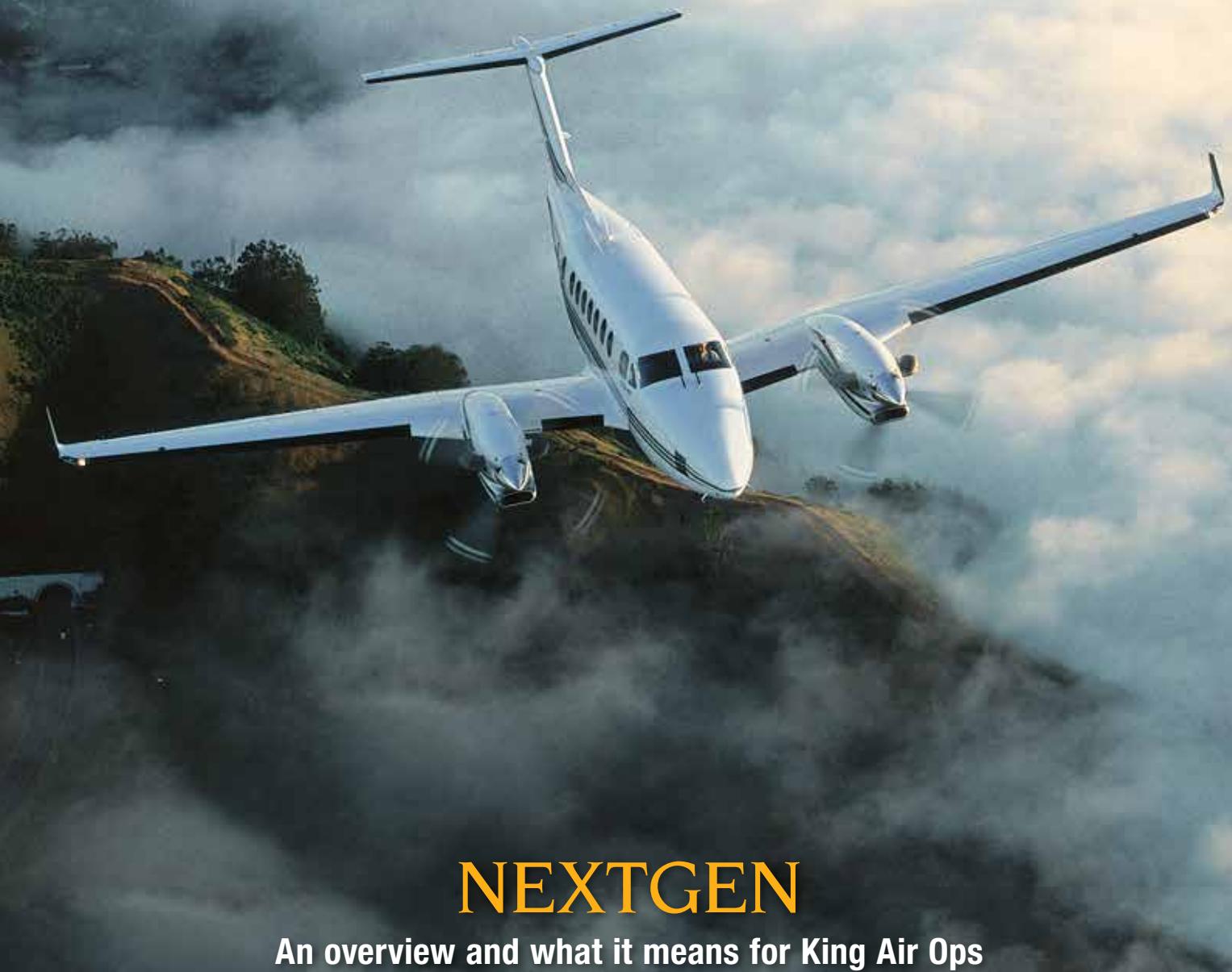


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NEXTGEN

An overview and what it means for King Air Ops

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2



8



10



18

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Contents

2

A Closer Look at NextGen

by Steve Fulton

8

Registration Now Open for King Air Gathering III

by Kim Blonigen

10

King Air Insurance Market Update

by Kyle White

13

Ask the Expert: King Air "Gotchas"

by Tom Clements

18

The Hollywood Travel Air

Edward H. Phillips

26

Value Added

30

Technically...



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A Closer Look at NextGen

by Steve Fulton

NextGen is an ambitious undertaking that is meant to modernize the national airspace system of the United States to accomplish a number of goals.

It has several technology components that we hear about as we all strive to stay informed in our industry. It is my hope that this article will provide some useful information that helps you better understand the overall program and how individual technology components will contribute benefits along the way.

Some Background

There is a lot of history in how the U.S. National Airspace System has advanced in complexity and performance. Some of the most dramatic changes came about over the past decades, as the result of accidents that created public concern which motivated the government to implement changes. One of the most significant examples is the Grand Canyon accident in 1956 when two air transport aircraft collided. The public demanded action and after a series of Congressional hearings, the Federal Aviation Act of 1958 created the Federal Aviation Administration (FAA).

