchange, and the warranties and limitations for each.

# LIMITED WARRANTY

Mid-Continent Instruments stands behind its work. Your satisfaction is the cornerstone of our business. If you are dissatisfied for any reason, let us know. For assistance, contact a customer service representative at either of our two locations.

We warranty all exchanges and overhauls for one (1) year or eight hundred (800) hours of operation, whichever occurs first. Repairs include a 90-day limited warranty. Our gyro products have a shelf-life limit of six (6) months. We will repair or replace a defective unit under warranty once the unit is returned and we verify the malfunction. After repair or replacement, items under warranty retain the unused portion of the original warranty.

Mid-Continent Instruments warrants that all articles we furnish will conform to applicable specifications at the time of shipment and be free from defects in workmanship and in materials we replace. Our obligation will be limited to replacement or repair. Except for a warranty of title and the warranty set forth above, no other warranties, express or implied. or other obligations or liabilities shall apply. In no event will we be liable for loss of use or for incidental, indirect or consequential damages.

# MANUFACTURER'S WARRANTY

Mid-Continent Instruments will repair units under the Original Equipment Manufacturer's (OEM) warranty if we are an authorized repair station for the specific manufacturer. Otherwise you must contact the original manufacturer for warranty claims if needed.

# Tales of an ASI

by Al Peyus

## Remember When It Wasn't Just an Aileron?

One of my pet peeves is to have a certificated flight instructor (CFI) take me around an airplane during pre-flight calling the controlling parts as only the aileron, rudder, elevator, and flaps. What ever happened to having to know all the different names and types of these controlling parts? If you were to look in today's training manuals for Private Pilot, Commercial Pilot, and CFI, many of the descriptive terms have been taken out. All of the new training manuals produced are larger in volume, have more color photos, but have removed much of the "basic" information that was a given just a decade or so ago.

In the early days of aviation, pilot applicants were forced to learn how to build an airplane. That served two purposes. One was to allow them to do minor repairs in the field if needed when no mechanic was available. The other was to provide a deeper and clearer understanding of the workings of the airplane and how all the various parts work together to produce controlled flight.

As a new pilot, it was required that I learn the proper names and reasons for the various different movable parts of the airplane. The reasoning was simple. By knowing what was attached to the airplane and how it worked I was able to anticipate how it was going to feel. I was in a better position to understand the control forces I was about to experience. Each different design of controlling parts has its own control and adverse affect. Because of that training I know when I have an airplane with "sensitive" controls versus one with "heavy" controls, and why and how it will affect my flying. With this knowledge, I am able to anticipate what the airplane will handle like in all phases of flight.

Here is what I am talking about. Each airplane manufacturer has opted for specific design and handling characteristics. Have you ever wondered what the differences are beyond the manufacturer trying to make a buck? Well, let's take a look at some the more common differences that can be found on the ramp. Let's look at the basic Cessna and Piper singles and their ailerons.

Ever notice that the ailerons are different on each airplane make? What does the term "Articulated Friese" (pronounced "freeze") mean to you? Do you know what airplane this control surface is attached? It was named for the man who designed it, Herr Friese of Germany.

For those of you who are still guessing, the Articulated Friese Aileron is attached to the Cessna. It has a unique design that aids us in controlling our flight. The "Articulated" portion is best viewed from the trailing edge of the wing looking forward. As you look at the wing, move the aileron to the up position. Now you can really see the articulation portion. The trailing edge of the aileron going out to the wing tip is decidedly raised higher then the rest of the aileron. It seems almost as if it were "bent" up at the end. This articulation allows the outboard portion of the aileron to travel higher into the low-pressure.

We all know that when making a turn, we raise one aileron while the other lowers. When we make the ailerons move, we get a yaw factor introduced into the aerodynamics of our flight. The down side of the aileron is lowered into the high-pressure area, increases the low-pressure area on top by increasing the curvature of the wing causing it to produce more lift thus, raising the wing. The raised aileron travels into the low-pressure area destroying lift by breaking up the lift on the top of the wing and causes form drag. The articulation portion travels further into the low-pressure increasing the form drag at the outboard portion of the aileron. This additional designed drag aids in mitigating the adverse aileron yaw produced by the turning factors of the airplane.

To further aid in reducing the adverse aileron yaw, Herr Friese provided an additional design in his aileron that received his name. He allowed the bottom leading edge of the up aileron to drop into the high-pressure area. This produced another form drag that further assisted the aileron yaw. To find this drag, raise the aileron and run your flat hand on the bottom of the wing and feel the aileron leading bottom edge hang below the wing surface. It is at the same location where you check the security of the counter balance weights during a normal pre-flight inspection. As the aileron is raised into the low-pressure area, the bottom forward edge drops below the bottom of



the wing into the high-pressure area. It causes a form drag. This drag further aids in reducing the adverse aileron yaw produced by the "climbing" wing.

Now, let's compare the Articulated Friese to the Piper aileron. It has a Differential Deflection aileron. By this, it means the aileron travels higher into the low pressure then it does down into the high-pressure airflow. This can be measured using your hand. On your next pre-flight, raise the aileron and place your hand on edge along the wing tip pointed under the raised aileron. Your hand will fully fit under the aileron, with some room to spare. Now, lower the aileron and do the same with your hand on the bottom of the wing. Your hand will not fit fully between the aileron and the wing.

The Piper does not use the articulation or the Friese design to assist in controlling adverse aileron yaw. By design, the Piper aileron travels higher into the low-pressure area of the wing then the high pressure. In doing so, the aileron disrupts the lifting force on the wing and produces form drag. This form drag helps to mitigate the adverse aileron yaw. It works on the same line as the articulated portion of the Friese aileron. Only Piper has opted to use a design that causes the entire aileron to travel more into the low-pressure area. It accomplishes the same task; destroys lift, causes form drag, and mitigates adverse aileron yaw!

Each design requires some input of rudder by the pilot to correct the last portion of the adverse aileron yaw. Because of these designs, less rudder displacement is required. Both designs allow the airplane to turn and help to mitigate the adverse aileron yaw, which is better?

Both and neither is better! Each does the job intended. The Friese design is a little lighter and Piper is a little "heavier" on the controls, but both are equally responsive. The manufacturers use the differences as selling and marketing tools. By knowing what control surfaces are on the airplane you are flying, you can anticipate the required forces and response of the airplane in flight. Every bit of information you can have at your fingertips in preparing yourself for flight, adds up to more options open to you in keeping the airplane safe and flying smoothly.

Just like knowing your aviation fuel, knowing your airplane, the controlling surfaces, how they really work, and what responses it takes to operate them, prepares you for the flight before you even get the engine started! Ask your flight instructor to take you on a trip around the ramp looking at the different aerodynamic designs of control surfaces and discuss how they work. There is a myriad of shapes and designs out there. Some of them even cause you to wonder, "How in the world does it work?"

Examine the Beechcraft, BE-35 V tail airplane. Take a look at the Mooney and its jackscrew empennage. The entire tail section moves when you are trimming it. Then there is the *Ercoupe* with only one pedal on the floor and it is a single brake pedal. Some of the interesting airplanes are those that have been designed or have had add-ons for STOL operation. Ever see a Piper *Aztec* with a STOL kit? The normal approach speed is well below blue line. And it is all out there sitting on your ramp waiting for you to explore, learn, and expand your knowledge of aviation designs and uses. The more you know, the safer you can be!

*Al Peyus is an Aviation Safety Inspector (Operations) in Flight Standards' General Aviation and Commercial Division.*

## Outside the Box

### Instructors must teach students to keep their eyes outside the cockpit

by Don Lindsey

Accident data from the last couple of years indicate instructional accidents have crept up. Midair collisions and stall-spin accident seem to lead the pack. At first glance, it might appear that we instructors aren't doing the job, and safety is suffering. And that, in a way, might be the case.

While the situation merits our attention, we first need to understand the probable causes before we can address issues with our students. The aviation environment is very different from when I learned to fly: more airplanes, more tasks, and more complexities are the hallmarks of modem aviation—at least near our urban areas, where much of the training activity occurs.

The problem is, we—as living, thinking human pilots—haven't kept up with it. Most of the accidents we're concerned with could have been avoided with proper diligence.

Back in 1959, I was just learning to fly. My instructor was a retired Army Air Forces instructor, and the training airplane was an Aeronca Champ with 65 horses under the cowling. Really high perfomlance.

It was a basic airplane in that it had no electrical system, and therefore no lights or radios. Communication with a tower was via light signals, which, amazingly, are still in the current *Aeronautical Information Manual.* The engine was started by hand propping—in those days most pilots were familiar with the procedure and any able-bodied person could learn in a couple of minutes.

We navigated via dead reckoning and pilotage, so we were always looking outside the cockpit for landmarks and traffic. Besides, there wasn't much going on in the cockpit. Other than a chart, flight log, whiz-wheel computer, plotter, and a pencil, there was nothing in the cockpit that com-

*(Continued on Page 29)*

# Zero-Zero Does Not Add Up

by H. Dean Chamberlain

Recently, a well-educated and experienced pilot told me an interesting story. He said sometimes a pilot has to really scare himself before he realizes that something he did was unsafe. Then the pilot told how years earlier, he had taken off in zero-zero conditions. For those not familiar with the term, it means zero visibility and zero ceiling. Although Title 14 Code of Federal Regulation part 91 does not prohibit general aviation pilots from taking off in zero-zero conditions with the appropriate air traffic control instrument clearance, it may not be the smartest takeoff a pilot can make.

In the case of our pilot, he said he was on Cape Cod in New England with fog blanketing the area. "I was prepared to spend three days waiting for it to clear," he said. Then he said a *Bonanza* pilot asked the airport manager to drive the airport vehicle up and down the runway to scare the birds of the pavement so the pilot could take off. Once the manager had cleared the birds off the runway, the *Bonanza* pilot took off into the fog.

Our story-telling pilot said he had asked the *Bonanza* pilot to report the top of the fog layer. When the departing pilot reported he was in the clear with bright sunshine above 3,000 feet, our pilot decided to do the same. Once again, the airport manager cleared the runway for our intrepid aviator who took off into the same zero-zero conditions. Like the pilot before him, our pilot soon broke out on top of the fog layer.

At that moment, he realized he had a potential problem. "I had no place to land if I had to get the aircraft on the ground quickly," he said. The whole area was below landing minimums.

Adding to his concern was the fact his Stormscope™ was showing significant weather in some quadrants near him. Since he was flying south to the mid-Atlantic area, he asked air traffic for routing around the weather. Air traffic said his best option was to be routed eastward offshore rather than going west around the weather. He ended up flying about 35 miles offshore out over the Atlantic Ocean in his single-engine aircraft.

He didn't go offshore as far as Lindberg did in 1927, but he went further offshore than this writer would prefer to go without another engine strapped somewhere out along the wing.

Looking back, he said if he had to land in the zero-zero conditions, he thought his best option would have been to find a large military runway and set up a stabilized approach to that runway and hope he would get down okay.

He said that was the first and only time he took off in zero-zero conditions.

Was he legal? Yes.

Was he smart in taking off in such conditions? Based upon his story, he



didn't think so.

Just like we have been saying for years in this magazine about how pilots should always dress for how they want to walk home when discussing accident survival issues, we also think you should plan about how you are going to land before you takeoff. We think pre-takeoff planning for a possible immediate landing is an important part of every takeoff.

Each type of aircraft has a takeoff risk window. The window's size is based upon such conditions as the number of engines, aircraft performance, length and type of runway, end of runway obstacles (such as trees), surrounding terrain, weather conditions, temperature, and pilot skills to name a few conditions. For example, if you takeoff in a low-powered, single-engine aircraft from a small, single-runway general aviation airport surrounded by houses, you are at risk until you reach an altitude that makes it safe for you to land back on the departure runway. You have a rather large risk window during such a takeoff. If you have a high-performance, multiengine aircraft, your risk window is smaller if you can continue flight with one engine failed. The greater your risk: the larger your risk window. The smaller the risk: the smaller your risk window.

