King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

MARCH 2020 • VOLUME 14, NUMBER 3 • $6.50

King Air Market Review

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King Air
March 2020 Volume 14 / Number 3
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Contents

EDITOR
Kim Blonigen

EDITORIAL OFFICE
2779 Aero Park Dr.,
Traverse City MI 49686
Phone: (316) 652-9495
E-mail: editor@blonigen.net

PUBLISHERS
Dave Moore
Village Publications

GRAPHIC DESIGN
Rachel Wood

PRODUCTION MANAGER
Mike Revard

PUBLICATIONS DIRECTOR
Jason Smith

ADVERTISING DIRECTOR
John Shoemaker
King Air Magazine
2779 Aero Park Drive
Traverse City, MI 49686
Phone: 1-800-773-7798
Fax: (231) 946-9588
E-mail: johns@villagepress.com

ADVERTISING ADMINISTRATIVE COORDINATOR AND REPRINT SALES
Betsy Beaudoin
Phone: 1-800-773-7798
E-mail: betsybeaudoin@villagepress.com

SUBSCRIBER SERVICES
Rhonda Kelly, Mgr.
Kelly Adamson
Jessica Meek
Jamie Wilson
P.O. Box 1810
Traverse City, MI 49685
1-800-447-7367

ONLINE ADDRESS
www.kingairmagazine.com

SUBSCRIPTIONS

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The King Air

More Complicated T

The King Air market is getting more complex than it already was, making it unpredictable. In 2019 it was extremely difficult to find a nice post-500 serial number model 350 for less than $3 million, but there were some very good buys in sub $4 million-dollar 350i's.

Market:

han Ever

by Chip McClure

It's been a full year since I last wrote an article for this magazine about the market for King Airs. At that time, I was confident in my assertions and the market in general. In fact, the market had been as stable as I had seen it … almost predictable. We're all accustomed to ever changing, generally declining values of all turbine aircraft, but a stable decline had set in. To be clear, stability to any degree means that we can predict what it will be next week or maybe even next month. Armed with a lot of knowledge and real-world experience, I wrote the article with all the confidence in the world; I'm an expert on the King Air market, right? Then something interesting happened between writing that article and it arriving in the mailboxes of fellow King Air aficionados around the globe – it changed. The market. It just changed! It made me a liar, or at least called into question my competence. My phone began to ring and one call was from my friend, colleague and well-known King Air broker John Murphy from Murphy Acquisitions. John said, "Chip, when did you write that article?" When I replied it had been a couple of months before the magazine was mailed, he confirmed that was exactly what he thought. The market in January looked very different from the market in March.

Here we are a year later, and I'm being asked to do it again? Never one to shy away from sticking my hand in the proverbial fire for a second time, I accepted the challenge and then went about trying to figure out how to explain the unexplainable. To say that the King Air market got weird last year would be an understatement. I saw airplanes sell for well above what I considered to be fair market value and simultaneously witnessed airplanes sell well below what I thought they were worth. There was a particular King Air that sold last year that was such a great deal, I was sick that we didn't have a client for it. My sorrow was short-lived though, as we made unbelievable buys on not one, or even two, but three King Air 350s in a row.

Why?

How do you rationalize that the market is good and potentially bad for sellers at the same time? How do you explain to a buyer that we might get a smoking deal or might have to pay more than we like for a pristine airplane?

It's Complicated

The answer to the status of the market is that overall it is good; King Airs in general are in high demand. However, that is where the generalizations must stop, if one hopes to grasp the increasingly complex King Air market. Itw is huge, with an astounding 84.2 percent of all King Airs ever built still in service; that is a lot of airplanes! In fact, there are more Beechcraft King Airs flying than all models of Avanti Piaggio, Cessna Conquest, Merlin, Mitsubishi MU-2, Pilatus PC-12, Socata TBM, Piper Cheyenne, Piper M series and Turbo Commanders ... ***combined***. Not only are there well over 6,000 King Airs still in service, but they range in year and model from a 1964 King Air 90 proudly wearing data plate LJ-5 to the latest King Air C90GTx having a difference in serial numbers of over 2,000! New versions of the latest models – the King Air C90GTx, 250, 350i, 350ER and 350C – keep rolling off the manufacturing line.

The King Air is the most prevalent, highly popular and extremely recognizable turboprop ever built. The result is a huge market with aircraft values from just over $100,000 for a flyable King Air 90 to a reported $10 million for the latest military version of the -67 powered Special Missions King Air 350ER. No other aircraft market is as large and complex as the King Air market. If it wasn't complicated enough, the King Air caught the eye of a brilliant individual named James Raisbeck. Nothing like an airplane having a $200,000 swing in value based on structural upgrades. It doesn't end there, another James (who happens to go by Jim) decided that King Airs needed bigger, more powerful engines.

Those looking for a King Air C90A/B want higher-powered engines and Garmin avionics.

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"The King Air market is more of a conglomeration of micro markets which we have known, but it's showing more complexity within those markets."

Jim Allmon sketched out a hawk on a cocktail napkin and Blackhawk Modifications was born. Blackhawk's engine upgrades dramatically change the value of King Airs, hundreds of thousands and now even well north of $1 million!

BUT … this complexity isn't new to those who live and breathe the King Air market. So, what's different? I believe it's a combination of factors – the robust market has consumed much of the backlog of good airplanes, and I think the buyer changed.

I've lived in the King Air world for a long time; the King Air buyer we talk to today is on average more educated about the airplane and the market. With access to information at our fingertips, as well as great resources for real-world knowledge like the BeechTalk forums and Tom Clements' "King Air Book," it is easier than ever to know more about the aircraft. The more knowledgeable buyer will typically have higher expectations in his choice of aircraft, and then combine that with the fact that available inventory of pristine airplanes is very low. The result is a discerning buyer and limited choices or yet another micro market.

The effect of all these factors is that we watch some airplanes sell for more than they should because the impulsive buyer, frustrated with the lack of options, buys what he perceives as the best deal within his limited timeframe. In a seemingly contradictory statement, we see great airplanes get stale and languish in the very same market. These airplanes are often victims of the same fate – they hit the retail market at an asking price that was too high and after being advertised for a few months they are stale, most buyers assume that if no one else has bought them, they shouldn't either.

In a whirlwind of contradictory activity, you must dig a little deeper and pull back the layers. The King Air market is more of a conglomeration of micro markets which we have known, but it's showing more complexity within those markets.

Why does a perfectly good King Air C90B sit on the market and then months later sell far below the owner's expectations? The answer is likely that it was missing one of two things – a nice panel or Blackhawk engines. That's the C90A/B market right now, everyone wants the higher-powered engines and Garmin. If your airplane doesn't have both, it will probably have to be priced where these mods can be


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The B200 with all the desirable upgrades could sell for as much or more than a newer King Air 250.

done to sell. There simply doesn't seem to be a lot of price shoppers in the market right now; the buyers are looking for a "no excuses" ready to go airplane and are willing to pay for it. But it is a micro market – the limit for any C90B is about $1.6 million, no matter the upgrades, because then it's starting to get into the C90GTi range. A buyer won't pay more for a 1999 model than they will a 2009 one, even if they prefer the Garmin panel to the Collins Pro Line 21 avionics.

The wildly popular King Air B200 continues to dominate the King Air product line. A pristine "full Raisbeck" (Epic package) B200 with Blackhawk -52 engines, BLR Winglets, Garmin G1000 NXi panel and new cosmetics will sell for as much or more than a newer King Air 250. Why? It's a micro market. Try finding a pristine B200 with all the desirable upgrades. We found exactly one last year. I'm thankful we didn't have another client come along that wanted that nice of a B200, because there wasn't a second one.

The King Air F90 and King Air 300 are my two favorite micro markets. The F90 provides similar performance to a Blackhawk C90 and has 100 gallons more fuel! Plus, it is hands down the best looking 90 ever built. The King Air 300 gives you big motor B200 performance and 14,000 pounds gross weight. It requires a type rating, but it's worth the extra effort. I mention this because some micro markets are challenging for the buyer. Don't believe it? Try being a B200 with a $1 million-dollar budget. It's refreshing to know that some micro markets actually create opportunities for the buyer.

The King Air 350/350i market is a wild one. In 2019 it was extremely difficult to find a nice post-500 serial number model 350 for less than $3 million, but we made some very good buys in sub $4 million-dollar 350i's. One client had been shopping for a fairly long period of time, unable to find what they were looking for, so they hired us. We struggled as well – one airplane that I went to look at was a good deal … but not a great deal. The buyers raised their budget a few hundred thousand dollars and we were able to purchase a much newer 350i! The sub $3 million-dollar model 350 market was a tight micro market and we had to get out of it to make a buy.

If you're shopping for a King Air, don't be discouraged. The market overall is tight, but if you do your homework and understand these micro markets I'm referring to, opportunities do still exist.