The FAA was given full control of U.S. airspace, and large organizational and technology investments began to provide more assurance of aircraft separation. A key challenge to the task of providing aircraft separation at that time was that flight crews did not have the means of precisely defining their position in real-time during instrument conditions. World War II had expedited the development of radar that was an available technology to solve this problem, so air traffic separation functions were fundamentally ground-centric from then until the present. Over time, as traffic densities and aircraft speeds increased, additional technologies such as secondary surveillance radar and air traffic automation improved the overall system performance. In parallel with the ground infrastructure developments were advances onboard aircraft such as autopilots, altitude-encoding transponders, digital air data systems, and satellite-based navigation, to name a few. The tremendous improvement in aircraft flight guidance and navigation performance has not been well utilized in the management of air traffic, which set the stage for some ambitious new plans for the future.

The Origins of NextGen

In 2000, another crisis developed in the public mind that the media termed “gridlock” of the nation’s skies. A particularly tough summer storm season in the eastern United States rippled throughout the system and brought commercial air travel woes to passengers across the nation. Congress acted on the growing public concern and through a series of hearings and actions, the Joint Planning and Development Office (JPDO) was created “to develop a unified vision of what the U.S. air transportation system should deliver for the next generation and beyond, to develop and coordinate long-term research plans, and to sponsor cross-agency mission research.”

The JPDO coordinated activities across multiple government agencies, including the Department of Transportation and FAA, NASA, the National Weather Service, the Department of Defense, and the Transportation Security Administration. This multi-agency initiative developed a “Concept of Operations for the Next Generation Air Transportation System” that was intended to drive long-term research and detail planning and was released to the aviation community in 2007.

The scope of this JPDO “ConOps” was a “curb-to-curb” air transportation system with a completion goal of the year 2025 and an end state being an Air Traffic Management (ATM) system founded on an aircraft’s ability to fly precise paths in time/space and the Air Navigation Service Provider’s (ANSP) ability to strategically manage and optimize trajectories throughout the operation.

In 2011 the FAA published their “NextGen Mid-Term Concept of Operations for the National Airspace System” which focused on the areas of the air transportation system, from “gate-to-gate,” for which the FAA is responsible. This FAA ConOps was intended to drive NextGen implementation and had the same timeframe and end state as the original JPDO ConOps.

NextGen Planning and Implementation

In parallel to these government initiatives was a substantial amount of industry input and collaboration. The most notable of these activities was the RTCA NextGen Mid-Term Implementation Task Force (RTCA Task Force 5), which was organized in early 2009. This Task Force represented unprecedented collaboration of more than 300 members of a broad aviation consortium that included representatives from commercial airlines, general aviation, the military, manufacturers and airports. A key interest of the Task Force members was NextGen benefits that could be achieved in the near and mid-term, while efforts continued to build toward longer-term capabilities. By the end of 2009, the Task Force presented the FAA with a unified set of priorities for the following five years of NextGen. The FAA responded in early 2010 with an action plan for each of the Task Force “Tier 1” priorities.

In addition, the RTCA NextGen Advisory Committee (NAC) was established in 2010 as a Federal Advisory Committee. The NAC is made up of high-level representatives from throughout the aviation community and is the FAA’s principal source of stakeholder advice on NextGen issues and is tasked to provide recommendations that help “fine-tune” the agency’s plans. The interests and perspectives of King Air owners and operators are represented on the NAC by the chief executives of NBAA, AOPA, and GAMA. The NAC has proved to be very successful in bringing the industry and FAA together with sustained engagement and focus of many aviation stakeholders across the industry and government.

The Committee recognized in mid-2013 that the many industry requests and recommendations in combination with the FAA budget pressures of sequestration demanded that the NAC help the FAA set clear NextGen implementation priorities in combination with transparent plans. By 2014, after a significant amount of prioritization effort by the industry in close consultation with the RTCA Task Force recommendations, the FAA accepted the recommendation to focus NextGen implementation in four focus areas with the establishment of the NextGen Implementation Work Groups (NIWG).

The four focus areas were:

- Closely Spaced Parallel Runways – Multiple Runway Operations
- Surface and Data Sharing
- DataComm – Controller Pilot Data Link Communications (CPDLC)
- Performance Based Navigation – Time Based Flow Management

In 2017, a fifth NIWG focus area was added by the NAC in response to concerns about the poor airspace performance in a key region of the United States:

- Northeast Corridor

Each of these NIWGs developed implementation planning items that were approved by the NAC, recommended to and subsequently accepted by the FAA. Regular reports on progress to the NAC, and updates every three years, keep this work relevant and aligned with industry and agency needs. The FAA communicates the current NextGen implementation plans and progress in these five focus areas on their NextGen website as “performance snapshots” at: <https://www.faa.gov/nextgen/snapshots/priorities/>.