For the purpose of this article, we shall define the risk window as when the aircraft is too high and too fast to stop on the runway, but not high enough to be able to safely return for a landing on that runway. In such a case, if you are flying a single-engine aircraft, your options are limited to landing straight ahead with minor heading changes to miss an object. Most popular flight training books say to limit those heading changes to about 20 to 30 degrees left or right of your takeoff heading while avoiding stalling the aircraft.

Add in zero-zero conditions, and you can begin to see the added risk of such a takeoff in case you have an engine failure immediately after lift off. Unless you are familiar with the airport, you won't know what you are going to hit. And we all know that hitting something unexpectedly can be dangerous to one's health as well as the health of those on the ground if you hit an occupied house, building, or vehicle.

Because transient pilots may not know the location of possible emergency landing areas near an airport, some airports have current photographs of their airport's runways and the surrounding areas on display in the flight planning area so pilots can see where any clear areas may exist off the runway ends. In some cities, nearby golf courses may be the most open areas for an emergency landing.

Recently, one FAA aviation safety inspector here at the Washington Headquarters said he preferred over flying small airports before landing so he could get a good view of what is going on at the airport. Not only could he check for any departing traffic, he said, but he could check runway conditions as well as the windsock for wind direction. As he said, "It is hard to hit a snowplow when you can look down and see it on the runway." His overflights also allow him to check for any potential emergency landing

areas.

Other techniques to reduce your takeoff risk window include doing what some pilots do. They set their own personal visibility and ceiling standards for visual flight rule (VFR) flight operations well above the FAA minimums. Some instrument-rated pilots set their own IFR takeoff and landing minimums well above FAA published minimums to reduce their personal risk in reduced visibility conditions. This technique also compensates for pilots with less than checkride proficiency.

These are just a few methods pilots use to reduce their risk with weather-related takeoffs and landings. The question is not if a zero-zero or reduced Part 91 takeoff is safe. As long as you keep the aircraft between the edges of the runway and fly a standard or published departure procedure, the risks are minimal for taking off. The risk is what will you do if you have to make an emergency landing back on your departure airport right after takeoff. If the obscuring phenomena are widespread, conditions may be below minimums at nearby airports. If so, what are you going to do?

The fact is if you fly a single-engine aircraft and have an engine failure during your climb out after takeoff or you have an in-flight emergency soon after liftoff, you are going to land or crash on or near the airport. If you have an engine failure on takeoff in zero-zero conditions, you are going down with no idea what you are going to hit. The question is how many other people will be hurt by your inability to safely put your aircraft back on the ground?

So the issue of Part 91 zero-zero takeoffs is not if they are legal, the issue is your safety and the safety of your passengers and the safety of those on the ground if you decide to make a zero-zero takeoff. Ask yourself if the risks you are accepting worth what you might gain? Is the risk really worth it? The answer is probably not.

The following are some suggested things to consider if you ever think about making such a takeoff.

- Do you know and understand why you want to make a zero-zero takeoff?
- Do you have the skill to make a zero-zero takeoff?
- Do you know and understand the risks involved?
- Do you have an emergency-landing plan in case of an immediate engine failure?
- Do you have an emergency landing plan based upon various types of emergencies and how quickly you have to land?
- Do you know your options based upon the best available weather data?
- Do you know where there are airports that have landing minimums at or above your personal minimums?
- Do you have the fuel to reach those airports?
- Do you have the en route and approach charts for the airports?
- Do you know where VFR conditions are?
- Do you have the fuel to make it to VFR landing conditions?
- Do you have a plan for deciding when it is smarter to rent a car and drive home?
- Do you always remind your passengers that as the pilot in command, their safety is your responsibility and you won't fly when conditions are not safe?


## Airport Photographs

Although this article is about the risks involved in zero-zero takeoffs, it also highlights the benefits of airports displaying current airport photographs showing the areas surrounding the departure ends of their runways. If your local airport does not have current airport runway photographs displayed for pilots, you should contact the airport manager about how you or the airport could take and display the photographs.

Not only do such photographs help transient pilots visualize the local area, the photographs can help flight instructors show new students local area landmarks and airport procedures.

Some airports are now listing their airport photographs on the Internet. Pilots planning on flying to one of these airports can now check out the airport from the comfort of their living rooms. Other sources of airport photographs include some of the area specific flight guides such as those for the backcountry airports of Idaho and the surrounding areas.

# The AME's Definition of Hypertension

by Donato Borillo, MD, JD

High blood pressure is a risk factor or a cause of more than 210,000 deaths in the U.S. each year and is often called the silent killer.

There is a saying among aviators, "Being legal does not mean you're safe or proficient." The same axiom holds true regarding high blood pressure, since recent changes in this disease's definition seemingly conflict with FAA regulations.

Aviation medical examiners (AMEs) understand the measurement of blood pressure as an essential part of the FAA medical certification examination. A pilot is disqualified for all classes if she, or he, has a sitting systolic blood pressure above 155 mm mercury or a diastolic pressure above 95 mm mercury at the time of the exam.

However, on May 14, 2003, the National Heart, Lung, and Blood Institute (NHLBI), a division of the Department of Health and Human Services and National Institutes of Health, issued new blood pressure standards. [NOTE: The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7).]

As defined by the NHLBI, a blood pressure of 120/80 mmHg (or higher) is now considered prehypertension, a precursor condition to hypertension, which serves as a warning signal that risk is increased for high blood pressure. The new report also changes the former blood pressure definitions (see Table 1).

The new guides also recommend a change in medication use. [NOTE: Simplified and strengthened drug treatment recommendations. The guidelines recommend use of a diuretic, either alone or in combination with another drug class, as part of the treatment plan in most patients. The report notes that even though many studies have found diuretics to be effective in preventing hypertension's cardiovascular complications, they are currently not being sufficiently used. The guidelines also list other drug classes that have been shown to be effective in reducing hypertension's cardiovascular complications and that may be considered to begin therapy: angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers, beta-blockers, and calcium channel blockers. The report also gives the "compelling indications" —or high-risk conditions—for which such drugs are recommended as initial therapy. Use of additional drugs for severe hypertension or to lower blood pressure to the desired level. According to the new report, most persons will need two, and at times three or more, med-

## Table 1. Revised hypertension standards issued by the National Heart, Lung, & Blood Institute.

***Note: These are not FAA-approved medical certification standards.***

### *New NHLBLI Hypertension Standards*

| *Condition* | *Systolic (mm Hg)* | *Diastolic(mm Hg)* |
|---|---|---|
| *Normal* | *< 120* | *< 80* |
| *Prehypertension* | *120-139* | *80-89* |
| *Stage 1 hypertension* | *140-159* | *90-99* |
| *Stage 2 hypertension* | *≥160* | *≥ 100* |

ications to lower blood pressure to the desired level.]

An aviator could, therefore, have untreated stage 1 hypertension (and possibly stage 2 hypertension) and still be within the medical standards—legal—to fly.

We know that pilots with a diagnosis of hypertension or those on medication to control blood pressure must provide a detailed cardiovascular evaluation for FAA consideration. So, what's an AME to do? And, does this "new definition" imply an increased risk for sudden incapacitation (the underlying factor for medical disqualification)?

The simple answer is, no. The AME should identify the elevated, but legal, blood pressure, inform the airman applicant of its health impact, and make recommendations for life style changes and medical follow-up. The AME should refer the patient back to his, or her, primary care physician and may issue the certificate. If the AME happens to be the primary care provider for the aviator, a work-up for essential hypertension should be conducted.

If a diagnosis of high blood pressure is subsequently made, or anti-hypertensive medication is initiated, these actions effectively suspend the medical certificate, since this would be considered a significant change in medical condition or history. Pilots with a diagnosis of hypertension or those on medication to control blood pressure must provide a detailed cardiovascular evaluation for FAA consideration.

The consequences of high blood pressure, if left untreated, should be stressed to the aviator, since damage to major organs, including the heart, brain, and kidney may occur. It is a major risk factor in heart failure, heart attack, stroke, kidney failure, and certain kinds of blindness. High blood pressure is a risk factor or a cause of more than 210,000 deaths in the U.S. each year, and is often called the silent killer.

Although it is legal to fly with a prehypertensive condition, it may not be healthy in the long run.



*Dr. Borrillo is the Medical Director of Occupational and Hyperbaric Medicine, The Toledo Hospital, ProMedica Health System. He is also a senior aviation medical examiner, an attorney, and a pilot with a Commercial rating. This article originally appeared in the* Federal Air Surgeon's Medical Bulletin.

# An Aviation Medical Examiner's "Biggest Problem"

My biggest problem in the office with the exams is getting high readings from "white-coat hypertension." If the pilots lie down for a while and their blood pressure comes back to FAA-acceptable limits, I naturally issue the certificate. Sometimes I tell them to buy (for around 45 bucks) a home blood pressure outfit with digital readout (no stethoscope needed) to monitor their readings several times a day and see what the average is for the week. Certainly the 155/95 limit is very liberal. I think many pilots in the prehypertension range should be treated. A pilot with a continued reading of 150/90 definitely is at risk, although he may be issued a medical certificate.

This must be a common problem seen by other AMEs. The number of pilots who are currently on antihypertensive medication, I recall, was over 25,000.

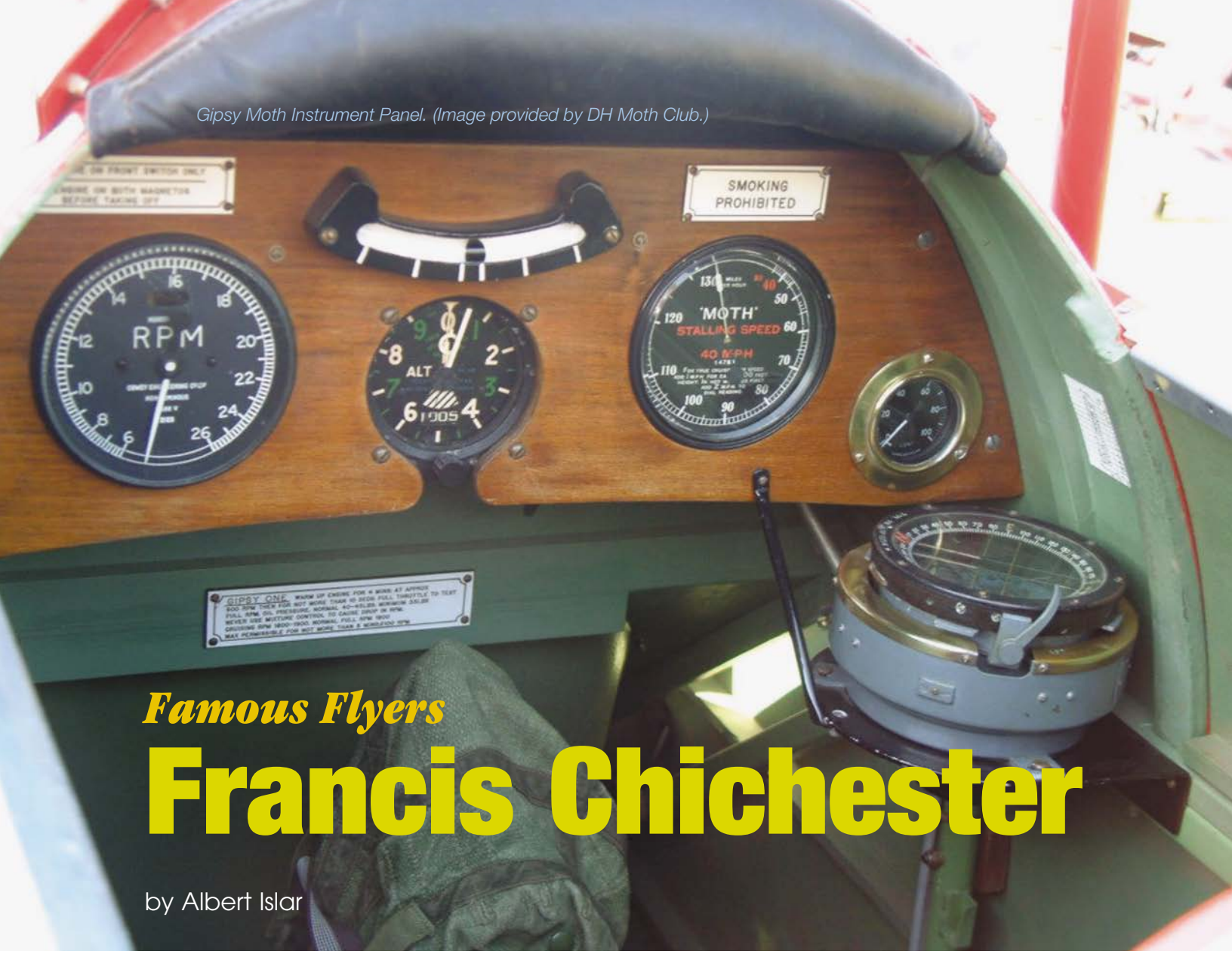
I guess once a day I get a pilot who is somewhat apprehensive and I have him (or her!) lie down and relax for a while. But, is this pilot just suffering from "white-coat" hypertension or is this reading a sign of true hypertension? An appropriate (examiner's decision) comment from the AME is always needed.