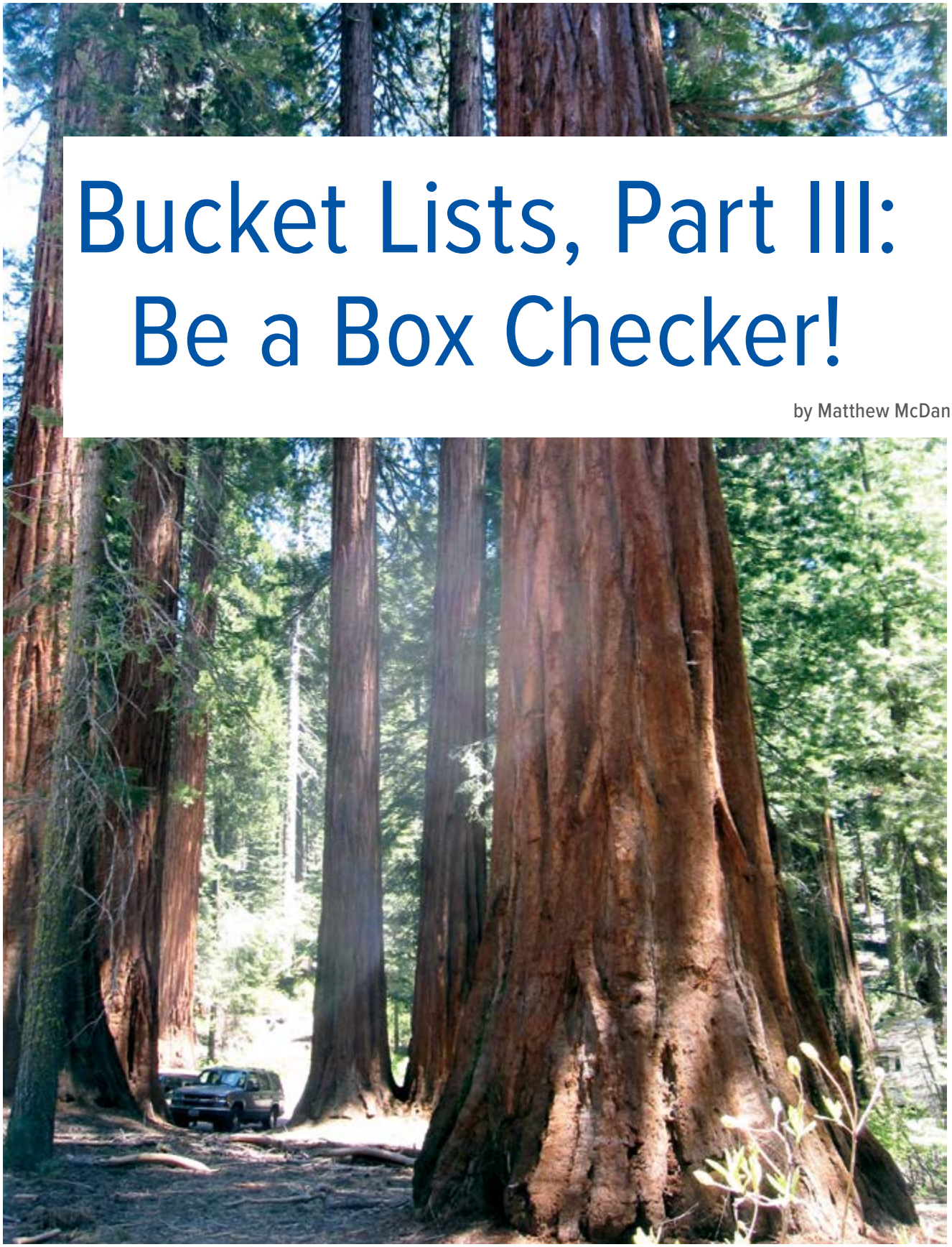
My advice to the discerning buyer – when selection of nice King Airs is low, it is tempting to compromise and buy an airplane that has issues that cannot be corrected. The temptation is obvious in today's market, but you must consider what the market may be like when you decide to sell the airplane. That "story" that you overlooked to get a better deal, might make it the last airplane to sell in a softer market. If you are unable to find what you are looking for, don't overlook the ugly ducklings! Two of the 350s I mentioned were good deals partially because the stripe colors were less than desirable; one has already been to Airways Custom Touch Up in Oklahoma City. They changed the stripe color and painted the nacelles; it doesn't even look like the same airplane.

What's the market for a particular model of King Air? For the first time ever, I can't answer that. Give me a couple of days for my team to make calls and research. What's a certain King Air worth? That depends on what sold yesterday and what it sold for. KA

Chip McClure has been in the aviation industry for over 20 years. He and his wife Amy founded Jet Acquisitions in 2015; the firm exclusively represents turbine aircraft buyers and specializes in King Airs, as well as all models of current production turboprops and jets.

Bucket Lists, Part III: Be a Box Checker!

by Matthew McDaniel



Even a short scenic drive or hike among any of the Coastal Redwood or Giant Sequoia groves of California can be a breathtaking experience. The author took this photo in one of Yosemite National Park's several Giant Sequoia groves. Yosemite is a great layover escape for pilots operating to/from the western Sierra-Nevada foothill airports or several of the airports in California's Central Valley. The massive scale of the trees simply cannot be captured in a photo, but the large passenger vehicle driving through the grove at the bottom of the photo does provide some scale to the largest trees on earth (by volume) that surround it.

Author's Note: The following is the third installment in a series of articles which will resonate most with King Air corporate and charter pilots, but can apply to the owner/pilot, as well. After all, making the most of layovers and planned or unplanned travel downtime is a goal any pilot can pursue. If you have layover pursuits or places you've enjoyed visiting that you feel are "must-sees," please feel free to send an email with any ideas you might have for future installments of this series (contact information follows the article).

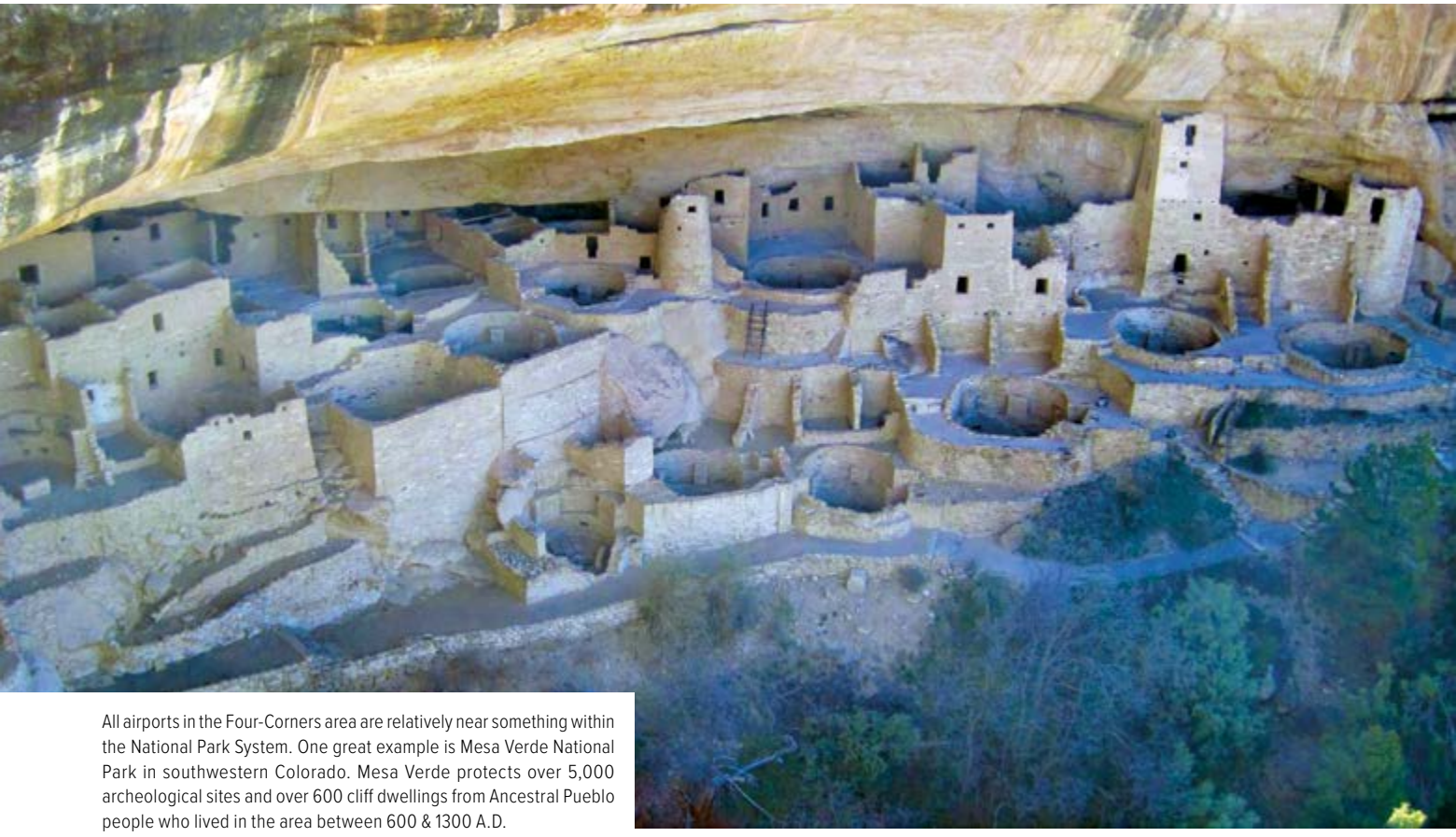
In Review

In Part I and II of this series, we introduced the concept of layover list making. A sort of bucket list, used to enhance your layovers (long and short) by encouraging you to get out and explore, checking boxes on your list(s) along the way. In the end, you'll surely return home with more stories to tell, more memories made, and far less FBO coffee and cookies consumed. As with anything in life, endeavoring to make your layovers more productive and memorable will be as successful as the energy you put into it. Starting a list or two is the first step but checking the boxes off your list is the real goal. Flight safety is always your first priority as a professional or owner-flown King Air pilot. So, flight planning and preflight/post-flight duties should never take a backseat to layover touring. Nor should adequate rest be sacrificed leading into flying duties. However, when surplus time is in your day's clock, exploration is hard to beat for using that time to remind you that flying really can take you to interesting places.

During my many years of aviation layovers while flying as a corporate, charter, fractional, airline and traveling-instructor pilot, I've had many lists going concurrently. In this installment, I'll discuss one that can be pursued within both your work travel and family travel life. Over the years, I've found it one of the simpler ways to utilize downtime while reconnecting with nature and the great outdoors.