The following is a brief description of each of the focus areas and a more in-depth explanation in a couple of the areas that have some exciting potential for the King Air community.

CLOSELY SPACED PARALLEL RUNWAYS – MULTIPLE RUNWAY OPERATIONS NIWG

Multiple Runway Operations recommendations identify capabilities to improve access to runways including closely spaced parallel runways that will enable more arrivals and/or departures in less than visual approach weather conditions. This is primarily of interest to air transport operations as their hub airports are under increasing demand as traffic increases faster than the ability to add new runways.

SURFACE AND DATA SHARING NIWG

Surface and Data Sharing recommendations provide greater predictability to airport surface operations and the NAS with plans for abundant information input among the FAA, Flight Operators and Airport Operators. The enhanced data sharing proposed in the recommendations will lead to more accurate predictions of capacity/demand imbalances and improve overall traffic management efficiency while also reducing taxi-out times and associated emissions. This is also primarily of interest to air transport operations to more completely connect and coordinate the uncontrolled ramp and gate operations with the air traffic operations of the airport surface and airspace.

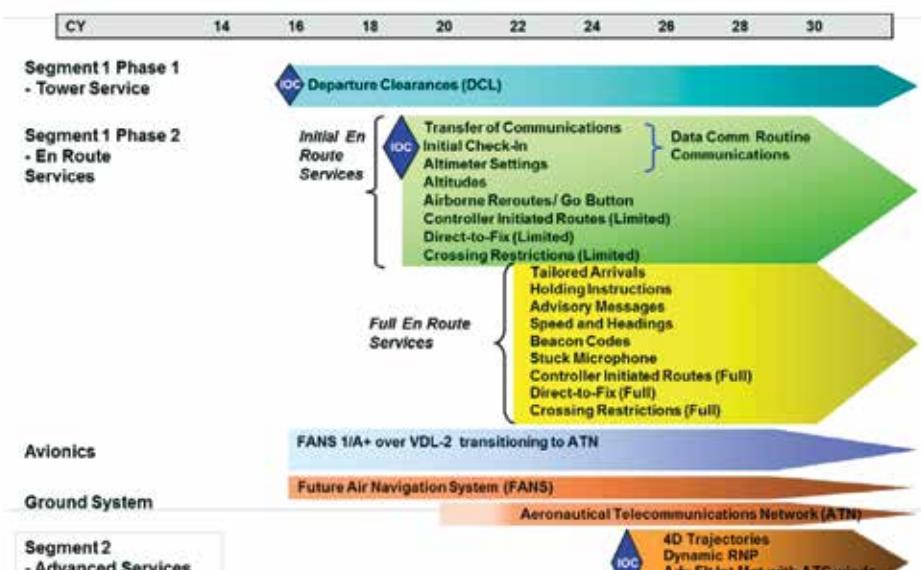
NORTHEAST CORRIDOR NIWG

In February 2017, the NextGen Advisory Committee (NAC) voted to make the Northeast Corridor (NEC) the fifth NextGen focus area. This action was taken in recognition that improvements to airspace operation in the Northeast brings benefits to the entire U.S. aviation system. Some primary themes for the NEC planning items are deconflicting arrivals into the New York area, improving arrival and departure throughput, easing congestion points, and addressing community noise. For King Air operators at Teterboro and other NEC regional airports, the emphasis on deconflicting operations between airports will be of particular interest. The final set of recommended planning items are currently being finalized and are expected to be presented to the NAC in June 2018.

DATACOMM – CONTROLLER PILOT DATA LINK COMMUNICATIONS (CPDLC) NIWG

NextGen requires the implementation of advanced DataCommunications (DataComm) between flight crews and air traffic controllers to meet the stated goals. Voice communication between pilots and controllers is labor intensive, time consuming, has a propensity for miscommunication and human error and limits the ability of the NAS to meet future traffic demand. The DataComm NIWG reviewed the FAA implementation plans for DataComm and developed a consensus on timelines, locations and services to which both industry and the FAA would commit.

Early work focused on the deployment of tower DataComm services at 56 airports on an accelerated deployment schedule beginning in 2015. In addition, an agreement was reached to deploy a set of initial enroute services at all 20 Air Route Traffic Control Centers beginning in late 2018. This initial set of enroute services include transfer of communication, initial check-in, altimeter setting, simple airborne reroutes



The complete implementation process of the DataComm Plan being managed by the Controller Pilot Data Link Communications (CPDLC) NIWG.

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and crossing restrictions. The graphic on page 4 illustrates the complete DataComm plan that is the focus of this NIWG.