Also, I have many pilots come for their exam without bringing appropriate documentation for their first report of being on antihypertensive medication or the briefer report for subsequent visits. (Mr. Jones continues to be on Lotensin 20/25 once a day. His blood pressure is well controlled with this medication without side effects. The last BP reading was 120/72 on June 3, 2003. His potassium is normal at 4.5 [Because he is on a diuretic].")

I have copied the requirements for the initial and subsequent hypertension-control reports for them to give their physician. Saves time and lets their doctor know exactly what is needed. All this is in the *Guide for Aviation Medical Examiners.*

*Glenn R. Stoutt, Jr., MD, is a Senior AME with the Springs Pediatric and Aviation Medicine Clinic in Louisville, Kentucky*






Gipsy Moth Instrument Panel. (Image provided by DH Moth Club.)

## *Famous Flyers*

# Francis Chichester

by Albert Islar

At age 65 when most working people are looking forward to a quieter life, Francis Chichester set out in the *Gipsy Moth IV* to fulfill his dream of sailing around the world alone. That dream triumphed on May 27, 1967, when Chichester returned to England after circumnavigating the globe in nine months and one day.

Chichester received wide acclaim for that feat of courage and skill. In a rare public ceremony at the Prime Meridian Line in Greenwich, England, Queen Elizabeth II elevated him to the rank of Knight Commander of the British Empire. Chichester was knighted with the same sword Queen Elizabeth I used in the year 1580 to knight Francis Drake, the first Englishman to sail around the world.

Seven years earlier, Chichester won the first solo Trans-Atlantic yacht race and was named "Yachtsman of the Year." During the forty-day crossing from Plymouth, England, to New York City, he battled gale-force winds and pounding ocean, struggled with gear and sails too heavy for him to handle alone, and sailed in constant dread of colliding with icebergs and trawlers. On top of that, Chichester carried a heavy personal burden inside him. Two years earlier he had been diagnosed with incurable lung cancer.

In 1961, Chichester received the "Gold" medal from Britain's Royal Institute of Navigation. The President of the Institute said, "We consider Mr. Chichester the greatest single-handed navigator of the age."

Now, as newsworthy as this story is, you may be wondering: "What is a story about a yachtsman doing in an aviation magazine?" Having just finished a centennial year commemorating the Wright Brothers first powered flight, it seems fitting to also remember Sir Francis Chichester for the notable contributions he made to aviation long before he achieved recognition as a world class yachtsman.

### Getting His Wings

Francis Charles Chichester was born at Barnstaple, England, in 1901. At age eighteen, he emigrated to New Zealand with the today's equivalent of seventeen dollars in his pocket. Between 1919 and 1929, young "Chester" survived the rough adventures of working on a sheep station,

*Gipsy Moth IV at Sea.* (Francis Chichester, *by Anita Leslie photo)*

mining high mountain coal, gold prospecting, hawking newspaper subscriptions from door to door, and running a timber and land sales business.

Airplanes did not immediately interest Chichester. But the urgings of his business partner changed his mind, and in 1927 the Goodwin and Chichester Aviation Company was formed. Even though 6,000 people paid for joy rides in the company's two planes, the company was unprofitable. Now that Francis was hooked on aviation, selling property only interested him to the extent it financed his flying activities.

Initially, Chichester showed no aptitude at flying. He "took nearly three times the time needed by the average student," says Anita Leslie in her book *Francis Chichester*.

Leslie writes that Chichester's "chief credit lies in his determined will to master things he found naturally most difficult." That willpower spurred him to return to England in July 1929 to finish his flight training, buy an airplane, and fly it back to Australia.

In August 1929, after nearly forty hours of dual instruction, Chichester had his "A" license. He was legal to fly solo. He bought the best airplane he could afford, a De Havilland *Gipsy Moth* that weighed only 915 pounds. Getting a basic flying license was one thing, flying alone to Australia would be quite another. No wonder this neophyte pilot thought to himself, "Had I set my heart on doing the London-Sydney flight without possessing enough of the art to pilot a plane solo round an easy aerodrome and in perfect weather?"

Between October and December Chichester set off on a self-taught flying regimen to hone his flying and navigation skills. He flew the *Gipsy Moth* across the English Channel to Paris, Nice, Milan, Venice, Belgrade, and Zagreb. Thence over Warsaw to the boundaries of the Ukraine and Leipzig. Occasionally, forced off his route by weather, Chichester would land frightened and hungry in unknown territory.

Near Munster, Germany, fog forced him to land in a farmer's field. The farmer insisted Chichester and his airplane spend the night under the same roof as the farmer and the farmer's children, father, mother, grandmother, and five cows! The *Gipsy Moth* and the cows shared the hall.

By December 1929, Chichester only had about 100 flying hours under his belt. Yet, he felt sufficiently capable of taking on the arduous 14,500-mile flight to Sydney. He had the nerve, the airplane, and the readiness.

## London to Tripoli

The long-awaited day came in the early hours of December 20, 1929. Weighing 1,800 pounds, the fully




*Chichester at Sea, Extreme Endeavors Stamp. (Image provided by Royal Mail.)*

loaded *Gipsy Moth* climbed into the murky night sky on the first leg to Lyons, France. The plane doubled as a flying stock room. On board were 63 spare parts varying from piston rings to a rubber boat complete with mast, sail, pump, and oars.

Chichester was not long airborne before problems began popping up. He overestimated his drift. A planned fifteen-minute crossing of the English Channel turned into an hour. Over the Channel, the altimeter read 5,500 feet when the airplane was really 800 feet over the water. Stiff with cold after hours in an open cramped cockpit and fatigued by noise and vibration, Chichester fought off an overpowering desire to sleep. Seven hours later, he landed safely at Lyons.

Departing Lyons, Chichester worried if the fully loaded airplane had enough power to climb over the 10,000-foot high Alps. He was tremendously relieved to find his fears unjustified. However, Chichester had an uneasy crossing of the Mediterranean. The altimeter was broken, there was no radio, and instrument lighting was a hand held flashlight that worked some of the time. During the nighttime landing at Tripoli, Libya, he mistook a water

## Chichester and the Gipsy Moth

(Ride on the Wind, *by Francis Chichester photo.)*

filled salt pan (a shallow basin in the ground that produces salt by salt water evaporation) for a runway and broke the plane's propeller. Still, Chichester had reason to be proud of where he was. In just two days he had flown from England to Africa, a distance of nearly two thousand miles. Not bad, he thought, for a "makee-learn" pilot who had only learned to fly in the last six months.

While awaiting a replacement propeller from England, Chichester was asked to represent Britain's aviators at the funeral of LaSalle and his crew. LaSalle was a French pilot who had crashed in the desert while attempting to fly from France to Indo-China. With thousands of miles of treacherous flying ahead, the funeral didn't do much for Chichester's peace of mind.

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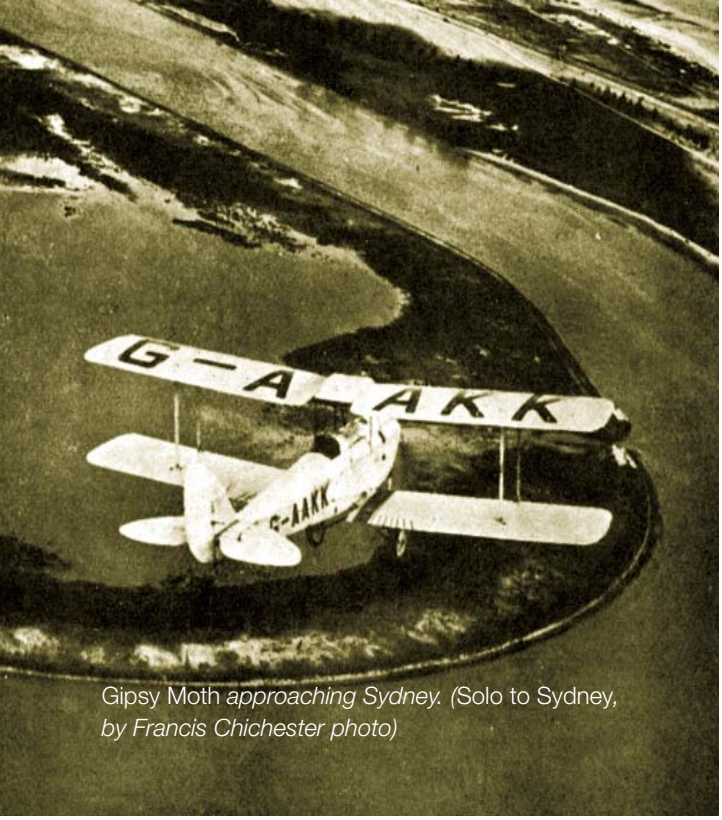
*London to Sydney route map. (Copyright 2003 the Chichester Challenge. Map copyright and courtesy of NationalGeographic.com)*

## to Sydney

anuary 9, 1930, Chichester gladly departed India via Egypt, Iraq, Iran, and Karachi. The s punishing for both man and machine. The gine required daily maintenance. "Every night on ar- efore leaving the next morning," said Chichester, "I spect the engine, change the eight sparking plugs, re- clean the petrol filter, drain and replace the oil, check and ere necessary all tappets, grease all moving parts, fill up all petrol. Then you have yourself to look after."

ester's "cat naps" between flights frequently featured hearing ent eastern music. The "music" helped him to sleep, but he ented by nightmares of loosing his vision while flying along e could do was wait for the crash.

Cheribon in the Dutch East Indies, he had one of many close extremely heavy rainstorm blocked his path. "Visibility was and it was nervy work watching for trees. The water stung my like hail and streamed down my chest and down my back. I yself for a fool and fled. If only I can get out of this and reach a round nothing on earth will budge me from it till this monsoon




Gipsy Moth *approaching Sydney. (*Solo to Sydney, *by Francis Chichester photo)*

is finished," he told himself.