America's Best Idea

The National Park Service (NPS) manages all public sites within the National Park System. While it has



All airports in the Four-Corners area are relatively near something within the National Park System. One great example is Mesa Verde National Park in southwestern Colorado. Mesa Verde protects over 5,000 archeological sites and over 600 cliff dwellings from Ancestral Pueblo people who lived in the area between 600 & 1300 A.D.

The USS Constitution is usually moored at the Boston National Historical Park in Boston, Massachusetts, though it is currently in dry-dock undergoing restoration at the time of this writing (January 2020). "Old Ironsides" is the oldest commissioned naval vessel still afloat, having been first launched in 1797. When not undergoing restoration or repairs, she's open for tours year-round and typically sails a couple of times a year. She's the only survivor of the original six frigate warships built to help form a U.S. Navy fighting force.

oversight of 61 official National Parks, it operates over 400 individual units, each into one of 19 different NPS naming designations. These include national monuments, lakeshores, seashores, memorials, battlefields, historic sites, etc. National Parks often begin as one of these lower tier sites before being expanded and upgraded to National Park status. The point is, if you have interest in the U.S. National Park System, there are units dotting the width and breadth of the country and they encompass far more than just National Parks, for example, The Grand Canyon. NPS sites make a great layover list to pursue. Best of all, an annual NPS pass is only $80 and can be used to visit any unit or site within the NPS system, as often as you like, for a full year from purchase date. An annual pass is typically valid for its holder, plus a spouse or guest (such as a co-pilot) and dependent children. It is truly a bargain that's hard to beat, as just a couple site visits (paid at the single-visit rate) can often exceed the cost of the annual pass. Additionally, the U.S. Bureau of Land Management (BLM) protects and manages many public lands that do not fall under the NPS. Many BLM sites are every bit as impressive as NPS sites and are equally accessible.

It has been said that the U.S. National Park System is America's best idea. The concept of setting aside areas for protection and preservation and making those areas equally accessible to all citizens was a globally unique idea when it began in the U.S. in the early 1900s. In the century-plus that has passed since, many countries around the world have created their own similar systems, some quite impressive in both scale and long-term vision. So, while this discussion is specific to the United States, similar concepts can certainly be applied to flying and touring in many countries, from Australia to Zimbabwe.

Scenic Drives

Of course, many of our National Parks are enormous and could take years of dedicated visits to fully explore. Again, that's not the sort of touring one would do on a layover, nor it is necessary to do so. Many parks include one or more scenic drives that can be done in a matter of hours or less (if driven straight through) or can be extended to all-day trips if partaking of various side excursions and/or making frequent stops along the way. The following are some examples of common King Air destinations with scenic NPS drives nearby.

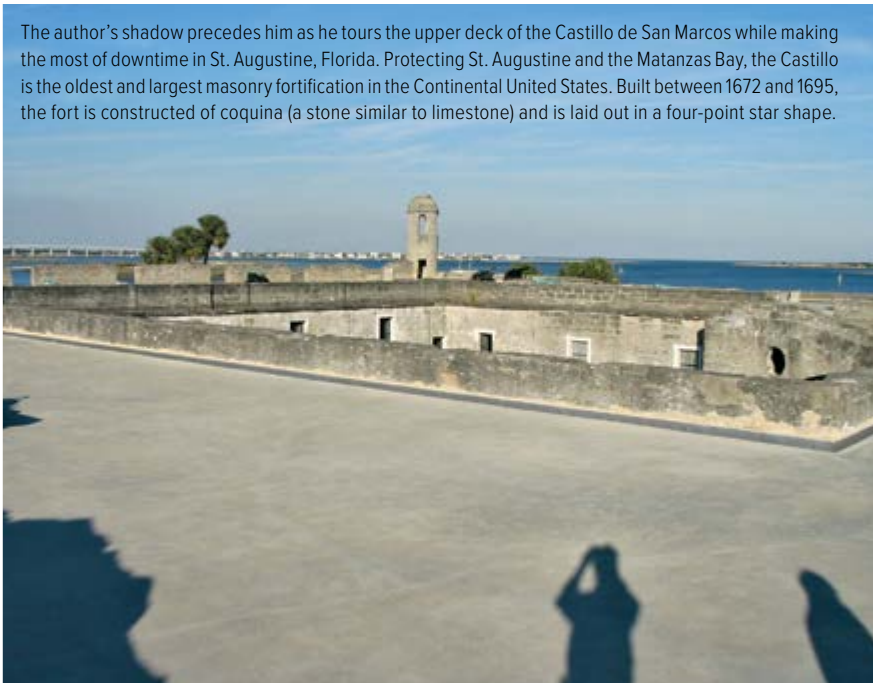
Gettysburg National Military Park, Gettysburg, Pennsylvania: The site of the most famous of Civil War battles and President Abraham Lincoln's equally famous Gettysburg Address, is only a 45-minute drive from Pennsylvania's capital of Harrisburg. In an hour or just slightly more, it can be reached (by car) from several of Maryland's most popular airports, such as Hagerstown, Fredrick and Baltimore. While this drive through southern Pennsylvania's rolling farmland (including many Amish homesteads) is beautiful in and of itself, it is the history lesson on the Civil War that is truly unforgettable. The number

of monuments honoring the Union and Confederate units and soldiers who fought and died there can be overwhelming. However, for any history lover it is not to be missed. With more time, bus tours guided by well-informed park rangers can be taken in lieu of self-touring.

Park Loop Road, Grand Teton National Park, Wyoming: Only a brief drive north of the popular Jackson Hole airport lies a scenic drive to rival any in the United States. The 42-mile loop drive offers many opportunities to see abundant wildlife with backdrops of majestic mountains, lush valley meadows and the Snake River. For longer layover excursions, Yellowstone National Park is only slightly further north, beyond Grand Teton.

Cades Cove Drive, Great Smokey Mountain Park, Tennessee: Heading to Tennessee's Tri-Cities area, Knoxville or possibly Chattanooga? If so, consider a quick drive to the most visited National Park in in the U.S., where the 11-mile Cades Cove Loop drive is popular by both car and bicycle for viewing wildlife, fall colors, and many adjacent historic buildings and trails.

Red Rock Canyon Scenic Drive, Nevada: On the far west side of Las Vegas (only 17 miles from the Vegas "strip"), there is an impressive BLM site known at Red Rock Canyon. It is truly an area worth visiting when needing to escape the chaos that Vegas is famous for. The 13-mile scenic loop drive is equally popular with drivers and cyclists for viewing the rock formations and the various desert plants and animals that live there. The visitor's center is a great place to start your time at Red Rock. Once you've been there, you'll be looking for ever-longer layovers in Vegas so that you can return and continue your explorations among the colorful Aztec Sandstone.



The author's shadow precedes him as he tours the upper deck of the Castillo de San Marcos while making the most of downtime in St. Augustine, Florida. Protecting St. Augustine and the Matanzas Bay, the Castillo is the oldest and largest masonry fortification in the Continental United States. Built between 1672 and 1695, the fort is constructed of coquina (a stone similar to limestone) and is laid out in a four-point star shape.

A view of a small country church and a meadow within Great Smokey Mountain National Park, taken while driving the scenic Cades Cover Loop Road. This National Park is a gem, straddling the Tennessee/North Carolina border.

An example of just one of hundreds of interesting rock formations within Joshua Tree National Park in Southern California. Joshua Tree is loaded with hiking trails and picnic areas that put you up close and personal with such terrain. This park is an easy drive from the L.A. Basin, especially if your flights are taking you to the airports on the eastern side of the city.

The Wupatki National Monument in northern Arizona is one of many historical Native American ruins scattered across the Four-Corners area. It is only 30 miles north of the popular Flagstaff area, making it a perfect day or partial-day trip from that region.

Shark Valley Loop, Everglades National Park, Big Cypress, Florida: Just outside of Miami's western suburbs is the Shark Valley entrance to Everglades National Park. The same 15-mile paved loop is shared by park tour trams and bicyclists. The visitor's center offers bicycles and safety equipment for rent for cycling as little or as much of the mostly flat Shark Valley Loop as your time or fitness level allows. Close encounters with napping and lethargic alligators are common along the trail. Native birds and other wetlands wildlife is abundant, as well. At the half-way point, the Shark Valley Observation Tower allows a bird's eye view of the largest gators living in the park (some exceeding 30-feet in length), as well as a panoramic spectacle of the swampy lands that make up the Everglades.

Shedding a Tier

The areas discussed above are relatively well-known and popular upper tier sites within the NPS. However, the lower tier sites within the NPS (and on BLM lands) are also chocked full of perfect layover diversions. Presidential homes, libraries and birthplaces, historic military forts and battlefields, memorials, ancient Native American sites and ruins, and so much more all make for great day or partial day excursions. Below are just a few (of the hundreds of options) to introduce some possibilities to you and to whet your appetite for layover explorations.

Honoring the Wright Brothers: What better diversion for a waiting aviator than exploring sites honoring the Fathers of Flight? Dayton, Ohio, has an entire Aviation Heritage Park devoted to the bicycle mechanics with preserved or exact reproductions of their workshops, homes, labs, etc. All of this is within minutes if you're laying over in Dayton, and within an hour if you're killing time at any of the Cincinnati, Ohio/Covington, Kentucky area airports. The Wright Brothers National Memorial is located at the Kill Devil Hills, North Carolina, site of their flight testing leading up to and including the first powered, heavier-than-air, controlled flights in history. While this area has its own dedicated airport (Kittyhawk Airport), it is also only about a 1.5-hour drive south of the Norfolk and Virginia Beach, Virginia, area.

Fort Sumter, Charleston, South Carolina: One of dozens of historic military coastal fortifications with the NPS, Fort Sumter is perhaps the most famous due to the notoriety it earned by being the site of the Civil War's first shot. Like many of these historic forts, Sumter is near a fairly urbanized area, served by several airports likely to see King Air type traffic. In fact, Charleston International (CHS), Charleston Executive (JZI), and Mt. Pleasant Regional (LRO) are all within 15 miles or so of the historic downtown Charleston area. Ferries run frequently between Charleston and Fort Sumter Island. If you don't have time for that, you could simply enjoy the Fort Sumter Visitor Education Center, co-located at the ferry's downtown docking area. Charleston and the surrounding area have many other military forts and various historic sites within an hour's drive.