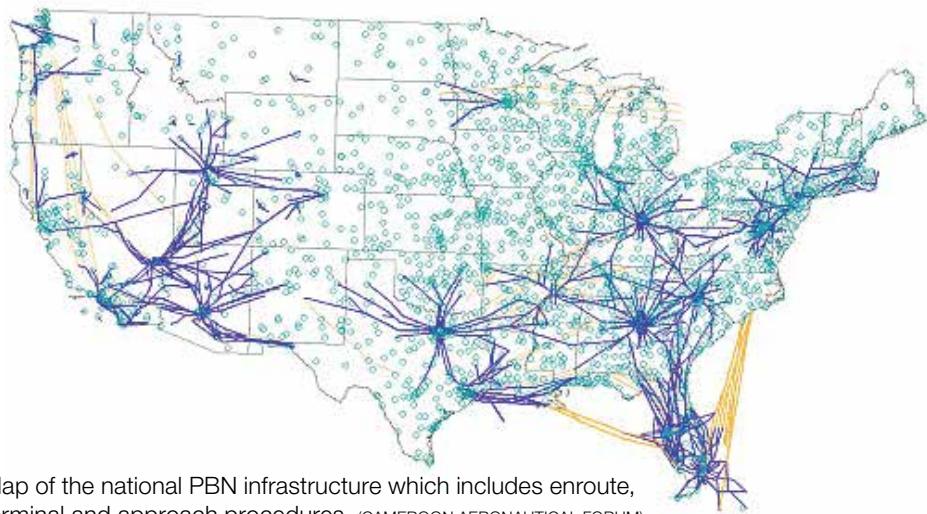
These DataComm services are accessed by aircraft that are equipped with Controller Pilot Data Link Communications (CPDLC) that were originally developed as part of the Future Air Navigation System (FANS) for deployment in oceanic operations. It is understandable that the King Air community would not be that familiar with a capability that is viewed as only applicable for oceanic airspace, but it is important to consider the current and imminent operational benefits of DataComm. For operations at airports with the DataComm services, departure clearances are delivered direct to the aircraft and more importantly, re-routes are “pushed” to the aircraft for upload into the nav system. This is particularly important when the clearance delivery or ground frequency is overloaded during the peak demand caused by significant weather events, etc.

In late 2018, Memphis and Kansas Centers will implement the initial set of enroute data services. Other Air Route Traffic Control Centers (ARTCCs) will follow and by the end of 2019, all 20 ARTCCs in the U.S. NAS will provide this service. NavCanada implemented this capability several years ago and for those of us that operate CPDLC-equipped aircraft in that airspace, the transition from voice to digital communications with ATC is pretty amazing.

PERFORMANCE BASED NAVIGATION (PBN) – TIME BASED FLOW MANAGEMENT NIWG

In 2016 the FAA published the PBN NAS Navigation Strategy in close collaboration with industry through an ad hoc committee of the Performance Based Aviation Rule Making Committee (PARC) and was endorsed by the NAC. The strategy describes a number of FAA goals and commitments that are necessary to transition to a “PBN-centric” NAS. The current work of the PBN NIWG is focused on bringing the Strategy to an operational level which requires a huge quantity of resources and planning.

A tremendous amount of PBN work has already been accomplished that is visible and useful to King Air operations across the United States. PBN routes and procedures have been deployed across all phases of flight. Each application has specifications that define the airspace and equipment requirements and operational procedures. The current inventory of all types of PBN routes and procedures published by the FAA in the U.S. NAS is over 15,500. Because of the nature of PBN, it is quite cost-effective to continue to expand the inventory of



Map of the national PBN infrastructure which includes enroute, terminal and approach procedures. (CAMEROON AERONAUTICAL FORUM)

routes and procedures and as the FAA deployment plans continue to be defined, it is clear that will be the case.

ENROUTE

Over the past decade, the FAA has deployed 133 high altitude “Q” and 101 low altitude “T” airways. These PBN airways augment the existing inventory of 274 high altitude “J” and 664 low altitude “V” airways that are organized around the ground network of VOR stations across the NAS. The deployment of PBN airways will intentionally be less than the conventional airways that have existed over the past several decades. This is in accordance with FAA airspace plans that embrace the PBN concept of route structure where beneficial and point-to-point flexibility elsewhere with RNAV navigation.

TERMINAL

Conventional Standard Instrument Departures (SIDs) and Standard Terminal Arrival Routes (STARs) have been used for many decades to organize the flow of traffic to and from airports. The success of these types of procedures has been greatly expanded with the increased flexibility of PBN. In addition to the lateral flexibility provided by PBN for STARs, there has been a focused effort by the FAA to provide a vertical descent path along the lateral path.

The result has been that PBN SIDs and STARs have been deployed quite successfully in improving aircraft efficiency benefits in combination with community environmental improvements. The total number of PBN SIDs and STARs deployed in the U.S. NAS is over 900, which outnumbers the current inventory of conventional SIDs and STARs.

PBN has also been deployed to improve the quality of guidance for pilots in the event of an engine failure on departure. For these considerations, PBN can provide a contingency route that balances payload (performance) with flyability and better separation from obstacles and terrain.



Illustration of the RNP approach procedure design in Queenstown, New Zealand.