Chichester had no sooner "fled" than he turned around, trying again to outmaneuver the storm. He spotted a Dutch trimotor Fokker flying a few feet above the sea about 50 yards off shore and he declared: "If he could do it, I could. I pushed right into it."

A few feet above the sea and "bumped all over the place," Chichester throttled back to 65 miles per hour, afraid to go any slower.

"It was hard to distinguish where the atmosphere ended and the sea began," he said. "I missed the masts of a junk or fishing boat by inches. It was no jolly good." Realizing there might be obstructions ahead of which he knew nothing, he turned and forced-landed on a beach.

On Timor Island, the last stop before Australia, Chichester overhauled the engine and checked the rubber boat for leaks. He was well aware that the 320-mile long sea between Timor and Australia had claimed many pilots. But the weather was perfect. Surprisingly, the Timor-Australia leg turned out to be the easiest flight of the whole 14,500-mile trip.

Landing at Darwin, Australia, Chichester felt he was finally home. But not quite. Ironically, he described the Darwin to Sydney legs as 1,380 miles of the "most difficult in the country for navigation he had ever met. There seemed to be no landmarks just flat brown desert." He almost ran out of fuel and feared that if he crash-landed, he might die before assistance came.

On January 19, 1930, Chichester saw the suburbs of Sydney. "The excitement chased out all other sensations," he said. A mere six months had passed since he began training for his unheralded solo flight. Only a handful of well wishers watched his nighttime departure from London. Now a stream of airplanes flew up to escort him to the airfield as thousands on the ground cheered.

Chichester's London to Sydney flight was followed by other flying achievements. In 1931 he converted the *Gipsy Moth* into a seaplane and made the first East to West solo flight in a seaplane from New Zealand to Australia, 1,450 miles over open ocean across the Tasman Sea. Failure to accurately navigate to his refueling stops, small Norfolk Island and Howe Island, would have resulted in crashing into the sea with no one to rescue him.

The Prince of Wales, who became King Edward VIII, presented Chichester with the coveted British Guild of Air Pilots and Air Navigators Johnston Memorial Trophy for the exceptional navigational skills he displayed crossing the Tasman Sea. The navigational system Chichester devised for the Tasman flight became the standing procedure for use by the British Coastal Command in the latter years of WWII.

On July 3, 1931, Chichester flew the first long distance solo flight in a seaplane from Australia to Japan. A crash at Katsuura, Japan, nearly cost him his life and ended any plans of a solo flight around the world. However, Chichester remained fascinated by the science of navigation. Though flying remained his first love, he offered his services as a navigator to the yachting world and eventually he became a yachtsman.

From 1953-57, Chichester set speed and endurance records in 16 ocean races leading up to his acclaimed circumnavigation of the world in 1967. However, in 1971, he was diagnosed with cancer again. On August 26, 1971, Sir Francis Chichester died quietly with his wife Sheila and his son Giles at his bedside.

Like the Wright Brothers, Sir Francis Chichester is remembered for his notable contributions to aviation. On April 29, 2003, Britain's Royal Mail released "The Extreme Endeavors," a set of six stamps that recognizes the dramatic achievements of explorers and adventurers over the last century who are a "testimony to the courage and passion of the human spirit."

Along with such legends as Scott, Shackelton, Stark, Johnson, Hillary, and Norgay there is a stamp in honor of Sir Francis Chichester, yachtsman, navigator, mapmaker, author, but first of all world class pioneer aviator.

In December 2004, a reenactment is planned of Sir Francis Chichester's London to Sydney flight in a *Gipsy Moth* biplane rebuilt to the same specifications as Chichester's original biplane. The flight will be authentic right down to the clothing and map and compass Chichester used in his 1929 flight. For more information go to <www.chichester-challenge.com>.

Chichester's office and home at 9 St. James's Place, London SW1 houses pictures, books and interesting memorabilia of the life of Sir Francis Chichester and is open to the public.

*Albert H. Islar, Jr. is with the FAA's Pittsburgh Certificate Management Office (CMO), and also provided all illustrations for this articie..*



# RUNWAY SAFETY CORNER

## GA Checklist for Taxi at Departure and Arrival

*The following information comes from Advisory Circular 91-73, Part 91 Pilot and Flight Crew Procedures during Taxi Operations and Part 135 Single-pilot Operations. This advisory circular provides guidelines for the development and implementation of standard pilot procedures for conducting safe aircraft operations on the airport surface. It focuses on the activities occurring on the flight deck/cockpit (e.g., planning, communicating, coordinating), as opposed to the actual control of the aircraft (e.g., climbing, descending, maneuvering). Although there are many similarities, taxi operations for single piloted aircraft, as opposed to taxi operations for aircraft that require more than one pilot, present distinct challenges and requirements.*

*Over the next several issues, we will be presenting portions of this advisory circular. This section reproduces the sample general aviation checklist for taxi at departure and arrival. To obtain the advisory circular in its entirety, it and other related advisory circulars can be found at* <http://www.faarsp.org/cockpit.html>.

### Before starting engines:

| | |
|---|---|
| Airport Diagram | Review & keep available |

***Engine start -***

| | |
|---|---|
| Rotating beacon | ON |
| Engine start checklist | Complete |

***Before taxi -***

| | |
|---|---|
| Taxi clearance | Noted/Readback* |
| Airport Diagram | Review & keep available |
| Navigation lights | ON |
| Taxi light (night operations) | ON |

***Taxi -***

| | |
|---|---|
| Ground Frequency | Monitor |
| Taxiway intersections | If in doubt, verify cleared |
| Runway crossings | If in doubt, verify cleared |

***Before crossing a runway –***

| | |
|---|---|
| Runway surface | Scan for conflicting traffic |
| Approach/departure ends | Scan for approaching traffic |

***Crossing runway -***

Expedite until entire aircraft is clear of runway holding position markings

***Arrival at active runway -***

Hold short of runway holding position markings

| | |
|---|---|
| Ready for takeoff | Advise tower |

***Entering active runway for takeoff -***

| | |
|---|---|
| Takeoff clearance | Received & readback |
| Runway surface | Scan for conflicting traffic |
| Approach/departure ends | Scan for approaching traffic |
| Landing/Strobes/logo lights | ON |
| Takeoff | Expedite when cleared |

***Non Towered Airports:***
***Announce taxi intentions on CTAF / Unicom***
***Do 360º scan for inbound and non-radio aircraft before entering runway***

### Landing at an Airport:

In range/descent (10 NM out and at or below 10,000 for turboprop and jet aircraft):

| | |
|---|---|
| Airport Diagram | Review & keep available |
| Landing/Strobe/logo lights | ON |

***Exiting Runway -***

| | |
|---|---|
| Taxi instructions/hold shorts | Noted/ Readback* |

Expedite until your aircraft is clear of runway holding position markings

***Taxi after Landing -***

| | |
|---|---|
| Taxi clearance | Received |
| Taxiway intersections | If in doubt, verify cleared |
| Runway crossings | If in doubt, verify cleared |

***Before crossing a runway -***

| | |
|---|---|
| Runway surface | Scan for conflicting traffic |
| Approach/departure ends | Scan for approaching traffic |

***Crossing runway -***

Expedite until entire aircraft is clear of runway holding position markings

***Arrival at parking -***

Shutdown checklist

****Readback all runway crossing and hold short instructions***

# REVISED SPECIAL AIRWORTHINESS INFORMATION BULLETIN

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation

**Federal Aviation Administration**

No. SW-03-08R1
November 10, 2003

***We post SAIBs on the Internet at <www.faa.gov/certification/aircraft>.***

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*This is information only. Recommendations are not mandatory.*

**Introduction**

**As a result of continued accidents due to loss of power from snow or ice ingestion on turboshaft-powered rotorcraft, we are reissuing this Special Airworthiness Information Bulletin (SAIB) and are urging you to follow our recommendations.**

This SAIB alerts you, owners and operators of turboshaft-powered rotorcraft, of the possibility of in-flight engine loss of power due to the ingestion of ice and snow. Accumulation of ice and snow can occur in the area of the airframe engine inlet while the rotorcraft is on the ground or in the air. **This SAIB describes procedures to reduce the probability of engine in-flight shutdown due to ice and snow ingestion.**

**Background**

We have determined that ingested ice and snow accumulation in the airframe engine inlet while the rotorcraft is on the ground can cause the engine to loose power. This has resulted in accidents and fatalities. Snow and ice can build up in the engine intakes and plenums when the rotorcraft is on the ground without the engine(s) operating or when the engine is at a low power setting on the ground for extended periods. When a pilot increases engine power during takeoff, the accumulated snow and ice can separate from the airframe inlet surface and be ingested into the engine resulting in decreased power or complete engine failure. **Some of the early turboshaft engines with axial inlets are particularly susceptible to loss of power due to ice and snow ingestion.**

On the ground with the engine(s) operating at a low power setting, ice and snow can accumulate on the airframe cowl forward of the inlet, on the inlet lip, and inside the inlet. Under extreme conditions, usually when the rotorcraft is on the ground waiting for clear weather, the buildup of ice and snow can be enough to cause the engine(s) to lose power or fail completely if it is ingested.



On the ground with the engine(s) **not** operating, proper use of inlet inserts (pillows) or inlet covers can eliminate the accumulation of snow, but these measures cannot fully guarantee non-formation of ice in the inlet. Ice can also develop in the inlet area when water seeps into the inlet from rain or snow melting on a warm cowl, even when you use proper inlet protection.

**Recommendations**

**We highly recommend and strongly urge you to perform the following:**

- Review the aircraft Flight Manual for Limitations and Operations guidance in falling/blowing snow and/or icing. Many aircraft are prohibited from operating in known icing and/or heavy snow.

- Perform Basic Airmanship in the appropriate evaluation of current and predicted weather briefings from the area Flight Service Station.

- When the aircraft is on the ground without the engines operating install inlet and exhaust inserts or covers.

- Prior to engine start, after removing the inlet/exhaust inserts or covers, perform a complete inlet/exhaust inspection (using a flashlight). The inspection should include surfaces inside the inlet, the cowl area forward and around the inlet, and the area behind the particle separator or screen (if installed). Remove all accumulated snow or ice.

- ***CAUTION:*** **DO NOT remove ice or snow by chipping or scraping!** Use heated air or deicing fluid as necessary. In freezing temperatures, pay particular attention to sheet ice on the bottom and forward of the inlet. This ice can also form behind particle separators. Engine preheating may be required.

- If it is necessary to keep the rotorcraft on the ground for an extended period (i.e. waiting for clear weather), you should shutdown the engine(s). Prior to takeoff, you should accomplish a detailed pre-flight/inspection, removing any snow/ice build-up. You should perform the inspection even if the rotorcraft is fitted with some form of inlet protection such as screens or baffles.

**For Further Information Contact**

Matthew Rigsby, Continued Operational Safety (COS), FAA Rotorcraft Directorate, Standards Staff, Fort Worth, Texas 76193-0110; phone (817) 222-5125; fax (817) 222-5961;
email: matthew.rigsby@faa.gov

# Aviation Maintenance Alerts

## Cessna Model T-310Q
## Nose Landing Gear Idler Bellcrank Failure; ATA 3230

The idler bellcrank (P/N 08421022) for the nose landing gear retraction linkage broke when the landing gear was selected to the up position. The pilot was unable to extend the nose gear. Upon landing, the nose gear retracted into the wheel well. The technician discovered the idler bellcrank broke and caused the nose gear to be disconnected from the gearbox.

The submitter suspects improper rigging of the landing gear caused excessive stress on the bellcrank. He also stated that mechanics need to remember that due to the design of the landing gear system on the twin engine Cessnas, any adjustments made to any of the many components of the landing gear effects the entire system and requires a complete recheck of the landing gear rigging. A search of the FAA Service Difficulty Reporting Program database revealed 13 additional reports on the idler bellcrank (P/N 08421022), which is also used on the Cessna 320s. Part total time - 2,075 hours.