Muir Woods National Monument and Alcatraz Island, San Francisco, California: The Bay area of northern California is served by dozens of general aviation airports capable of hosting turboprop traffic. Exploration during layovers in such an area is not difficult. Muir Woods is a small park north of the Golden Gate Bridge and within the Golden Gate National Recreation Area. Its main attraction is its grove of old growth Coastal Redwood trees. Named for the famed naturalist whose writings first drew widespread attention to America's natural wonders and the need for sustained preservation efforts, Muir Woods offers beautiful hiking trails among the enormous Redwoods. Alcatraz Island, of course, is most famous for its long-closed, maximum-security prison which has become an iconic symbol of crime and punishment in America. Now preserved and maintained as an NPS site, ferries to and from the island run frequently from the San Francisco wharf area. Self-guided tours of the island, the prison buildings and the remains of military fortifications from the pre-prison years are a fascinating way to while-away a few hours of downtime in the Bay area.

The Four-Corners States: Within the states of Arizona, Colorado, New Mexico and Utah are dozens of NPS sites. While these states are large and sparsely populated overall, they all contain many airports a King Air pilot might have reason to visit (from large Class B and C airports, to rural pilot-controlled airfields). Wherever you might be stuck waiting in these states, it is likely you'll be relatively close to something amazing to see. Many major ancient Native American sites are preserved in each state. Some are near the major cities, like Petroglyph National Monument on the western edge of Albuquerque, New Mexico, and the Tuzigoot and Montezuma Castle National Monuments, north of Phoenix, Arizona. While others are near only small-town airports, such as the impressive Hovenweep and Canyons of the Ancients National Monuments, both on the southern Colorado/Utah border, just north of the Four Corners marker.

Equal Beauty on a Smaller Scale

While the NPS is vast, the 50 State Park Systems and thousands of County and City Park Systems are even more so. Every state, most counties and many cities (from large to tiny) have a park system in place with protected sites following much in the same vein as the NPS. While the parks themselves are generally much smaller than national parks or monuments, they offer similar sites of natural wonders, unique topography, memorials, historical markers or just quiet green space for relaxing while enjoying the view. It is difficult to find an airport that can accommodate a King Air within the U.S. that is not also within a short drive (or sometimes even walking distance) of a state, county or interesting city park site of some type. Two of my favorites over the years have been:

Devil's Lake State Park near Baraboo, Wisconsin: Situated between several small-town airports in south/central Wisconsin, only 30 minutes from the popular Wisconsin Dells, and an hour from the Wisconsin capital of Madison. This park is stunning! Centered on a 360-acre lake, the park's hiking trails range from quaint strolls along the lake front to strenuous climbs up a natural staircase of quartzite rock to areas of sheer cliffs, balancing boulders and towering chimney rocks.

Brown County State Park, Indiana: Only an hour from both Indianapolis and Louisville, this park lies immediately north of (but not within) the Hoosier National Forest. It is about halfway between the medium-sized towns of Columbus and Bloomington, Indiana. Not only is it the largest state park in Indiana, at nearly 16,000 acres, it is one of the largest state parks anywhere in the U.S. Most don't think of hills when they think of farm states like Indiana. Yet, this part of Indiana is mostly steep and rolling hills, densely wooded areas and stunning vistas. Very popular during the autumn foliage viewing season, the park can be enjoyed via several scenic drives (which include creeping through wooden covered bridges) or by getting out and hiking any of the miles of groomed trails (through thick forest or across open meadows).

Conclusion

When pursuing your layover bucket list, the only limits are your imagination and energy. It could be museums, architecture, hiking, city walks, scenic drives or bike rides, music stores or venues, 5-Star restaurants or dive cafes, or any other of a million different things that hold the interest of us pilots. The point is equally about checking off items on your list(s) of places and experiences not to be missed and about not wasting a good portion of your life waiting in FBOs and hotels!

Layover bucket lists can be effectively endless for filling an aviator's downtime, while also pursuing one's personal interests. Many great smartphone apps and websites exist for locating hiking trails, parks, museums and other points of interest near you. The NPS and most State Park Systems have informative websites to help you narrow down your options based on the time you have to spare. Sometimes just heading out on a blind search for mental stimulation can be just as rewarding. In the end, use whatever information and motivation is necessary to go out and explore. If you just can't take another minute of mundane waiting, that's your subconscious telling you that life is passing you by and to seize the day. Killing a few hours at some awe-inspiring site sure beats killing a gallon of stale coffee at an FBO for me!

Matthew McDaniel is a Master & Gold Seal CFII, ATP, MEI, AGI, & IGI and Platinum CSIP. In 30 years of flying, he has logged over 18,500 hours total, over 5,500 hours of instruction-given, and over 2,500 hours in various King Airs and the BE-1900D. As owner of Progressive Aviation Services, LLC (*www.progaviation.com*), he has specialized in Technically Advanced Aircraft and Glass Cockpit instruction since 2001. Currently, he is also an Airbus A-320 series captain for an international airline, holds 8 turbine aircraft type ratings, and has flown over 90 aircraft types. Matt is one of less than 15 instructors in the world to have earned the Master CFI designation for 9 consecutive two-year terms. He can be reached at: *matt@progaviation.com* or (414) 339-4990.

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Recent AIM Revisions Published and Recommendations Given to Streamline LOA for Part 91 Operators

by Kim Blonigen

FAA Publishes AIM Revisions

The National Business Aviation Association (NBAA) is encouraging pilots to review the recent published revisions to the Aeronautical Information Manual (AIM). The revisions include clarifications of "approach category" and its application in determining the appropriate straight-in or circling minima on an instrument approach.

Previous AIM language required pilots to use the next higher approach category if it was necessary to maneuver at a speed above the upper limits of the aircraft's defined approach category. The revised language advises a pilot is never required to use the next higher approach category and clarifies an aircraft is certified to one approach category.

This revision comes in part due to industry work with the Federal Aviation Administration (FAA) in response to many approaches published with CAT C minima and CAT D depicted as "NA" (Not Authorized) often a result of FAA airport design standards or upon request from the airport operator. This essentially prohibited CAT C airplanes from flying straight-in approaches or conduct the circling maneuver at a speed above the CAT C speed limit of 140 knots.

The revised AIM language also provides guidance for pilots regarding responsibilities and recommended actions in flying these approaches, including using either the minima corresponding to the category determined by certification or minima associated with a higher category. However, the AIM cautions, "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 higher category should be used."

Another important revision is a reminder that operations below the minimum decision altitude or decision altitude/decision height require the runway environment be in sight and the aircraft be continuously positioned so that a landing on the intended runway can be made using a normal rate of descent and normal maneuvers.

FAA and Industry Working Group Issue Recommendations to Streamline LOA for Part 91 Operators

The General Aviation Manufacturers Association (GAMA) and the FAA Flight Technologies and Procedures Divisions co-led an aviation industry/FAA working group which issued a final report to the FAA with recommendations to streamline and expedite the current process of issuing Letters of Authorization (LOA) for Part 91 operators.

The NBAA participated in the working group and reported the group concluded that "Streamlining the process for the most requested authorizations by Part 91 operators would reduce demand on the FAA and produce the largest benefit for the business aviation industry while maintaining the safety of the largest aerospace system in the world."

"Each Part 91 LOA application requires a review and approval of three essential elements: aircraft capability, pilot training and an operator's procedures," said NBAA Director, Flight Operations and Regulations, Brian Koester, CAM. "The working group identified key areas for improvement that would offer authorizing FAA inspectors an alternate, streamlined method to review and issue a letter of authorization. We are excited about the changes to come and look forward to working with the FAA to ensure these recommendations are introduced smoothly and quickly."

The report contained six recommendations which were:

1. GAMA should develop an Aircraft Statement of Capability template and release it online for use by aircraft manufacturers free of charge.
2. Aircraft manufacturers should develop Aircraft Statement of Capability documents using the industry template.
3. Manufacturers providing an Aircraft Statement of Capability also should establish a process to maintain and update the document.
4. The FAA should consider the aircraft make, model and series, serial number or operator name rather than an aircraft's registration number when reviewing a Part 91 operator's application.
5. The FAA should create and/or update all guidance material necessary to create a new LOA Training Statement of Compliance form for international operations training providers.
6. The FAA should develop an additional process to provide a statement of compliance for vendors that sell International Operating Manuals to Part 91 operators.

Initially, the recommendations will apply only to new aircraft delivered to operators once the new policies have been implemented. KA

Windmilling in Reverse

by Tom Clements

There is more than one meaning or situation that can be addressed by the term "Windmilling in Reverse" and I hope to cover all of them in this article.

First, why would the feathered propeller of a PT6 engine that has been shut down in flight rotate backward – turn counterclockwise (CCW) as viewed from the pilot's seat – instead of being stopped or rotating in the clockwise (CW), normal, direction? It was typical in the original three-bladed PT6s used on earlier King Airs that the propeller would indeed be stationary on a shutdown engine in flight. Since there is extremely low resistance to rotation – due to the fact that the input shaft to the engine's Reduction Gearbox (RGB) is the free turbine that is not connected to the compressor and its accessories – even the smallest error in the feathered blade angle can cause rotation. Sometimes the misadjustment leads to normal, CW propeller rotation and sometimes it goes in the opposite direction, CCW. If the propeller blade angle doesn't quite go far enough to streamline into the relative wind – close to a 90° blade angle, but with the actual number depending upon both the distance from the center and the twist with which the blade is designed – then the relative wind creates a force that tries to rotate the propeller in its normal direction.