APPROACH

PBN instrument approach procedures have been deployed extensively to runways across the NAS. The current inventory of RNAV (GPS) and RNAV (RNP) approaches in the U.S. NAS is over 14,400. This current inventory of PBN IAPs is less than the existing conventional instrument approach procedure counts by a few thousand, but it is significant to note that there are many airports that are only served by PBN instrument approach procedures. In addition, there are over 1600 PBN precision approaches to airports that are not equipped with an ILS. The U.S. General Aviation population has benefitted greatly from the U.S. WAAS program through the implementation of LPV approaches. These procedures have focused on the challenge of providing ILS-type guidance from the final approach fix to the runway. The benefit of Required Navigation Performance (RNP) approaches has been almost completely unavailable to this population of aircraft and is waiting for this capability to be provided by the avionics manufacturers. The benefits of this technology to address the more complex challenges of the complete set of approach, missed approach and departure operations has been widely recognized and implemented by air transport operators with Boeing and Airbus aircraft. A highly regarded example of this is the RNP operations in Queenstown, New Zealand as depicted in the graphic above, and as viewed from the cockpit in a YouTube video: www.youtube.com/watch?v=7mxmFCw-Dig.

The development and implementation of RNP is an outcome of navigation and guidance performance of our modern airplanes that far exceeds the assumed performance used in Terminal Instrument Procedures (TERPS) design criteria.

Trajectory Based Operations and the Future

All of these activities are preparing for a much larger vision than the benefits provided by the individual elements by themselves. The primary goal of NextGen is to transition to Trajectory Based Operations (TBO) and remain the same as first envisioned by the JPDO in 2007. TBO is the air traffic concept to operate the National Airspace System based on the aircraft's ability to fly precise paths in time and space and the Air Traffic Management's ability to strategically manage and optimize trajectories throughout the operation. Another way to describe this is to say that we are moving from a system based on knowing where an aircraft is (radar and ADS-B) to a system based on knowing where an aircraft is going to be at any given time.

With this in mind, it will be increasingly important for each aircraft to have a sophisticated flight management function to build a precise 4-D (time and space) plan. This onboard plan will be shared via DataComm with the ground systems to support the strategic management of airspace.

All of this seems quite far away now, but it is helpful to keep the bigger picture in mind as the individual components are being developed and brought together through many separate initiatives. KA

Steve Fulton has a broad aviation background in avionics development, instrument flight procedure design and flight test. He is an Air Transport Pilot and FAA Designated Engineering Representative Flight Test Pilot with over 15,000 flight hours. He is the president of Fulton Aviation and was previously VP Sales & Marketing for Sandel Avionics, Technical Fellow for GE Aviation and co-founder of Naverus, Inc. He is a member of the NextGen Advisory Committee subcommittee, and co-chaired the Time, Speed Spacing Task Group with a representative from FedEx, and is currently co-chair of the Performance Based Navigation – Time Based Flow Management NIWG with a representative from American Airlines.

Registration Now Open for King Air Gathering III

**September 28-29, 2018
Fredericksburg, Texas (T82)**



by Kim Blonigen



The conference center where the Gathering will be held is located right next to the Hangar Hotel, where you have the option to stay while rooms are still available. (HANGAR HOTEL)



For those who can arrive on Thursday, a golf tournament is being held at the Lady Bird Golf Course, located very close to the airport. (FREDERICKSBURG CVB)

Registration is now open for the next King Air Gathering being held September 28-29, 2018 at the Hangar Hotel Conference Center located right on Gillespie County Airport (T82) at Fredericksburg, Texas. Hotel rooms are also available at the Hangar Hotel, which is uniquely designed as a World War II hangar and a 1940's theme of that time. The Hotel features airplane memorabilia, model airplanes and USO history, and is located adjacent to the airport. Other hotel options are also available.

For those who can arrive early, a golf tournament is being held on Thursday, September 27, at 1:00 p.m. at the Lady Bird Golf Course, which recently went through a \$2 million renovation. Conferences will be held Friday and Saturday – two full days of seminars presented by King Air experts specializing in piloting and maintenance. At press time, an agenda and speakers had not been released.

Once again attendance numbers are limited to allow for a more personal connection with the presenters and the exhibitors who will be highlighting their King Air products and services. It also offers a close-up experience during the maintenance seminars held around a King Air on jacks.

Go to www.kingairsociety.com for registration and more detailed information regarding hotel options, speakers, the golf tournament and a complete agenda.

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Market Update

by Kyle White

The first quarter of 2018 is behind us and many of you spent April reflecting upon the opportunities, challenges and results from the first three months of the year to forecast what the rest of 2018 may hold for your business, flight department, operating budget or other goals. Upon reflection of insurance policy placements made year-to-date we discovered some interesting trends in the U.S. market to share with King Air owners and operators.