## Service Difficulty Report Data

This is a selection of the reports printed in the *Aviation Maintenance Alerts*. These reports are derived from unverified information submitted by the aviation community with FAA review for accuracy.

| ACFT MAKE | ENG MAKE | COMP MAKE | PART NAME | PART CONDITION | DIFF-DATE | TTIME |
|---|---|---|---|---|---|---|
| ACFT MODEL | ENG MODEL | COMP MODEL | PART NUMBER | PART LOCATION | OPERCTRL NO | TSO |
| REMARKS | | | | | | |
| | LYC | | DIPSTICK | CHAFED | 08/18/2003 | 2600 |
| | | O360A1G | LW14789 | OIL SYSTEM | 426 | |

OIL LEVEL INDICATOR (DIP STICK) ROD BECAME LOOSE IN HOUSING (THREADED CAP) THAT HOLDS ROD IN PLACE. THIS OCCURED WHERE ROD FITS INTO SCREW-IN PART OF DIP STICK CAP. THIS ALLOWED ROD TO MOVE IN AN ARC OVER 1INCH IN TRAVEL OVER A RANGE OF 360 DEGREES (AS MEASURED AT END OF ROD OPPOSITE SCREW-IN CAP) ALLOWING ROD TO RUB AND CHAFE WHERE ROD ENTERS ENGINE CRANKCASE. WHEN MEASURED ROD HAD CHAFED DOWN .030 INCH. MAIN CONCERN WOULD BE THAT ROD WOULD BREAK AT CHAFE POINT OR ROLL PIN WOULD WEAR AND ALLOW ROD TO FALL INTO ENGINE CASE. UPON CHECKING OIL FILTER AND OIL SUCTION SCREEN, NO LARGE AMOUNTS OF METAL WERE FOUND. DIP STICK LW-14789 WAS REPLACED ALONG WITH ENGINE OIL AND FILTER TO CORRECT THIS.



| | | | | | |
|---|---|---|---|---|---|
| BEECH | | COMBUSTION | DEFECTIVE | 07/17/2003 | |
| 95A55 | | 51A45 | HEATER | | |

HEATER CORE RETURNED TO US BY CUSTOMER AFTER PURCHASING AN EXCHANGE/OVERHAUL HEATER. TEAR-DOWN/CLEANING OF CORE REVEALED COMBUSTION HEAD WITH A 3/16 X 1/4 INCH HOLE IN THE WALL OF THE COMBUSTION HEAD. THIS IS THE THIRD HEAD WE HAVE FOUND WITH A HOLE IN IT. A PRESSURE DECAY CHECK OF THE HEATER ASSEMBLY WILL FIND THESE HOLES QUICKLY, IF PERFORMED. RECOMMEND PRESSURE CHECK OF ALL COMBUSTION AIRCRAFT HEATERS FOR CONTINUED SAFE HEATER OPERATION.

| | | | | | |
|---|---|---|---|---|---|
| CIRRUS | CONT | BOLT | SHEARED | 07/07/2003 | 1009 |
| SR20 | IO360* | 6524201048 | NR 2 & 3 CYL | | |

WHILE PERFORMING A COMPRESSION CHECK ON THE CYLINDER FOR THE 100 HOUR INSPECTION, HAPPENED TO LOOK AT THE CYLINDER BOLTS AND NOTICED ONE OF THE NUTS WAS MISSING ON THE TOP FORWARD THRU BOLT ON THE NR 2 CYLINDER. LOOKED AROUND ON THE BAFFLIING AND FOUND THE OTHER PIECE OF THE BOLT WITH THE NUT STILL ATTACHED. WENT OVER TO THE NR 3 CYLINDER TO LOOK AND FOUND THAT THE NUT WAS MISSING ON THE THRU BOLT AFTER LOOKING AROUND THE AREA, FOUND THE NUT ON THE CYLINDER BAFFLE. AFTER LOOKING AT THE NUT AND THE THRU BOLT, IT APPEARS THAT THE THRU BOLT WAS OVERTORQUED AT THE FACTORY. HAD TO REPLACE BOTH UPPER AND LOWER THRU BOLTS.

| | | | | | |
|---|---|---|---|---|---|
| MOONEY | LYC | FORK | CRACKED | 05/05/2003 | 12000 |
| M20C | O360A1A | B24573 | PITCH CHANGE | 200 | |

PITCH CHANGE FORK WAS CRACKED, POSSIBLY DUE TO EXCESSIVE ENGINE VIBRATION. PROPELLER HAD 200 HOURS SINCE LAST OVERHAUL. CUSTOMER WAS ADVISED TO HAVE PROPELLER, DYNAMICALLY BALANCED TO AVOID ANY FURTHER DAMAGE TO PROPELLER ASSEMBLY.

**The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products and can be found on the Web at <http://www.faa.gov/avr/afs>. Click on "Maintenance Alerts" under Regulations and Guidance. The monthly contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports, Service Difficulty Reports, and Maintenance Difficulty Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Aviation Data Systems Branch (AFS-620); P.O. Box 25082; Oklahoma City, OK 73125-5029.**


Ray Stinchcomb photo

## I'M SAFE

# Preflight yourself before you fly

by J.C. Boylls

I think I lost a friend today.

Communications between people, in the best of worlds, is a problem at best. At worst, it causes considerable emotional upheaval. This, if it results in some kind of personal loss, leads in turn to many things—loss of appetite, withdrawing into oneself, and fear that anything one does will cause problems. It can degrade one's physical skills and interfere with rational decision making.

Amazing but true.

While the particulars in my case aren't important to anyone else, what it did was get me to think about how it affected me, both in the cockpit and as an examiner. Among other things, I found myself much more irritable when driving around town and less tolerant of what those other idiots on my road were doing. Emotions can play the devil with your daily life, much more than you might expect.

Pilots in particular need to be aware of their physical and emotional states before strapping in. Accident reports show that pilots must preflight themselves as seriously as their aircraft. Impairment contributes to many more accidents than aircraft systems failures. I use a personal checklist to help me assess my physiological condition—I'M SAFE. It's an important attitude for us to fly by—and pass along to our students.

## Illness

Even minor illnesses can seriously degrade our performance of those aviating tasks essential to safe flight. An illness with fever, headache, or other distracting symptoms gets in the way of judgment, memory, alertness, and our ability to calculate. The best rule is not to fly while going through any illness. Should you consider this rule too tough for a particular situation, contact an aviation medical examiner.

## Medical Condition/Medication

Even though you might be able to control your symptoms with a medication, the medication—whether over-the-counter or prescription—may decrease your performance. Many of these, such as strong pain relievers, cough suppressants, tranquillizers, and sedatives, have side effects that can impair our judgment, memory, alertness, coordination, vision, and the ability to concentrate on our job. Other medications, such as antihistamines, blood pressure drugs, muscle relaxants, diarrhea control agents, and motion sickness drugs, have side effects that can affect the same things. Any nervous system depressant, such as sedatives, tranquillizers, or antihistamines, can also make us much more susceptible to hypoxia.

The regulations prohibit pilots from performing crewmember duties while using any medication that adversely affects their faculties contrary to safety. They also prohibit a pilot with a current medical certificate from being a flight crewmember while that pilot has either a known medical condition or an increase of a known medical condition that would make the pilot




Mario Toscano photo

unable to meet the standards for the medical certificate (14 CFR §61.53, "Operations During Medical Deficiency").

## Stress

Stress from the pressures of everyday living can get in our way too, often in subtle ways. Difficulties, especially at work or at home, can impair our thought processes enough to radically decrease our alertness. Distraction can interfere with our judgment enough that we might take risks we know better than to take, such as flying into worsening weather conditions to keep on some schedule. Stress and fatigue can be very hazardous together. Most pilots don't leave stress "on the ground." When you experience more than your usual number of difficulties, consider delaying your flight until the stressors get fixed.

## Alcohol

Continuing research has turned up some new information about the hazards of combining alcohol and flying. For example, as little as one ounce of liquor, one bottle of beer, or four ounces of wine can impair our flying skills, with the alcohol consumed in these drinks being detectable in the breath and blood for at least three hours. Even after the body completely metabolizes a moderate amount of alcohol, we can still be severely impaired for many hours by a hangover. Furthermore, alcohol also makes a pilot much more susceptible to spatial disorientation and hypoxia.

A consistently high alcohol-related fatal aircraft accident rate should emphasize that alcohol and flying are a lethal combination. The regulations prohibit pilots from performing crewmember duties within eight hours after drinking any alcoholic beverage or while under the influence of alcohol. However, because of the body's slow rate of metabolizing alcohol, a pilot may still be under the influence much longer than eight hours after drinking. Therefore, an excellent rule to follow is to allow at least 12 to 24 hours between "bottle and throttle," depending on how much alcohol one drinks.

## Fatigue

Fatigue is still one of the most treacherous hazards to flight safety, since pilots might not notice it until they make some serious error(s). Fatigue is usually described as either acute (short term) or chronic (long term).

Acute fatigue is a normal result of day-to-day activities—the tiredness you feel after periods of physical and mental strain (such as practical tests), including strenuous muscular effort, immobility, heavy mental workload, strong emotional pressure, monotony, and sleep deprivation. As a result, coordination and alertness, so vital to safe pilot performance, are reduced. One can ease acute fatigue by getting enough rest, exercising regularly, and eating properly.

Chronic fatigue is a result of not having enough time to recover completely between acute fatigue episodes. Your pilot performance will continue to deteriorate and your judgment will become so impaired that you'll do risky things you wouldn't ordinarily do. Recovery from chronic fatigue requires an extended rest period.

## Emotion

Certainly, we all know that emotionally upsetting events, which include serious arguments, death of a family member, separation or divorce, loss of job, financial catastrophe, or, as in my case, losing a friend, can make us unable to fly safely. Anger, depression, and anxiety from such events not only decrease alertness, but also can lead to taking risks bordering on self-destruction. Any pilot who experiences an emotionally upsetting event should not fly until satisfactorily recovered from it.

Not long ago, I had an applicant who had been involved in a nearly serious automobile accident on the way to the airport, which is to say he escaped without physical injury. What do you think his practical test performance was like? Realizing something was wrong, I stopped the test, and we finished another day. Still, I wonder what his instructor taught him about how stress affects performance?

In my case, I had a weekend to recover from my upsetting experience. However, I did notice my relations to everyone else took a beating. I'm sure my applicants were glad for the respite—for once, my bite would've been as bad as my bark!

*J.C. Boylls is a NAFI Master CFI. This article is reprinted with permission from the* NAFI Mentor.

# Set-Up System
# Seven steps for easy approaches

by Ray Rusek

In the course of flying an airplane, pilots use a variety of mnemonics and acronyms to remind them of the task they must perform during various phases of flight. For example, many pilots even use familiar ones like MAGIC, the 5 T's, and GUMP (in FADEC-equipped airplanes it's shortened to GU).

Setting up for an instrument approach is a busy time in the cockpit, and it is a perfect time to use a mnemonic to reduce the workload. Such an aid can also help reduce excessive head movement that comes with referencing a checklist, a possible cause for vertigo under the hood or in actual instrument meteorological conditions (IMC).

During my instrument training, my instructor, Frank DeBartolo, taught me the mnemonic acronym WRIMTIM for exactly such a purpose. Frank can't remember where he learned it, and, so far, it's the only aid I've found for this situation.

WRIMTIM (pronounced "rim-tim") helps pilots acquire all the information they need to set up an instrument approach. By the time they reach the final approach fix, all pilots need to do is fly the approach. The prep work is finished, and they avoid distractions during a critical portion of the flight. WRIMTIM has seven steps.