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On the other hand, if the propeller blade angle goes a bit past 90° now the relative wind leads to a CCW, backward rotation.

Although it is pleasing to have the propeller come to a dead stop when shutdown and feathered in flight – like it was on the piston twin trainers in which we learned – it is not at all uncommon to experience slight rotation in either the normal or the backward direction. Don't worry about this being harmful to the engine … it's not. Why? Because the oil supply and scavenge pumps are driven by the compressor's rotation: N_1 or N_g. Unless something jams the compressor, the ram air through the cowling and engine causes sufficient compressor rotation to supply a continuous supply of oil to the rotating propeller, its RGB and the power turbine's shaft: N_2 or N_f.

When Raisbeck Engineering developed the first four-blade propeller for the King Air 200 model – the excellent "Quiet Turbofan" propeller – it had a very pronounced twist designed into the propeller blades. As I have mentioned before, this prop doesn't even come close to stopping rotation when feathered on a shutdown engine. Expect to see 10 to 20 RPM in the normal, CW direction … which is enough to create sufficient propeller oil pressure – from the pump inside the propeller governor – to allow the prop to unfeather itself if the propeller lever is not kept in the feathered position, keeping the path open for propeller oil to exit back into the engine. Even if your King Air has autofeather, be certain to complete the full shutdown procedure and move the prop lever manually into the fully aft, feather position!

The second situation of windmilling in reverse that I wish to present is more obtuse, by far. We all expect that a fixed pitch propeller will turn faster when subjected to either more power or more airspeed. Of course, that is correct and it is what a constant speed propeller governor is meant to overcome. Namely, whenever the propeller momentarily goes faster (i.e., it overspeeds), the governor sends the blades to a larger angle, a bigger bite. The bigger bite creates more rotational resistance, slows down the propeller, and restores the on-speed condition. Vice versa, when the propeller underspeeds, the governor decreases the blade angle to restore the on-speed condition.

As a mental imaging exercise only (Don't try this at home, folks!), consider what happens to the propeller when we cut off the fuel to a PT6 in cruise flight. Momentarily, due to the total reduction of power, the propeller underspeeds and the governor flattens the blade angle. Because the propeller of a PT6 has so little resistance to rotation – since it is only connected to the RGB and the power turbine, as well as to three accessory drive pads – at any airspeed above about 140 KIAS, it can return to constant speed operation at any speed selected by the prop lever … even takeoff RPM! Only when the airspeed drops below 140 do the flattening propeller blades finally reach the Low Pitch Stop (LPS). Now the blade angle becomes fixed, cannot flatten any more, and indeed the propeller speed starts to slow down.

As I hope you realize, when the pilot moves the power lever into the Beta and Reverse ranges, he or she is moving the LPS to a progressively flatter angle. Ignore the tremendous drag that is being produced as we continue our mental imaging exercise and theorize what would happen if the blade angle went totally "flat." Does it make sense that our windmilling tendency would be lost? To make it simpler, imagine blades with no twist … just flat boards replacing the actual propeller blades. It those boards were at a zero-degree blade angle, the relative wind would be producing lots of drag but no rotational tendency. It'd be like holding your hand out of the car window on the freeway with your palm facing forward. There is lots of force pushing your hand back but no tendency to make your arm move up or down. Now rotate your hand such that your thumb moves forward. Hand wants to rise, right? Vice versa, rotate your hand to move the thumb back a little and now the arm wants to move down. (Like me, you did do this in your parents' car as a kid, didn't you?)

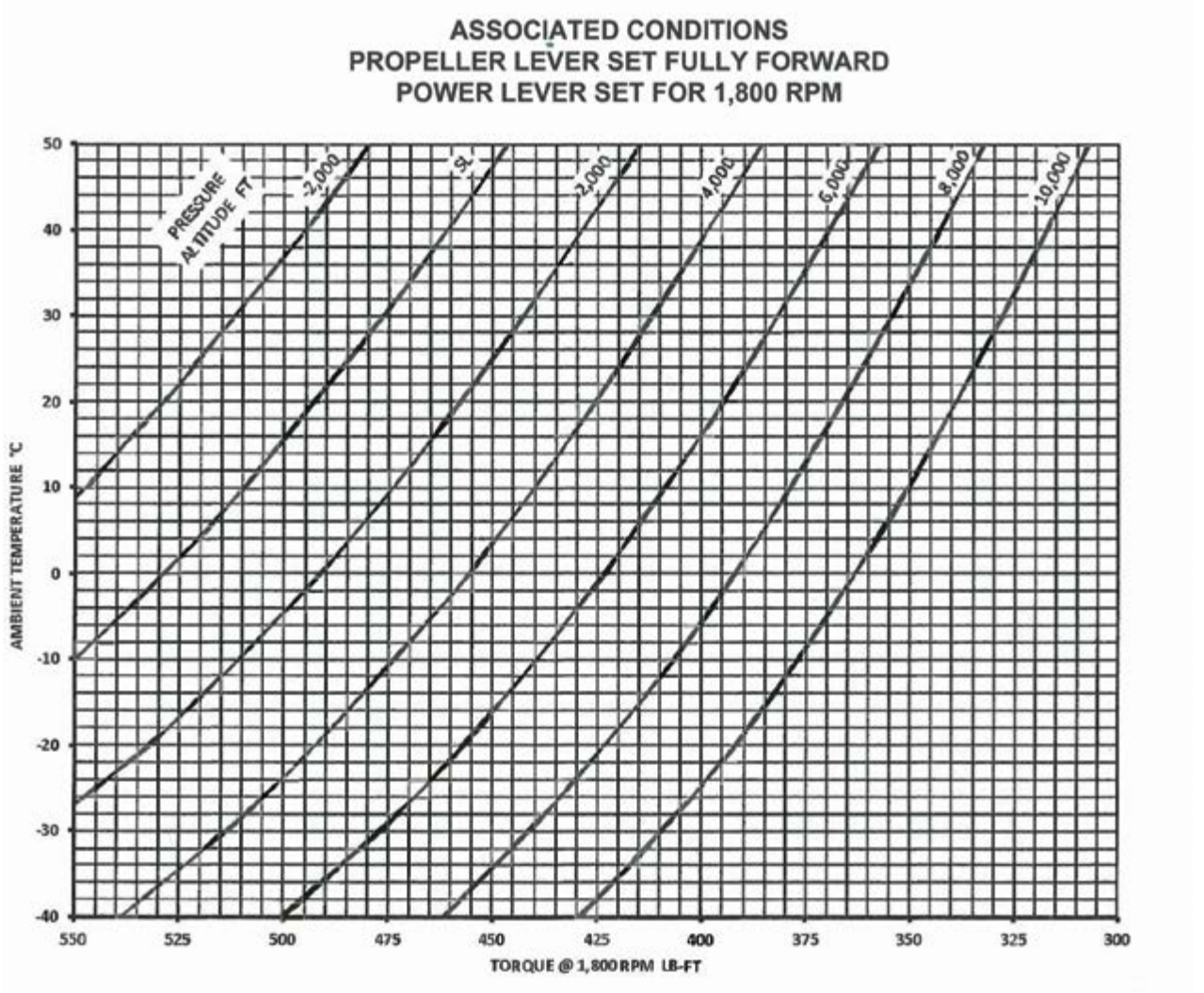
I hope that the conclusion being reached is that a totally flat propeller blade has no windmilling tendency, same as a feathered blade. Given enough time, all prop rotation would stop.

To "prove" that this in merely a mental imaging exercise, keep in mind that oil pressure from the pump inside the propeller governor provides the force that overcomes the feathering springs' efforts to send the blade angle to feather. What is the pump doing when rotation stops? Nothing! It's not turning and hence is creating no additional oil pressure. Therefore, we could never really reach that totally flat blade angle position – the one that gives no rotational tendency – because there'd be no way to keep the blade at that position. It would always start leaking toward feather, and then rotation in the normal CW direction would begin again.

Why have I taken your time to read these past few paragraphs if it is an impossible situation to achieve? Because I want you to consider the effect of windmilling when (1) using reverse thrust after landing, and (2) when conducting LPS run-up tests.

Here we are on a short runway using the Maximum Reverse procedure: High Idle, prop levers fully forward on final, and lifting and pulling back as far as the power levers will go right at touchdown. We are now moving the LPS to its most negative blade angle position and simultaneously asking for about 85% compressor speed. As the blade angle becomes negative, the relative wind is now serving to resist, not aid, propeller rotation. The faster we are moving, the more resistance there is. This explains why it is common to see the propeller speed slightly increase while in maximum reverse as the airspeed slows and approaches 60 knots, the point at which we should be easing out of the reverse range so as to be at Ground Fine by 40 knots … to decrease the potential for propeller erosion and FOD (Foreign Object Damage). Proper power lever/engine rigging should be done on a run-up pad that has been swept clean of any debris. Now maximum reverse is obtained with zero airspeed, the only relative wind being what the prop wash itself provides. Do you see that the results observed during this check will not be identical to those observed at 80 knots after touchdown? Namely, the airspeed causes more resistance to propeller rotation and, hence, slightly less propeller speed. Observing different results on the maintenance run-up pad versus on the runway with significant airspeed is to be expected. It's not cause for concern.

The "Flight Idle Torque Test" is how the pilots and mechanics can determine if the low pitch stop is set at the correct blade angle. It should be labeled the "Low Pitch Stop Test" and the Raisbeck Engineering Maintenance Manual does indeed use that name. For each different propeller – manufacturer, number of blades, designer – a chart exists that presents target torque to be achieved at a specified RPM. The existing



Pressure Altitude and OAT are the variable parameters that the chart uses (see example below).