Fifteen years ago, many of you may not have owned or operated a King Air. To fully understand the market trends, we need to reflect on the past, so you have a baseline with which to compare. The insurance market for a King Air was significantly more expensive in 2003, compared to the current market. In addition to higher premiums, the restrictions and ancillary coverages were difficult to negotiate in favor of the insured. This was attributed to the limited supply of carriers writing insurance for King Air owners. If a King Air owner needed \$50,000,000 or more in liability coverage, there were only three choices. With limited carriers to select from, the underwriters were in control. This is what we call a "hard market," which is where rates are comparatively high, coverages are limited, and conditions, such as the requirements of the pilot who would be operating the aircraft, were tough. Essentially, the insurance company was greatly reducing their risk while maximizing their premiums. For example, in 2003, a \$1,000,000 King Air B200 with \$50,000,000 of liability would have cost over \$40,000 per year, and many of the carriers would have

required two pilots in the cockpit at all times, while single pilot operations were limited to \$25,000,000 of liability coverage.

The profits generated by the aviation insurance carriers began to be noticed by other insurance companies who weren't currently in the aviation marketplace. Not surprisingly, they wanted in on the action too, and the supply of insurance companies for King Air owners and/or operators began to increase. At one time there were over nine insurance companies willing to write a King Air with liability limits of \$100,000,000 hull values to cover the cost of a new King Air 350 and allowing single pilot operations. In addition to these increased coverages, the annual premium fell to as low as \$13,000 per year for these high liability limits and hull values!

In the mid-2000s, Travelers® Insurance entered the aviation market and they were very aggressive with pricing and coverages; so aggressive that I remember clients asking if the quote was for six months of coverage instead of an annual policy. Within a few short years, the premiums were cut to a fraction of what they once were, ancillary coverages blossomed, and pilot restrictions were slashed. After approximately 24 months, Travelers left the aviation sector, but the market had been forever changed.

As time passes and we watch market trends, it appears 2017 may have been the bottom of the "soft market," which is the time when the insured controls the market. We saw some insurance companies willing to allow training to be extended to 18-month intervals

from the traditional 12 months. Single pilot operations with \$100,000,000 liability limits and \$5,000,000 hull values were non-issues and could be secured for less than \$20,000 per year. In 2004 that same risk exposure, if it could have been done, would have had an annual premium of over \$60,000. Owner-flown King Airs, depending on the pilot's qualifications could get \$25,000,000 of coverage, possibly more in recent years. Premiums associated with the owner/pilot operations, have also been very low.

Owner/pilots are typically not offered the "broad form" coverages and expansions that a professional pilot operation can secure. However, in the soft market, many qualified owner/pilots were able to get these policy enhancements for no additional charge. Some were even able to go to non-simulator-based training facilities that are approved by the insurance companies.

With a better understanding of both the hardest and softest market conditions, it is easier to compare the state of the King Air market for the first quarter of 2018. If you took advantage of the soft market by securing the low rates with the best coverages, conditions and pilot requirements, brace yourself. Based on current trends, you most likely will not be getting the, now expected, premium reduction you've seen each year for the last decade or more. Chances are, if you had the lowest premium the market offered, you will be getting a flat renewal, meaning no increase or reduction, or a slight increase of three to five percent.

If your operation did not fully partake in the soft market, it is possible there are still some available improvements to coverages and pricing. If you are working with a knowledgeable aviation insurance broker, they should be able to negotiate these on your behalf. As a fellow insurance consumer, I cannot stress enough that while price is important, it should not be your determining factor when purchasing your insurance policy. You didn't buy the cheapest King Air, you bought the King Air that was right for you and your needs, and then negotiated the price. The same approach should be used in all aspects of purchases for your aircraft, whether it is avionics, paint, pilots or insurance.

As 2018 continues and your renewal comes, focus on how your premium compares to others with similar risk profiles. Your broker can provide you with this information based on their current King Air clients. If your premium is in line with the current market, try and focus on enhancing your ancillary coverages to meet the needs of your exposure. For example; an operator last month disclosed to us that her boss had several friends who ride on their King Air as guests. When doing so, they park their cars in the hangar. Occasionally, they'd have the cars detailed and fueled as a surprise for the passengers. The concern was these vehicles weren't exactly a Ford Taurus; they were all vehicles valued well over \$100,000. This exposure is



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what we call “garagekeepers” and the cars can be covered under your aircraft policy if they are damaged while in your “care, custody and control.” Do you have enough liability coverage within your policy to cover such a loss? Your broker can address this exposure, as well as have the limits of liability for the “garagekeepers” amended accordingly.

Assuming you benefited from the lowest market rates in the past several years, 2018 is starting off to be the year of flat renewals. As you look ahead, think critically about your renewal. Through our observation of the current insurance market, not exclusive to just aviation, it appears the insurance industry has sustained significant losses through natural disasters and attritional losses (the losses you don’t read about in the NTSB reports, such as “hangar rash”). This tells us the insurance companies are putting a specific interest in being profitable this year.