**1. Weather:** Pilots should use ATIS or AWOS to get current weather conditions at the arrival airport, including winds, temperature, dewpoint spread, visibility, and ceilings. This information confirms what the pilots expected from their weather briefing, so that prior to arrival the pilots will have a good idea of the approach that will be used.

**2. Radios:** Pilots should systematically work their way through their radio stack to program all the proper frequencies and settings. Luckily, many pilots flying IFR-capable machines have two nav/comms that allow them to have an active and standby frequency queued up—ATC or approach control on the active frequency, then either tower or UNICOM frequency, as appropriate, on the standby frequency or on the other comm.

If frequency flip-flops are available, the standby No. 1 nav/comm can be tuned to the missed approach frequency. On an ILS, the No.2 nav/comm can have the localizer frequency ready if pilots are already using it for intersection identification.

Next, pilots should set navigation frequencies. For a VOR or ILS approach, pilots need to dial in the proper frequency and radial, assuming a procedure turn is not necessary.

Pilots can use the No.2 nav for a variety of purposes. If a procedure turn is used, this OBS can be used for outbound navigation while the No.1 radio is set up for the approach. After the procedure turn, the OBS can be changed to the inbound heading to backup the No.1 heading.

On an ILS approach, a radial set on the No.2 radio can act as a second way of identifying the outer marker. Otherwise, pilots can dial in the inbound heading on the OBS as a mental helper. Pilots should also set the marker beacons.

With IFR-approved GPS receivers, pilots load the approach into the flight plan, select the IAF, and activate. If they "only" have VFR-approved GPS or Loran with a decent database, they may want to consider loading fixes in to improve situational awareness; even if pilots aren't using them as primary navigation tools, these aids can help, and there's no rule against using them to help.

With NDB approaches, pilots need to set up the proper frequency. In some NDB approaches, VOR radials are offered to help with situational awareness. By all means, use them. If the aircraft is equipped with DME, pilots can set up the proper frequency, whether it's the VOR frequency or the ILS frequency and ILS/DME.

It may sound complex—and it can be—but pilots should establish a smooth flow pattern with radio set up. It may be helpful to touch each piece of equipment in the stack and ask, "Is this needed or helpful with the approach? What's the required setting? What are my standby frequencies, and can they be set up now to reduce my work load later?"

**3. Instruments:** Pilots should double-check that the attitude indicator is functioning, set the altimeter properly, and adjust the heading indicator to match the compass heading in unaccelerated straight and level flight. A correct DG heading can be vitally important to fly a good NDB approach.

**4. Minimums:** Pilots should verify the MDA or DH, depending on the approach to be flown. If they don't have DME board, they should verify the proper MDA for approaches that have both DME and non-DME minimums.

**5. Time:** On nonprecision approaches, pilots should note the time that's allowed past the final approach fix. Remind students that time is based on ground speed, not airspeed, so mental calculations or interpolations must be made to account for the winds.

**6. Identify:** Pilots should identify the Morse code identifier for the VOR, localizer, and/or NDB as appropriate for the approach to be flown. Noting that the flag is not showing is not enough for VOR identification. On NDB approaches, pilots who can fly a wonderful NDB approach will fail a checkride if they don't guarantee the ADF's functional—it must be moni-



tored throughout the approach.

Personally, once I identify the station's Morse code identifier, I throw the audio switch to the overhead speaker and leave it on. I turn down the volume to the point where I can barely hear it. GPS users must ensure they have proper signal integrity prior to the FAF. Manufacturers present this signal information differently; pilots should check their operator handbook.

**7. Missed-Approach Instructions:** We've all been told that 'we should expect to have to execute the missed approach with every approach flown. If that's the case, pilots need to have an idea of what to expect for the missed approach prior to actually executing it, since the time it's actually needed is a period of high-pilot workload at a low altitude. Certainly, this is not the time to consult the approach plate.

Pilots should know the initial climb-out instructions, which are typically an initial climb on the runway heading to a certain altitude, then a turn. Knowing this before hand allows pilots to concentrate on flying the plane, gaining altitude, increasing their margin of safety, and getting the plane in the proper configuration.

I've found the WRIMTIM routine helps me immensely while flying instruments. It really helps me stay ahead of the plane during a high-workload situation, and it reminds me of all the tasks I need to complete, in a prioritized order.. For new IFR pilots, it can ensure they don't leave anything important out.

*This article originally appeared in the* NAFI Mentor *and is reprinted with permission.*

**W**eather
**R**adios
**I**nstruments
**M**inimums
**T**rim
**I**dentify
**M**issed approach

# Outside the Box

*(Continued from Page 7)*

manded one's attention for more than a quick glance at the airspeed indicator and altimeter.

Anyway, from day one I was taught to scan for traffic (what little there was in those days), and my instructor would always remind me of my responsibility to see and avoid should I miss any. I was required to callout any traffic I saw and, in addition, point it out to him. On the day I took the private pilot written exam, I flew about 60 miles to New Orleans International Airport with that airplane and took the test. It just wasn't that busy. Airspace? What airspace?

Flying today is almost unrecognizable. Airspace is its own alphabet soup, with various requirements wherever we go. Airplanes swarm like gnats around busy airports. Our modern system evolved as traffic increased; more airplanes, each more sophisticated and faster, caused a need for a system to keep us pilots from slamming into one another. Even with the present day accident rate, the system works fairly well. Yet things happen much faster around an airport now than they did then.

Case in point: Many general aviation airplanes fly faster than the airliners of the 1950s. And the more traffic and speeds increase, the more vigilant we pilots must be and the more we must train our students to look for traffic and learn to perform cockpit tasks with a minimum of attention.

That's a challenge. Inside the cockpit of a reasonably equipped modern airplane, a pilot scans two radios, an ADF, GPS, adjustable attitude indicator, adjustable altimeter, and a dozen or so other gauges. And all of them command our attention one way or the other. It adds up to heads down in the cockpit. Time we're supposed to be practicing "see and avoid."

How are we supposed to do all this, look for traffic, and fly the airplane at the same time? How many of us have been under the hood practicing for currency only to peek at our safety pilot and find him thumbing through approach charts or tuning radios? Minutes may pass when no one is looking out for traffic.

No one is watching the store. Someone better start.

It'll require continuous diligence on your part. Tell your students that you expect them to report any traffic to you and let them know if they miss one. This helps us keep our eyes out the window. You can also help them become very familiar with the cockpit of the training airplane so that various duties can be accomplished with minimum attention.

For grins, compare the increase in the training accident rate with the beginning of the time when handheld GPS units hit the market. If there's a connection-and we can be sure that it wouldn't be the devices' fault, we instructors need to realize that there are new toys in the airplane that make us all the more vulnerable for such accidents. Yes, the new units are fascinating and functional, but they require at least a few minutes—if not longer—to program. While we're doing that, or any other cockpit duty, we might just have forgotten that we're piloting an airplane.

Aviation is definitely more complex in recent years than it used to be, and we instructors need to be aware of the increased need to be more vigilant than ever. We need to reinforce this with our student. It won't happen by itself.

Do you feel safe sharing airspace with the pilots you're producing? Or is there some possibility that you'll encounter another airplane out there with two pilots aboard when, tragically, no one's watching the store!

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*This article is reprinted with permission from the NAFI Mentor.*


*June Rhodes, Airmen Certification Branch, displays enlargement of the new airman certificate.*

# Inspectors App

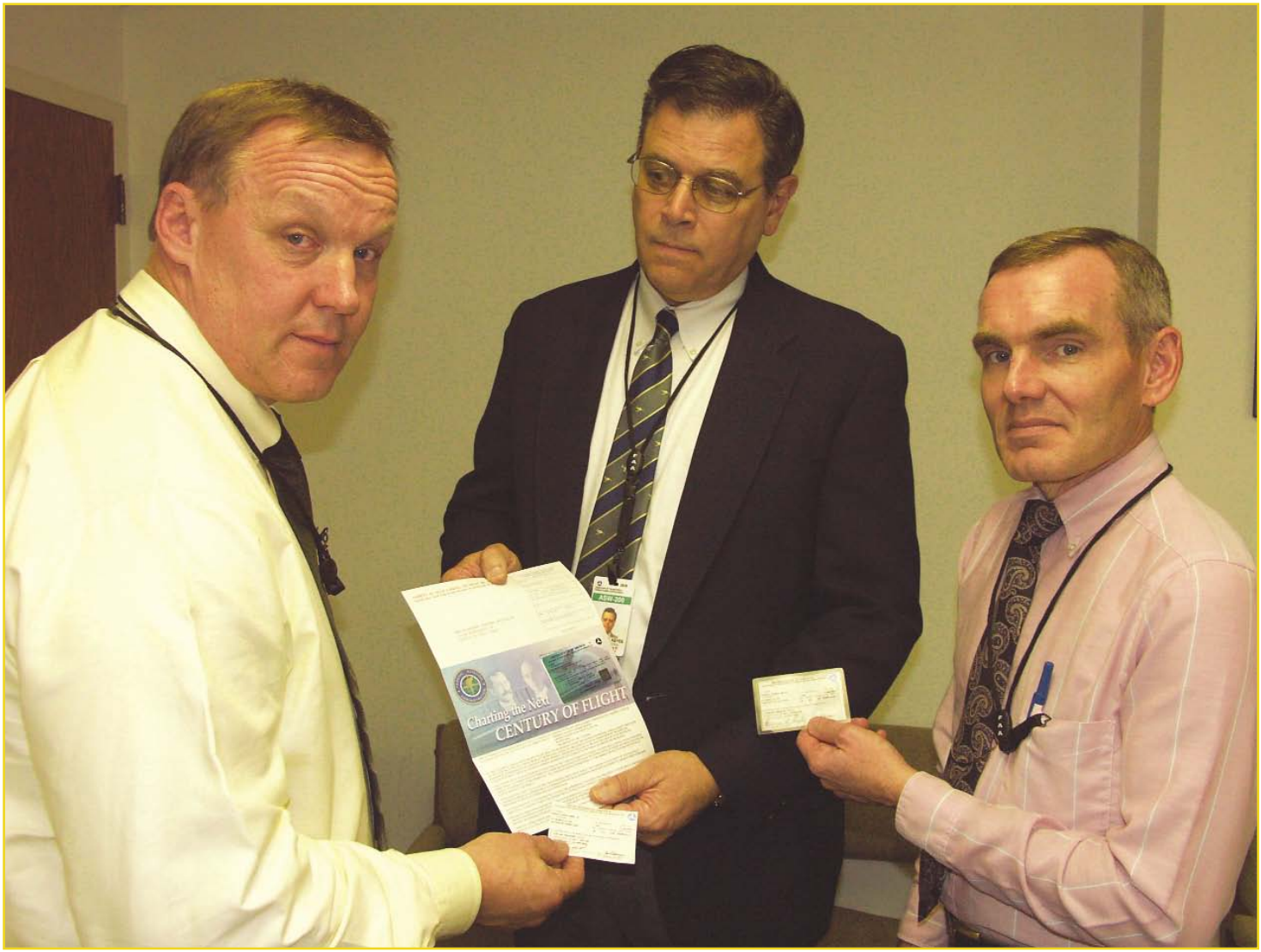
by Susan K. Schmidt

The complaints in the 1999 *AOPA Pilot* magazine article by author Barry Schiff began with an observation about the gray paper, cutout FAA-issued airman certificates. Schiff and an overseas friend were disappointed that a "pilot certificate held in such high esteem around the world looks so amateurish." Schiff added, "In sum, U.S. pilot certificates are disgraceful examples of bureaucratic indifference. Those responsible for them apparently have no concept of the blood, sweat, and tears required to earn, maintain, and upgrade the ratings so casually represented on our certificates." Harsh, but deserving, words I thought. We can do better.