For an example, let's consider the four-blade "Quiet Turbofan" Raisbeck-Hartzell propeller that is widely used on many 90-series airplanes. With the propeller levers fully forward – setting the primary governor to its maximum, takeoff, propeller speed – power is added to bring the propeller speed up to 1,800 RPM. Since we are not yet on the governor, still in an underspeed condition, the propeller blade angle is at the LPS setting. For standard Sea Level conditions, 15°C, the torque should now be 500 ft-lb with a tolerance of +20/-0 ft-lbs and within 20 ft-lbs of the other side.

Seeing torques of, say, 560 on the left side and 480 on the right side, tells us three things: First, the LPS is incorrect on both sides and needs adjustment. Second, the higher torque on the left side indicates that there is more resistance to rotation on that side. Why? Because the blades are taking too big of a bite of air … the LPS is at a larger blade angle, coarser than it should be. Likewise, the right side's LPS is too fine, at too small of an angle. (To make this easier to understand, just consider how difficult it would be to spin a feathered propeller at 1,800 RPM. Why, we would likely hit the torque limit first! Vice versa, if the blade angle were totally flat, near zero degrees, it would spin quite rapidly very easily, with very low torque applied.) The third thing we can learn from this mis-match in "Flight Idle" torques is that we can anticipate a yaw to the right in the flare … more drag on that side when the propellers finally come off of the governors and hit their respective LPSs.

Quiz time: In addition to Pressure Altitude and OAT, what other variable factor will affect the LPS torque test results?

That's right … wind! Based on the whole premise of this article, headwind in the run-up area helps the propeller to rotate. With that help, the flow of exhaust gases across the power turbine blades don't have to do as much work, don't have to deliver as much torque. Vice versa – a tailwind in the run-up area leads to that "Reverse Windmilling" tendency and acts to slow the propeller down. Thus, more torque will be required to reach the specified 1,800, RPM value.

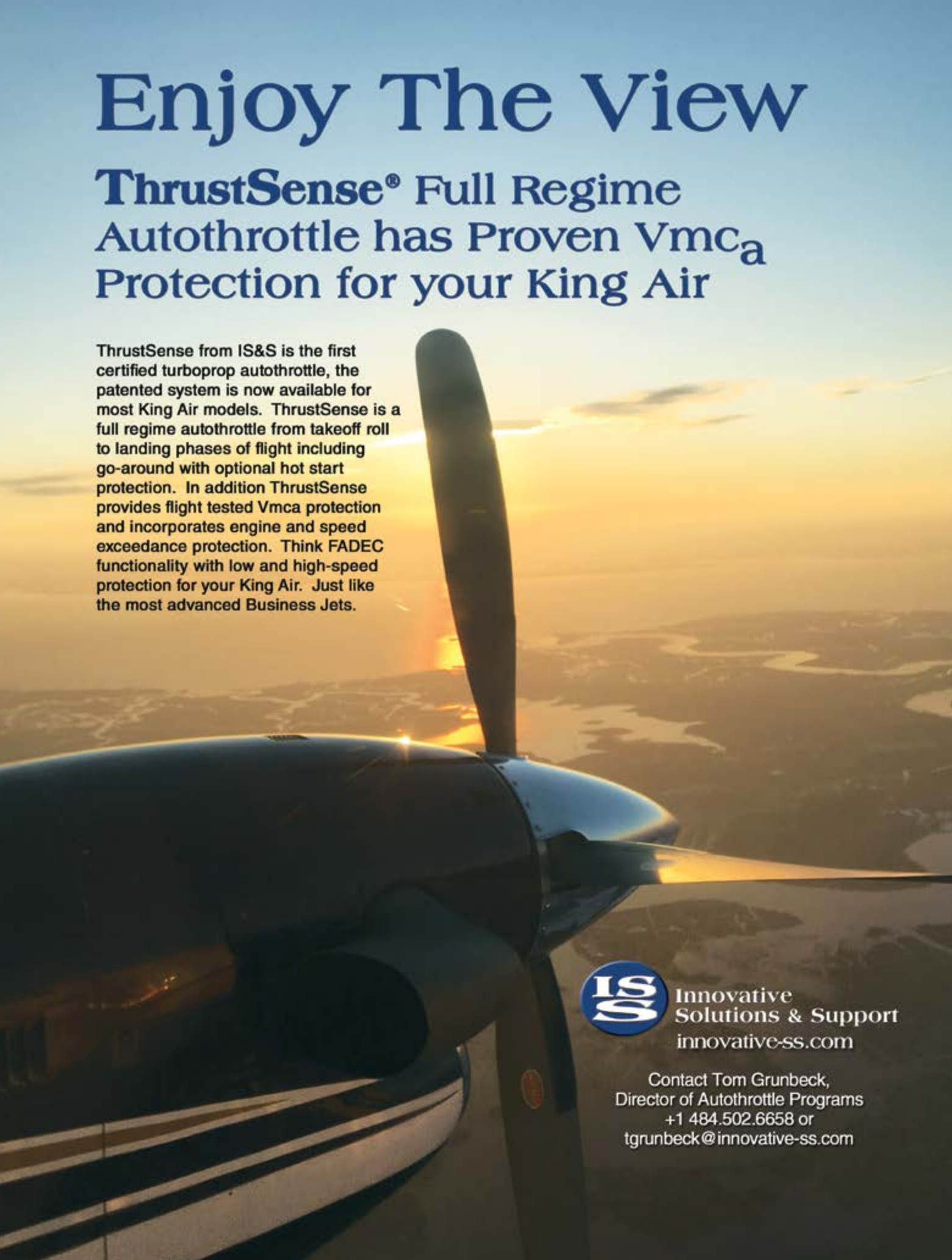
And now you know why, when the wind is not calm that the Low Pitch Stop torque value must be the average of one reading taken while facing into the wind and one taken while facing downwind.

OK, OK, I hear you. Next month I will pick a topic that is not so technical! See you then. KA

I am very happy to report that "The King Air Book – Volume II" is now available! This new book, which I finished creating a couple of months ago, is a compilation of all of the articles that I have written for this magazine. They are indexed according to topic, making it easy to find your areas of interest. In addition, a digital copy that is searchable and in color is also available for ordering. Go to *www.kingairacademy.com* to find the links for both. I appreciate your support!

King Air expert Tom Clements has been flying and instructing in King Airs for over 46 years, and is the author of "The King Air Book." He is a Gold Seal CFI and has over 23,000 total hours with more than 15,000 in King Airs. For information on ordering his book, contact Tom direct at *twcaz@msn.com*. Tom is actively mentoring the instructors at King Air Academy in Phoenix.

If you have a question you'd like Tom to answer, please send it to Editor Kim Blonigen at editor@blonigen.net.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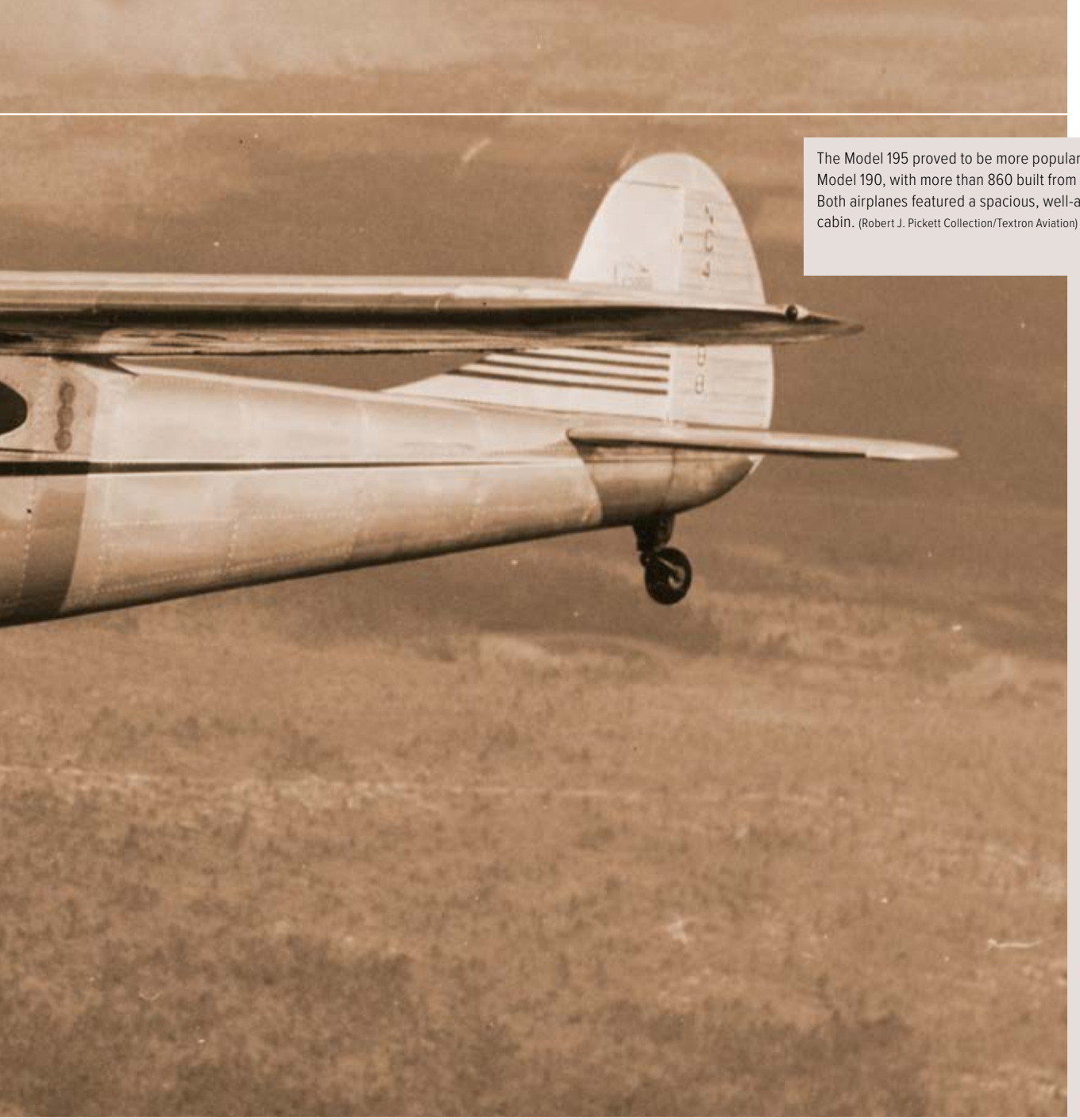
Cessna: The Postwar Years - Part One

During the mid-1940s the Cessna Aircraft Company worked overtime to meet soaring demand for modern, all-metal monoplanes.

by Edward H. Philips



The Model 195 proved to be more popular than the Model 190, with more than 860 built from 1947-1954. Both airplanes featured a spacious, well-appointed cabin. (Robert J. Pickett Collection/Textron Aviation)

In August 1945, after more than five years of vicious fighting, the worst war the world had ever experienced was finally over. Adolf Hitler's Third Reich, which he boasted would last a thousand years, was gone after only 12 years. Germany lay in ruins. It had been ravaged from the air by the Royal Air Force's Bomber Command at night, and by America's mighty Eighth Air Force by day. As for Japan, more than 60 cities important to the war effort had been fire-bombed into oblivion, hundreds of thousands of Japanese had died in massive conflagrations, and the population of Hiroshima and Nagasaki had suffered the horrors of atomic weapons.