How can we create a policy to benefit both the insured and the insurance company? One of the ways is through the Profit Commission On Renewal (PCOR) – an endorsement that can be added to your insurance policy. The PCOR endorsement is designed to do two things: First, it shares in the profit of your policy with the insured, assuming there are no losses. Second, it creates loyalty between the insurance company and the insured. In order to share in the profits from the expiring policy, you must renew it with the same carrier. For example, assume you pay \$20,000 for your insurance policy and during the policy period there are no losses. The endorsement can read a couple of different ways, one of which is “10 percent of 70 percent of the earned premium.” This means upon renewal of your policy with the current carrier, you will receive \$1,400 back. What a deal for everybody! The insurance company wins because you didn’t have any losses, and you win because you get some of your premium back, thus lowering your overall cost of insurance for the year.

There are over 30 ancillary coverages within your policy that should be reviewed and addressed with your broker annually. Every operator/owner has different needs based on their specific exposures – don’t take an “off the shelf” policy. Customize it to fit your needs, just like you did when you bought your King Air.

The market appears to be changing, but being aware of the changes will allow you to be strategic in your renewal negotiations. KA

Kyle P. White, an aviation insurance specialist, is CEO of Aviation Solutions, a Marsh & McLennan Agency LLC company. He has professionally flown King Air 90s and B200s and holds an ATP and multi-engine instrument instructor license. You can reach Kyle at kyle.white@marshmma.com.

Ask the Expert

King Air “GOTCHAS”

by Tom Clements

This article originally appeared in the September 2013 issue of this magazine. Some questions that I have recently received lead me to believe it is time for a repeat. Additionally, I have added a comment about the Shock Link in the nose wheel steering mechanism.

I am often asked by pilots transitioning into a King Air for the first time, “What should I look for? What systems or operations or mistakes commonly cause difficulties? If you were to make a list of things that could hurt me and/or the airplane, what would they be?”

To address those types of questions, this article will try to present a few important things that can *get you* if you’re not careful ... some King Air “Gotchas.” They are to be studiously avoided!

1 First, Oil Dipstick Security. It takes little time for most PT6 engines to blow enough oil out of a loose or missing dipstick such that oil pressure drops out of

the normal operating range, getting low enough, quickly enough, that engine damage is almost assured ... unless the problem is recognized and an immediate return for landing or an in-flight shutdown is accomplished.

Most PT6s manufactured after about 2000 contain a ball checkvalve in the oil filler tube designed to prevent oil venting when the dipstick is missing – a nice improvement! You can recognize that your engine has this improvement by observing a shorter dipstick that only goes to “4 Quarts Low” instead of the longer “5 Quarts Low” older style dipstick.

Surprisingly, most King Air models do **not** contain a low oil pressure warning annunciator. Yes, the 300-series and F90-series do, but it is rare to find that useful light in other models. I believe both the British and French certification authorities required it to be added before the King Air could be approved in their countries, so some airplanes that originally went overseas, but have

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since returned and been recertified in the United States, have the annunciators.

Since it seems the time required to blow enough oil out of the tank to be problematic usually elapses soon after takeoff, get in the habit of doing a very careful scan of engine instruments as part of your *After Takeoff* flow pattern and checklist. None of us can fly a King Air without spending time looking at ITT, Torque, and Propeller Speed (N_p) gauges. However, the remaining ones – at the bottom of the vertical stack, or over on the right side in the early birds with a horizontal row of gauges – attract our attention rather rarely. So now is the time to force ourselves to carefully scan those remaining three: Oil Temperature and Pressure, Fuel Flow, and Compressor Speed (N_1 or N_g).

What's that I see? Dang, the left Oil Pressure is low! Is there any supporting indication? Could it be merely a faulty gauge? Oh, double-dang! There's oil streaming out of the aft seam of the cowling!

Not all, but most, King Air emergency checklists direct us to reduce power significantly when the oil pressure drops out of the green arc, but not necessarily to shut the engine down until it hits the lower redline limit. Why is that?

It seems logical that if the engine were not receiving the lubrication that it should, we should not run it hard ... and perhaps that plays a role in the directive to reduce power. However, there is a more significant reason.

Remember that the torque instrument is actually an oil pressure gauge, reading the pressure in the torque chamber in the nose case of the engine, but displaying the pressure not in pounds per square inch (psi) but in the foot-pounds (ft-lbs) of twisting force on the propeller shaft that caused the psi value. (How that all works is a miracle of engineering, but it is a marvelous, mostly trouble-free, system.) When oil pressure drops too low, there comes a time when the torque meter becomes incapable of working correctly. Specifically, it will be limited in its ability to measure and display existing torque. For example, it may never read above 600 ft-lbs

no matter how much more torque exists! This is the main reason for reducing torque when you observe low oil pressure.

Sometimes an unexplained decrease in torque indication has been the first thing that caught the pilot's attention and led him or her to *then* notice a low oil pressure reading.

Since any gauge or sensor is capable of providing a false reading, it is always a good idea to attempt to get some verification before responding to the situation. For example, if you are fortunate enough to be operating a model with the Low Oil Pressure annunciator, and it illuminates, check the gauge. Is it showing a low reading? If the answer is "Yes," you should throttle back and return for landing, even securing the engine if/when the oil pressure hits the red line. On the other hand, if the gauge reads properly, you may have only a faulty annunciator. Now's the time to check the cowling carefully. Nice and dry, no oil seeping out? If so, you are rather sure there is no true oil pressure anomaly.