When the opportunity arose in late 2002 for FAA's Civil Aviation Registry to redesign the airman certificate, I reread the AOPA article "Artistic License" several times to determine how best to represent the pride of accomplishment in earning an airman certificate while increasing the certificate's security features. The FAA issues airman certificates to pilots, mechanics, flight instructors, and other airmen to certify their qualifications and competency to instruct other airmen and to operate, maintain, and control aircraft. It is the fact that airman certificates represent an entirely different breed of individual—one whose efforts defy the bounds of gravity that is cause to reflect their pioneer spirit.

Harold K. Everett, Manager of the Airmen Certification Branch, considered a number of designs for the new certificate. Various flying machines and famous aviators such as Charles Lindbergh, Amelia Earhart, Bessie Coleman, and Wiley Post were included in the initial designs by Bryan Dahlvang, a graphic artist with FAA's Information Media Division. As FAA's participation increased in preparation

# laud Changes on New Airman Certificate




*Oklahoma City Flight Standards District Office Inspectors Chip Wood, Christopher Keyes (Manager) and Larry Smith compare their paper airmen certificates to the new full-color plastic certificates*

to celebrate the centennial year of the first controlled, powered flight, it became obvious the honor for the first major redesign of the airman certificate in its 75 year history belonged to the Wright Brothers. After all, it was bicycle shop owners Orville and Wilbur Wright who first put all the pieces together to solve the mysteries of both powered and controlled flight.

The Civil Aviation Registry issues 21 different certificate types. Who better than the Wright Brothers to represent the range of airmen such as repairman, mechanics, navigators, engineers, controllers, and parachute riggers. As homebuilders and pilots of the first successful airplane they are the best composite possible. They had built engines before and designed the engine for the Wright Flyer. According to extensive research by David Sakrison in his August 2003 article in *EAA Sport Aviation* magazine titled "Steve and Jim Hay and the Wright 1903 Aircraft Engine," the Wright Brothers assumed few problems in obtaining an engine due to the growing automobile industry. There were at least 10 automobile manufacturers producing engines in November 1902. When none were interested due to the lack of profitability in building just one aluminum block engine, the brothers asked Charles Taylor. According to Sakrison, "The key to powered flight was not the engine, but the propellers. It was the Wrights who first intuited that a propeller was a special kind of wing, fundamentally different from a marine propeller. That breakthrough and the propellers they designed and


*Harold Everett (Manager), Susan Schmidt (Team Lead), Shirley Lykins and Barry Farnsworth, Civil Aviation Registry team members responsible for implementation of new airman certificate.*

built made it possible for them to power the 1903 Flyer…"

When designing the new airmen certificates, I found vintage photos on the Internet at educational sites provided by NASA, the Library of Congress, and the Wright Brothers Aeroplane Company & Museum of Pioneer Aviation. It was not enough to find exciting photos like the one of Wilbur, alert and back arched, flying the 1902 Wright Glider. There were a multitude of choices. Accepting the advice of FAA senior attorney Mike Burton, FAA also needed to obtain permission to use the photos and likeness of the Wright Brothers. The Wright Brothers had donated 303 family and aviation related photos to the Wright State University. The Special Collections and Archives Department of the Wright State University granted FAA permission to use the selected photos. In addition, the Roger Richman Agency, which represents the Wright family, granted FAA a licensing agreement to use the images without infringing on their trademark rights.

The new airman certificate is more complex than it appears at first glance. It was the Registry's desire to incorporate layers of card features to economically and effectively enhance certificate security. A "Find Waldo" approach was designed to allow airmen the excitement of discovering the complexities of the new airman certificate. Enterprising FAA inspectors who dig through their attic to find a black light held over from the 1960's will be treated to the discovery of an otherwise invisible layer on both the front and back sides of the airman certificate. It has long been said that more airman certificates are displayed at parties, airport coffee shops, and bars than have ever been requested by FAA inspectors. For those establishments without black lights, other security features exist to amaze and impress. Obvious is the silver hot stamped foil hologram of the FAA seal with its full rage of color reflections. A pure white flawless diamond with its multi facets has nothing over the FAA's hologram. Depending on the light being reflected, the viewer will see brilliant blue, orange, and green colors more vibrant than the NBC Living Color peacock.

Christopher Keyes, manager of the Oklahoma City FSDO, recently received his replacement certificates. "They came pretty quick," he said, "I sent $4; it probably wasn't a three week turn around. Surprised me." He added in reply to the new design, "It definitely stands out, different than the old piece of paper. The hologram for

one is difficult to duplicate and being in the credit card form it is harder to tamper with." Keyes said they see people who write something or type something on their certificate, wash it, fold it, wrinkle it, stick it in laminate so it is even more difficult to read, and then try to pass it off.

Bob Sharrard, assistant manager of the Miami FSDO, agreed on the vast improvement in the new design over the old paper certificates in helping to prevent counterfeiting. He said that Miami is a point of entry for Latin and South America and the Miami FSDO has seen at least five counterfeit certificates in the last year." Sharrard observed that FAA Security in Miami is also happy with the new certificates. He would like to see Enforcement Information System (EIS) data coded in a Smart Card computer chip on the airman certificates. He says Florida is now using a Smart Card on its driver's license. Although the concept of including EIS information on the Smart Card is intriguing, the increased cost of the materials, office-based card readers, and the far more costly expense to the Registry of managing the data and reissuing the certificates to comply with the requirements of the expunction policy would be a nightmare.

A number of inspectors have asked why the new airman certificates do not include the airman's photo. The answer is the FAA is not in the identification business. We could not certify that the person in the photo is the person whose name appears on the certificate without also instituting an excessive burden on the airmen to go to a FSDO to prove they are the person in the photo. The airman already has proven whom he or she is to obtain other photo identification such as a state driver's license. The security issue was resolved with the additional requirement that airmen carry photo identification with their airman certificate when they operate an aircraft. Just because the technology allows FAA to include a photo on the airman certificate does not mean it is in the best interest of the agency to do so. Smart cards, like airman photos, are advancements in technology that could be incorporated, but are not worth the expense. Besides, with the vast amount of data already required on the airman certificate, the addition of the airman's photo and a computer chip would require more airmen to carry a two-card certificate. And that is just more plastic in an airman's wallet.

Security features, less burdensome to the airman, such as the hologram, were chosen for inclusion on the new airman certificate. Less noticeable than the hologram is the extensive use of micro printing incorporated in portions of the certificate. Micro printing is too small to read with the naked eye and becomes blurred when photocopied thus adding to its increased security. The remarkable accomplishments of the Wright Brothers as described by FAA Administrator Marion C. Blakey in her remarks delivered December 17, 2002, at the Centennial of Flight Kick-Off Event are revealed when the micro printing is viewed through a jeweler's 10x loop. You can begin to follow the word-maze with the phrase "Without question, flight is represented by countless heroes…" which can be found on the far right wing strut of the 1903 Wright Flyer. You will observe words are split and positioned to contour with the graphics thereby making forgeries more difficult to accomplish and easier to detect.

None of the inspectors I contacted were yet aware of all the security features incorporated into the new certificate and the extent of efforts represented by the new design which assist the FAA in thwarting, identifying, and prosecuting counterfeit or altered airman certificates.

The graphics of the Wright Brothers, with their small and fragile Wright Flyer superimposed over a jumbo jet, were chosen to reflect the contrast and accomplishments in the first century of flight. There is no way any graphics can fully represent every constituent group of airmen. The Wright Brothers were our best effort.

Sheryl Hammans, manager of the Fresno FSDO, suggested that new airman certificates be issued to all FAA inspectors so they know exactly what to look for without having to wait until they add a rating. She compared the benefit of automatic reissue of airman certificates to their jump seat credentials that were recently taken away and reissued with more secure credentials.

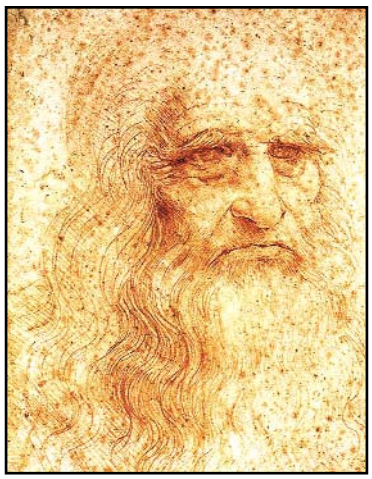
To ensure the inspector's address and vital information is up-to-date, the Registry requests that inspectors individually request issuance of replacement certificates. The application for replacement of lost or stolen airman certificates was recently expanded to allow replacement of paper airman certificates. Given the primary purpose of the new airman certificate is to increase security, we must allow FAA field personnel the greatest opportunity to compare and detect fraudulent imitations. For that reason, Everett encourages all Flight Standards Service employees to request the new style certificate.

Questions concerning the validity of a certificate should be directed to the Airmen Certification Branch. Everett suggested FAA inspectors call first then scan and e-mail suspected forgeries and alterations for an initial assessment. In cases where security features require closer examination, Everett said it may be necessary to issue temporary authority to allow the airman to fly while the original certificate is mailed and reviewed. The staff in Oklahoma City is always willing to help.

In less than nine months the new airman certificate design team went from project assignment to the announcement by Administrator Blakey on July 31, 2003, that FAA will immediately begin issuing the new style airman certificates. That is a pretty amazing accomplishment for bureaucrats who keep both feet on the ground.

*Susan Schmidt is with the Civil Aviation Registry and was the team lead for the implementation of the new airman certificate.*

## • Really Early Flying Machines



Thanks for the great article on Leonardo da Vinci in the September /October issue. I have constructed both the Aerial Screw and the Flying Machine from kits. I bought the models from the <www.davincistore.com>. The Flying Machine kit was developed from da Vinci's drawings/manuscripts. A full size model is in a museum in Boston. It is believed that this design never left the drawing board during da Vinci's time, as you stated in your article. Too bad his manuscripts were hidden for so long. The kits were more difficult and time consuming than I thought they would be and, due to the weight of the materials, these were never flown. The one thing I changed was to attach the ribs with the curvature that makes an airfoil. But, later, I found that this may not yet have been understood by da Vinci. Maybe his design really did have a flat surface, but it did not look right to me. All the hand cable and foot stirrups work to move the wings. The design lacks controllable surfaces or the ability to shift the pilot's weight. Can you imagine how aviation history might have changed if this design was tested and developed in 1490, which was before Christopher Columbus' voyages?

Both models were displayed at the LA County Fair in the High Flying Fun building which also contained the AIAA Wright Flyer and the Spirit of St. Louis, not to mention a 10,000 square foot NASA display. The da Vinci models were displayed next to NASA's latest design, the X-43.

Jeff Cunnyngham
via the Internet

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## • Request to Reprint

I am developing a web site, geared directly toward the homebuilders and am wondering about the policy of reproducing FAA materials and publications on my site. I don't know if your office could tell me about anything more than *FAA Aviation News*, but, if not, where might I find information about usage.

David Lee
Via the Internet

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## • CFI's and Flight Reviews

In reading through the November/December "Tales of an ASI" by Mr. Peyus, I was a little confused by the references in the section about how flight instructors can accomplish a flight review. Your sixth example in the paragraph starting with, "6. For the CFI, it is...." was confusing.

I had to read the paragraph several times because at first reading I got the impression that a CFI could meet the requirements of FAR §61.56 by successfully completing a CFI renewal within the preceding 24 months. I have run into this interpretation several times at FBOs across the country. Then I realized that you list three ways to renew the CFI certificate, and if the CFI chooses to do a full check ride, that ride now meets the requirements for the BFR. The next sentence caused me initial confusion because you state, "The flight review clock will start at the completion of the CFI renewal, but only if the renewal included the check ride—right?