Cessna's new monoplane was the company's only postwar design powered by a static, air-cooled radial engine, and proved popular with private pilots as well as business aviation operators. (Robert J. Pickett Collection/ Textron Aviation)

Far away in Wichita, Kansas, however, the hard-working, patriotic employees of the Cessna Aircraft Company could be proud of a job well done, as could workers at Beech Aircraft Corporation and the Wichita Division of the Boeing Airplane Company. By late 1944 it looked increasingly certain that the Axis powers would be defeated by the Allied nations, and as demand for the weapons of war slowed, airframe manufacturers turned their attention to the design and production of commercial aircraft. In the summer of 1945, with Germany defeated and Japan's empire in its death throes, the United States Defense Commission had begun

releasing wartime materials such as steel, aluminum and rubber, to help manufacturers begin a return to peacetime production.

Cessna's chief, Dwane L. Wallace, welcomed the return to peacetime operations, but it came at a steep price. The war's end meant massive layoffs of personnel and the ax fell swiftly on thousands of workers. During the war employment had peaked at 6,074 people before plummeting to 1,000 after "V-E Day" (Victory in Europe), and fell to only 450 following the surrender of Japan in September 1945.

It is important to note here that late in 2013 Textron, parent company of the Cessna Aircraft Company, acquired Beech Aircraft Corporation after it emerged from bankruptcy, but it was not the first attempt to bring the two organizations together. In July 1945 the aviation world was surprised to learn that senior officials of the Cessna and Beechcraft companies were discussing a potential merger of the two airframe manufacturers. The two companies had cooperated many times during the war to meet demand for aircraft, and the proposal seemed practical given that both businesses were located in Wichita, had the same auditors and fiscal years, neither had any debts and owned their factories. In addition, both shared a desire to survive in the uncertain postwar marketplace.

Beech Aircraft's director and financial advisor Thomas D. Neelands brought senior management to the negotiating table. As outlined by Neelands, Beech Aircraft would trade 233,000 shares of stock worth about $3.5 million for $5 million of Cessna facilities and working capital. In addition, Walter Beech's company would be entitled to Cessna's tradename. A series of meetings ensued but officials failed to agree on anything and in August the proposal had fallen flat on its face. A formal announcement was

issued stating that all discussions had ceased, and everyone went back to work with no hard feelings.

The greatest challenge facing Walter Beech and Dwane Wallace centered on what kind of airplane to build for the postwar market. Both men knew that when the fighting ended there would be thousands of war-surplus airplanes such as the Aeronca *Chief*, Piper *Cub*, Taylorcraft, Interstate *Cadet* and Boeing/Stearman PT-13, PT-17 and N2S-series biplanes (to name only a few types), available at bargain prices. They also recognized, however, that many pilots wanted new, modern airplanes, not leftovers from the Great Depression and prewar era.

Beech Aircraft's answer was the Model 35 *Bonanza* that had first flown late in 1944 and was in full production by 1946. At Cessna, however, Wallace directed his engineers to focus on the design of all-metal monoplanes beginning with an entry-level model and progressing to larger and more powerful aircraft. His directive led to the simultaneous development of three monoplanes: The Model 120, Model 140 and the Model 190. Wallace had hoped that the "Family Car of the Air," also known as Project P-370, would become its premier, postwar product aimed at competing with the *Bonanza*, but he was also well aware that back east in Lock Haven, Pennsylvania, the Piper Aircraft Corporation was designing a four-place monoplane dubbed the PA-6 *Skysedan* that was capable of speeds approaching 160 mph (Piper eventually canceled the PA-6 design and only two prototypes were built).

As a result, Cessna officials axed the P-370 project to concentrate on another concept known as the P-780. Although the prototype was built and flown strictly as a proof-of-concept design, it embodied as many parts and assemblies as possible from the Model T-50 while adhering closely to the proven layout of the prewar *Airmaster*. In only six months, the first airplane went from the drawing board to first flight. When unveiled, it looked like an enlarged version of the Airmaster but with a larger cabin, more comfort and power, and it sat on Cessna's new spring-steel main landing gear.[1]

The prototype featured a welded steel tube fuselage and sheathed in fabric made taught with dope, but the cantilever wing was all-metal using Alclad aluminum sheet. Powered by a seven-cylinder Jacobs R-755 static, air-cooled radial engine rated at 245 horsepower, the sole P-780 made its first flight in December 1944 (same month as the Beechcraft Bonanza). By 1945 the ship was officially designated Cessna Model 190. Production airplanes would feature an all-metal fuselage of semi-monocoque construction and complete streamlining from propeller spinner to the rudder. A second airplane was built that featured all of these refinements and took to the skies in October 1945 with a 300 horsepower Jacobs R-755 powerplant. Early test flights revealed a maximum speed of 180 mph, and it looked as though Cessna had a worthy competitor to the Beechcraft Bonanza without the weight penalty and complexity of a retractable landing gear.

Development continued and a third pre-production prototype was built featuring a seven-cylinder Continental W-670 radial engine rated at 240 horsepower (first flight was June 1946). Both the Jacobs- and Continental-powered ships possessed good performance, and it was decided that both types would be manufactured – the Model 190 (Continental engine) and the Model 195 (Jacobs engine). The Civil Aeronautics Authority issued Approved Type Certificate 790 for the Model 195 in June 1947 that also applied to the Model 190 that was

approved one month later. During the 1947 sales year 84 airplanes were delivered, followed by 205 in 1948 and 186 in 1949.

That year the United States Air Force was seeking an airplane to perform flight duties in the frigid Arctic region. Eventually, the Model 195 was selected and Cessna won a contract for 15 airplanes designated LC-126A. In January 1950 the airplanes were delivered along with floats and skis to increase their utility in the field. The only difference between the military and commercial versions were special radio gear, an escape hatch, exterior paint and utilitarian cockpit and cabin appointments.

One year later the Air Force bought another five airplanes for duty with the Air National Guard. These ships were designated LC-126B and were identical to the LC-126A except for upgraded communications equipment. In 1952 the United States Army bought 63 of the Model 195 classified as the LC-126C. These ships featured an ambulatory interior capable of accepting two patients on special stretchers and featured a much larger baggage door to facilitate loading/unloading of patients. All 63 aircraft were delivered to the Army between May and October 1952.

Meanwhile, commercial sales of the Model 195 remained strong during the early 1950s, Cessna engineers upgraded the airplane by doubling the chord of the flaps, redesigning the cabin interior, adding a spinner to the propeller, changing the shape of the elevators slightly, and changing the engine to a Jacobs powerplant rated at 245 horsepower. These changes led to the new designation "Model 195A," and the popular Businessliner – as Cessna named it, was approved by amendment to its original Type Certificate in June 1950.

Sales continued to be strong with 190 units delivered in 1950, but then declined to only 96 in 1951. In an effort to boost sales, horsepower was increased to 275 for the 1952 model year and the designation was changed to Model 195B. The more powerful Model 195A and Model 195B outsold the Model 190 that was terminated in 1953 because of lackluster sales. Customers preferred the more powerful Cessna, but the Model 195B also disappeared from the factory production lines in 1954 after two years of slowly declining sales. By that time the advent of a new family of Cessna monoplanes powered by opposed piston engines had become the way of the future for the company. The Model 190 and Model 195 hold the distinction of being the only postwar Cessna designs to be powered by a radial engine.

A factory-fresh Cessna Businessliner was photographed outside the factory in the early 1950s. The Model 190 was built in far fewer numbers than its stablemate, the Model 195, but both airplanes proved to be popular with private, sportsman and business pilots throughout the early to mid-1950s. (Textron Aviation)

Including the 83 airplanes delivered to the U.S. Air Force and the U.S. Army, a total of 1,183 Model 190/195, 195A/195B were built beginning in 1947 and ending in 1954. Of these, the Model 195, 195A/195B accounted for 866 sales compared with only 233 for the Model 190. As of 2018, it is estimated that about 500 of the venerable Cessna monoplanes remain worldwide, with the majority registered to owners in the United States.

General specifications for the Cessna Model 190/195:

- Wingspan: 36 feet, 2 inches
- Wing area: 218 square feet
- Airfoil: NACA 2412 (modified)
- Length: 27 feet, 2 inches (Model 190); 27 feet, 4 inches (Model 195)
- Height: 7 feet, 2 inches
- Gross weight: 3,350 pounds
- Payload: 633 pounds (with 80 gallons of fuel)
- Cruising speed: 150 mph (Model 190); 159 mph (Model 195)
- Range: 700-725 statute miles
- Production era: 1947-1954
- Engine: Jacobs radial, 245 horsepower (Model 195A)
- Price: $13,250 (Model 190); $14,950 (Model 195)

For more information about the Model 195, go to *www.TheCessna195Club.org*. KA

Notes:

1 Famed designer and air racing pilot Sylvester "Steve" Wittman pioneered the use of chrome-vanadium spring steel landing gear on his experimental monoplanes of the 1940s. During an interview with Dwane Wallace in 1984, he told the author that Wittman sold the manufacturing rights for the gear design to Cessna, which also bought rights to Wittman's four-place WD "*Big X*" monoplane that was under negotiations to be built by Fairchild Aircraft, Inc. Cessna's acquisition of the "Big X" eliminated any potential competition the airplane may have offered against the Model 190/195 then entering production.

Ed Phillips, now retired and living in the South, has researched and written eight books on the unique and rich aviation history that belongs to Wichita, Kan. His writings have focused on the evolution of the airplanes, companies and people that have made Wichita the "Air Capital of the World" for more than 80 years.

King Air Book II Now Available

King Air expert Tom Clements has published a second book sharing his vast knowledge of the King Air. Titled "King Air Book II," it is a compilation of all of the articles that he has written for *King Air* magazine. They are indexed according to topic, making it easy to find areas of interest. In addition, a digital copy is also available. Go to *www.kingairacademy.com* to find a link for both paper and digital options.

King Air Parts Now More Accessible in Africa and Surrounding Region

Professional Aviation Associates has signed National Airways Corporation (NAC), the largest general aviation company in Africa as a distributor for the company. NAC will continue distributing all types of parts and consumable supplies, but now with a specific focus on the Beechcraft 1900, King Air and Embraer 120 parts for Professional Aviation Associates.

Inventory from Professional Aviation Associates is already on-hand at NAC. The new inventory combined with NAC's existing stock will optimize AOG and non-routine parts support in the region and reduce shipping expenses for customers. NAC will distribute Professional Aviation's inventory items from its facility at Lanseria International Airport in Johannesburg, South Africa.

Flight Deck Technology and Tools Now Available on Garmin Pilot app

In mid-February Garmin International, Inc. announced the addition of new features within the Garmin Pilot™ app that incorporate professional IFR navigation tools found within Garmin avionics. Pilots can experience a near-seamless transition between Garmin avionics and the Garmin Pilot app when performing common functions, such as loading and activating instrument approach procedures, departures and arrivals within the Americas. Additional features such as a visual procedure selector, custom holding patterns and more, give pilots convenient access to advanced tools all within a mobile app.

Carl Wolf, vice president of aviation sales and marketing said, "This upgrade gives pilots the ability to load complex routes and procedures into the app just as they would within a Garmin integrated flight deck, offering added convenience, time savings and confidence when transitioning between multiple Garmin products in the cockpit."

Professional IFR navigation tools

Within the latest Garmin Pilot upgrade, pilots have the option to load or activate departures, arrivals and instrument approach procedures. Published holds that are included as part of the missed approach are also added to the flight plan. When pilots activate a procedure with published altitude constraints, those altitudes are automatically incorporated into a flight plan within the app. Pilots can also choose to manually add altitude constraints into a flight plan. Additionally, approach procedures with radius-to-fix (RF) legs can be activated within Garmin Pilot.

Using the vertical planning feature within Garmin Pilot, pilots can more easily input and adhere to crossing restrictions in a flight plan. For example, pilots can manually input a crossing restriction over a specific navigational aid or GPS waypoint. With these new features, pilots can optimize their flight planning and fuel calculations.


Vertical Planning

Visual procedure selector

Pilots can now more easily visualize departures, arrivals and instrument approach procedures prior to a flight using the visual procedure selector. This new selector allows pilots to simultaneously view departures, approaches or arrivals on a map alongside a flight plan so it's easier to visualize and select the most appropriate procedure based on a flight plan and intended direction of flight.

Customized holding procedures

Pilots now have the flexibility to easily build customized holding patterns. These holds may be created over an existing fix or over a user-defined waypoint and then inserted into a flight plan. When creating a hold, pilots can easily input an inbound or outbound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course, select left or right turns and specify leg length in time or distance. Unpublished holds or those assigned by air traffic control are easily created and displayed within Garmin Pilot to simplify the process of visualizing and flying a holding pattern.

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Route data packages within Garmin Pilot help to ensure pilots have downloaded all of the data required for a flight plan. Once a flight plan is entered, pilots can review the data that is downloaded to their mobile device. If information is missing for a particular flight, Garmin Pilot displays an option to download additional data. Route data packages are also available worldwide to help ensure pilots have all of the data they need prior to every flight. Databases that are included within the worldwide route data packages include navigation data, instrument approach procedures, SafeTaxi®, terrain, obstacles and more.

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Service Letter MTL-27-02: Flight Controls – Inspection of the Elevator Trim Tab Servo Bracket Assembly Phenolic Block for Chamfers

Date: January 29, 2020

Compliance - MANDATORY: This service document must be accomplished within 200 flight hours or 12 months from the date of the receipt, whichever occurs first.

Effectivity: Super King Air B200GT, Serial Numbers BY-291 through BY-350; Super King Air B200CGT, Serial Number BZ-1; Super King Air B300, Serial Numbers FL-1094 through FL-1131 and FL-1131 through FL-1180; Super King Air B300C, Serial Numbers FM-71 through FM-79

Reason: The phenolic block which is fastened to the elevator trim servo bracket may be missing the 45-degree chamfers. Blocks missing the chamfers may cause the elevator trim cable turnbuckle to touch the block, causing a catch in the elevator trim cable movement.

Labor Hours: Modification 16.0, Test and Inspection 1.0

Labor Coverage: Textron Aviation-owned and Textron Aviation-authorized Service Facilities rated to perform maintenance on the specific model of Beechcraft aircraft may submit a claim for the labor necessary to accomplish this service document …

Credit Application: After this service document has been accomplished, a claim must be submitted to Textron Aviation within 30 days of the service document completion. Claims for compliance of this service document are to be filed as a W3 type claim.

Expiration: January 31, 2021

From Multi-Engine Turboprop Communiqué 2014-02R1

Original Issued: October 2014

Revision Issued: February 2020

Revision Summary:

Note: Revision 1 of this Communiqué supersedes the entire original issue of Communiqué 2014-02.

ATA 5 – Flammable Liquid Carrying Hose Kits from HBP&D

ATA 34 – FAA AD 2014-18-01 on TDR 94/94D Transponders

ATA 54 – Bumper Block Installation

ATA 5 – Flammable Liquid Carrying Hose Kits from HBP&D, Rev. 1

All

Refer to ME-TP-02 for the latest information.

ATA 34 – FAA AD 2014-18-01 on TDR 94/94D Transponders

The FAA recently released AD 2014-18-01 addressing a possible issue with the Collins TDR 94/94D transponder part numbers 622-9352-008/108/308/408 and 622-9210-08/108/308/408. Some of these part numbers were installed in several King Air models at initial build, as well as installed through aftermarket kits. These transponders may not properly enable replies to Mode-S Only All-Call interrogations when the aircraft transitions from a ground to an airborne state. When this occurs, the transponder may not properly reply to all ATCRBS and directed Mode-S interrogations, including TCAS, after the transition. The override function is only enabled if the Aircraft Type Code Category A strapping is set to values of 2 through 6. The AD references Collins SIL 07-2 for inspection and corrective action. A copy of the SIL is attached for reference *(Editor's Note: The SIL is included in the referenced Service Letter online)* and the AD can be accessed at *www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet*. To comply with the AD you will need

to verify the part number of the transponders installed. If you do not have the listed part number installed no further action is required.

If you have transponders with the applicable part number installed, a review of your current wiring diagrams or a physical inspection of the aircraft wiring will determine if the changes detailed in the Collins SIL need to be taken. The excerpt below from the SIL details the strapping that would be present for each code.

TYPE 2 P1-22	TYPE 1 P1-21	TYPE 0 P1-20	Code	MEANING
Type Set A (P1-23 = OPEN)				
Open	Open	Open	0	No ADS-B Category type information
Open	Open	Gnd	1	Light (<15,500 lbs)
Open	Gnd	Open	2	Small (15,000 to 75,000 lbs)
Open	Gnd	Gnd	3	Large (75,000 to 300,000 lbs)
Gnd	Open	Open	4	High Vortex – Large (aircraft such as B-757)
Gnd	Open	Gnd	5	Heavy (>300,000 lbs)
Gnd	Gnd	Open	6	High Performance (>5g acceleration and >400 knots)
Gnd	Gnd	Gnd	7	Rotor Craft

As delivered from the factory, all of the Pro Line 2 and Pro Line 21 King Air models equipped with these transponders were strapped to code of 0 with no connections to connector P1 pins 20, 21 or 22. This can be verified by the lack of any wiring references to those pins in the transponder wiring diagram manual 34-55-01 and 34-55-02 on Pro Line 21 aircraft and the individual serial specific transponder wiring diagrams for earlier aircraft. We do not show unused pins on most of the drawings so their absence indicates that they are not used. If the transponders are still strapped to code 0 no further action is required as the issue discussed in the AD will not be applicable when configured to a code of 0. If your installation's strapping has been changed to a code 2 through 6, you will need to follow the directions in the SIL to reconfigure the strapping. If you have any further questions concerning the inspection please contact Textron Aviation customer support at 800-429-5372, 316-517-9355 or by email at *teamturboprop@txtav.com.*

ATA 54 – Bumper Block Installation, Rev 1

200 Series with Hi-Float Landing Gear/C90A

The information contained in this article has been incorporated in the King Air Structural and Inspection Manual Chapter 57.

The information provided in this column may be abbreviated for space purposes. For the entire communication, go to www.txtavsupport.com.

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