Howard Long
Los Angeles ARTCC (and CFII)

*First, it is nice to know there are people out there that actually ready the articles! Sorry for the confusion. You are correct. A CFI must do a ride to accomplish both the renewal and the Flight Review. The CFI cannot receive a completion for the Flight Review by doing a CFI renewal through something like a weekend Flight Instructor Renewal Clinic (FIRC) program.*



## AIRCRAFT ENGINE BUILT WITH AUTO PARTS GAINS FAA CERTIFICATION

On November 5, 2003, FAA announced U.S. certification of an innovative diesel aircraft engine that uses automotive parts and runs on jet fuel. FAA Administrator Marion C. Blakey made the announcement before the Aircraft Owners and Pilots Association annual conference in Philadelphia, PA.

The 4-cylinder, 135 hp TAE 125-01 is made by German-based Thielert Aircraft Engines (TAE), an auto racing engine and global automotive parts manufacturer. This newly certified aircraft engine can be installed in general aviation aircraft such as two-seat Cessna and Piper models. TAE assembles the engines using Daimler Chrysler auto parts that have been evaluated against the company's strict criteria. The engine is then combined with a gearbox and other parts produced by TAE.

"The FAA's goal is to bring new technologies and equipment into the U.S. aviation system as soon as we are assured of their safety and benefits," said Administrator Blakey. "With some modification and ingenuity, we have an engine that has gone from the pavement to the sky."

Before granting a type certificate to the TAE-125-01 engine, the FAA ensured the company's quality control approach guarantees that each part conforms to the type design and upholds an acceptable safety level. TAE analyzes potential failures and effects for all Daimler Chrysler parts. The firm validates that each part meets design requirements through a "check plan" that details those requirements. TAE also has tested one engine to destruction to confirm the design, and conducts a full engine endurance test as a standard for each engine lot.

Based on certification tests for the TAE 125-01, the FAA specifies a life limit of 1,000 hours or 12 years, whichever comes first. Overhaul is not allowed and owners must replace the engine after the time limit. Also, as jet fuel becomes more available at smaller airports around the country, the engine provides another powerplant option for the general aviation community.

## PROPOSED RULEMAKING ON LONG-RANGE AIRCRAFT OPS

FAA is proposing first-time regulations for extended aircraft operations (ETOPS), which would allow consumers to take advantage of new, more direct routes and more frequent trips on existing routes.

"Because of the impressive reliability of modern jet engines, the proposed rules will allow aircraft with two engines to fly more direct routes on long-range flights more safely and at the same time save travelers time and airlines fuel and operating expenses," said FAA Administrator Blakey.

If adopted, ETOPS rules will cover scheduled air carriers (Part 121) and charter operators (Part 135) and carry the full legal authority of a federal aviation regulation. Currently, carriers and operators comply voluntarily with FAA advisory circulars that govern ETOPS.

"The proposed ETOPS rules reflect today's advanced engine technology and performance," Blakey said. "Pilots who enter the profession today are likely to go through their entire careers without experiencing an engine failure."

ETOPS flights, which number nearly 30,000 worldwide each month, are possible due to the improved reliability and performance of today's jet engines. Beginning in 1985, the FAA incrementally relaxed the rule prohibiting two-engine airplanes from flying more than 60 minutes from a diversion airport. Today, the majority of flights over the North Atlantic and a growing number of flights over the Pacific operate with two-engine aircraft, bringing extensive benefits to the flying public.

These proposed new regulations will also strengthen safety and bring greater uniformity by including three- and four-engine aircraft that are currently not subjected to two-engine aircraft ETOPS requirements. Additional ETOPS requirements for aircraft with at least two engines will include cargo fire suppression, rescue and fire-fighting capability and improved communication.

This proposed rulemaking also incorporates recommendations by the Aviation Rulemaking Advisory Committee, a government-industry body that helps the FAA develop proposed rules, existing FAA policy, industry best practices and international standards to ensure that long-range flights will continue to operate safely.

This notice of proposed rulemaking (NPRM) appeared in the Federal Register on November 14, 2003. The NPRM can be found on the Internet at <http://www1.faa.gov/avr/arm/nprm.cfm?nav=nprm>

## CHARTING CHANGE FOR U.S. TERMINAL PROCEDURES

The FAA's National Aeronautical Charting Office (NACO) has changed an important word in its latest issue of the U.S. Terminal Procedures. Effective with the 25 Dec 2003, U.S. Terminal Procedures (TP) instrument approach charts, the word "shall" has replaced the word "should" in the introductory section of the charts' explanation of aircraft approach categories. Before the 25 Dec 2003 issue, each TP book said pilots **should** use the approach minimums for the speed they were flying rather than their respective aircraft approach category speed minimums. Now the new charts say **shall**. The new section says, "However, if it is necessary to operate at a speed in excess of the upper limit of the speed range for an

aircraft's category, the minimums for the category for that speed **shall** be used." (*FAA Aviation News* bold-faced the words for added emphasis.) The new chart verbiage includes references to both airplanes and helicopters operating at higher approach speeds.

This change is a result of a summer intern's research and article published in the September/October issue of this magazine. Franklin Li's article was titled, "How Low Can I Go." Several readers questioned the publication of an article that highlighted the fact the then current procedures used the word "should" rather than "shall" when describing instrument approach speed minimums. Based upon Frank's work, NACO changed its wording in the charts to say that the higher approach minimums "shall" be used whenever maneuvering at a higher speed, including when making a straight in approach.

## INSPECTOR TRAINING TRIALS AT EMBRY-RIDDLE

The FAA is teaming with Embry-Riddle Aeronautical University (ERAU) in a trial program to give new FAA inspectors broader training and save the agency almost $1 million a year.

Starting last November, FAA general aviation operations inspectors will take courses at ERAU's Daytona Beach, FL, campus using a combination of advanced technology flight training devices and light airplanes with identical electronics, instrument panels, and handling qualities.

"Embry-Riddle's mix of high-fidelity simulation and popular general aviation aircraft has the potential to give our inspectors flight training of unprecedented scope and quality," said Nick Sabatini, FAA Associate Administrator for Regulation And Certification. "This test program will help confirm those benefits before we decide to commit large amounts of funding."

The "Instrument and Performance Refresher – Light Twin" course, which requires 10 hours of flight time per student, began at ERAU in November 2003. The inspectors will first practice flying procedures and responses to emergencies in Cessna 172 and Piper *Seminole* flight training devices on the ground. They then will reinforce that training in the sky aboard the same type airplanes with matching equipment.

The FAA-ERAU partnership could save the agency a substantial amount of money. For example, the leased cost for twin-engine aircraft needed for the course was $989 per hour in fiscal year 2002. The estimate for training with Embry-Riddle is about $201 per hour. The FAA estimates that equipment cost savings could be as much as $7,880 per student, or more than $646,000 yearly.

New inspectors will begin taking the "General Aviation Operations Indoctrination" course at ERAU in January 2004. Traditionally, this "basic training" course has been taught at the FAA Academy in Oklahoma City, OK, using flight training devices and leased aircraft. During fiscal year 2002, the equipment cost for this training was $10,206 per student. The estimated annual cost per student at ERAU is projected to be substantially less at $3,178. If the FAA decides to move the indoctrination course to Embry-Riddle permanently, the projected cost savings could be as much as $330,000 yearly.

The FAA expects other potential benefits from a long-term arrangement with ERAU. The agency would not have to invest in more high-fidelity flight training devices – which can cost up to $750,000 each – and would not have to update those devices to reflect changes in software and systems. The FAA also could avoid increasing rental aircraft costs as well as resolving safety issues caused by a high workload on FAA instructor pilots at the Academy.

Embry-Riddle is the world's largest fully accredited university specializing in aviation and aerospace curriculums. ERAU educates more than 25,000 students yearly at residential campuses in Daytona Beach and Prescott, AZ, and through distance learning and more than 150 teaching centers throughout the United States and Europe.

## AMERICANS GIVE FAA HIGH MARKS FOR DOING ITS JOB

Three-out-of-four Americans feel the FAA is doing a good job according to a recent survey from The Harris Poll, ranking the agency as one of the top three in government. The 76 percent positive public rating for the FAA in 2003 is a dramatic jump from 2001 and 2002, which were 58 and 54 percent approval ratings respectively.

The FAA attributes this year's rise in public confidence due to the agency's extensive efforts to modernize air traffic, improve capacity, upgrade international leadership, and strengthen the agency's organizational excellence.

This year, Blakey unveiled the "FAA Flight Plan 2004-2008." The plan establishes objectives for reducing commercial and general aviation accident rates; creates programs to work with local governments and airspace users to meet capacity demands; steps up efforts to work with international aviation organizations to create strategic partnerships; and provides guidelines for stronger organizational leadership at the agency with a better trained workforce, enhanced cost controls, and improved decision-making based on reliable data.

The Harris Poll was conducted online within the United States between Oct. 21 and 27 among a nationwide cross section of 2,056 adults on various federal agencies. Eighty-five percent of those polled understood what the FAA did and did not do.



# Editor's Runway

*from the pen of H. Dean Chamberlain*

## 'TIS A COLD WINTER'S DAY

Unless you live in Hawaii, Puerto Rico, Guam, one of the other islands, or one of the lower-tier states across the bottom edge of the nation, I think most of us have had about as much cold as we want by this time of the winter. [This assumes you are not an outdoor winter sports addict who loves the ice and snow.] With low or freezing temperatures and limited daylight hours this time of the year, sport or recreational flying can lose much of its fun and glamour. Preflights are cold. Snow or freezing rain is always a possibility. And unless, you have a heated hanger, the temptation to do an abbreviated aircraft check out is always a possibility. Add in the hassle of having to preheat the engine and the added risk of ice in the fuel, pitot system, or attached to various lift destroying places on the airframe, and you can see where this commentary is going.

The question is what can a general aviation pilot do to keep current? My best recommendation is to take a vacation to someplace warm and take some refresher training with a local flight instructor.

But if you can't do that, the following are some suggestions of how you might keep current or at least start thinking about how to become current in the next six to eight weeks. The goal is to be ready to start flying when the weather warms up enough to make flying, if not comfortable, at least not unbearable.

One suggestion is to contact your local fixed-base operator and ask if the operator has a FAA-approved flight-training device that can be rented along with an instructor so you can do some recurrency training. The November/December 2003 issue of this magazine published an article about the revised FAA personal computer-based training device (PCATD) policy that grants expanded use for certain PCATDs. Another suggestion is to contact your local Fight Standards District Office's Safety Program Manager (SPM) for the latest safety program information. If you are not familiar with the FAA's "WINGS" program, now is a good time to ask the SPM about the program. Another idea is to meet with your flying friends and hold your own safety meeting to discuss what you need to do and know to get back into the air. You might also want to challenge your friends to find out which one is the best "pilot" by using the most recent computer-based flight simulator program for your home computer. Although such "flying" can't be logged to meet FAA requirements, it can challenge your skill and knowledge. All of which will help get you ready for spring flying. You might also try finding a new friend with a heated hangar and warm airplane for a short refresher flight.

As we have said in the past, now is the time to start thinking about regaining your pilot proficiency before the big rush later in the spring. And if you have not reviewed the Temporary Flight Restriction (TFR) article titled "TFR" Airspace Obstacles and TFR Trivia, in the last *FAA Aviation News* issue, you should because the FAA is investigating hundreds of TRF airspace incidents. With the Presidential election year really kicking off now, it is important for all pilots to check the Notices to Airmen (NOTAMS) for the latest TFR notices. No one wants or needs to start the New Year with a TFR violation.

Finally, if you want some light, winter reading, the *Aeronautical Information Manual* (AIM), is the authoritative source on all things FAA for a pilot. Happy New Year.

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