2 The next Gotcha is a badly bent **Nose Wheel Steering Stop Block**. I hope on your exterior preflight inspections that you are giving this item the attention it deserves. This is the metal tab with the three holes in it, located on the back side of the nose gear strut. Its purpose is to limit how far the nose wheel can turn when we make a tight turn while taxiing. Use of differential braking and/or differential power allows the pilot to turn the airplane "on a dime," and when this is done the stop block is what is preventing any damage to the nose strut and steering linkage. It is strong enough that the pilot cannot force any further movement.

However, the leverage created by a sturdy tug and a long tow bar can easily overcome the resistance of the stop and permit a careless tug operator to go beyond the limits. When this takes place, not only will the stop block be deformed, but there is a chance that the strut itself will be fractured and/or that the nose wheel steering connection back to the rudder pedals

will suffer damage. So, if ever you find the block distorted, I would suggest not flying until an A & P has inspected the strut and steering linkage carefully and given you a thumbs up that you're good to go.

While you are down by the nose gear checking the stop block, occasionally also look up on the left sidewall of the wheel well and locate the shock link, the spring-in-tube assembly that is in the forward part of the nose wheel steering mechanism. Make sure that you can see and/or feel all four

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90-degree spaced “ears” of the clip that prevents the spring from being released from its tubular housing. If the shock link comes undone, you lose nose wheel steering and may end up with the wheel deflected fully to one side. That makes the after touchdown rollout very exciting!

3 The third Gotcha is Loose Power Lever Friction Knobs.

The vernier controls in Bonanzas, the one-friction-knob-controls-all-levers in Barons and Dukes ... because of this past experience, a lot of pilots transition into a King Air without really having been taught much about friction locks. I would estimate that over 50 percent of King Air pilots pay scant attention, if any at all, to their friction knobs’ settings. This isn’t good!

Concerning the two power levers on King Airs, do you realize that a fairly hefty spring is attempting to pull each one back to idle at all times? As with any spring, the further it is stretched, the more force it applies ... in this case, a force trying to return the power lever to idle.

If any work is done inside the cowling that involves the condition, power, or propeller cables, it is routine for the mechanic to turn the four cockpit friction knobs all the way counterclockwise, probably four or five complete 360-degree rotations, loosening them totally. By doing so, now he can move the engine-end of the cable easily, while the cockpit-end of the same control can move fore and aft with little resistance.

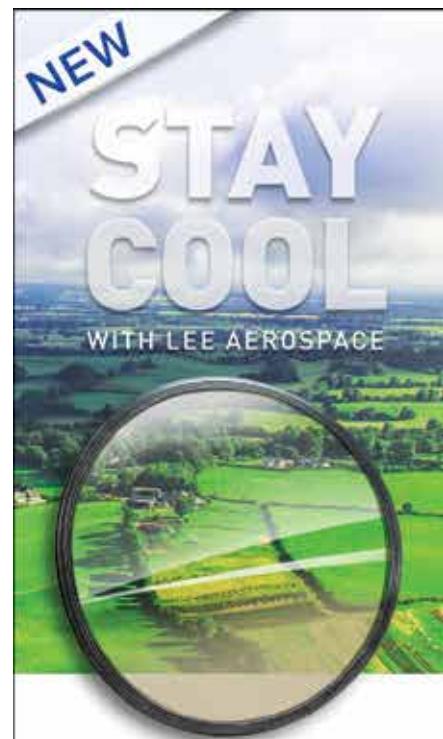
But woe be to the poor pilot who picks up the plane from the shop and does not do a thorough cockpit check, does not follow every checklist step, and who fails to retighten those power lever friction knobs! When his hand leaves the power levers to reach for the landing gear handle after liftoff, it is common now to find both power levers moving themselves back toward idle! In most cases, due to

the shorter length of cable to the left engine than the right engine – and the resultant less resistance in the cable run – the left engine will lose more power than the right. For those pilots who notice the power lever movement, the problem is rather easily corrected ... the hand is moved back to the levers and returns them to the takeoff position. It can be almost comical to see the poor pilot trying to fly, keep the levers forward, get the gear handle up, and tighten the friction knobs all at the same time!

But if the operator does not notice this *power lever migration* toward idle, God help him! Suddenly the airplane is not climbing and accelerating as it should, rudder force is required to keep it straight, and autofeather (if installed) isn’t working! (Remember that autofeather is disarmed when either or both power levers move back.) I am positive that more than one fatal King Air takeoff accident has been caused by this very scenario.

To decrease the wear on the friction mechanism caused by moving the controls when the friction is tight, I personally fiddle with the friction knobs a lot ... having them rather loose on the ground and then making sure they’re snugged up prior to adding takeoff power. When setting propeller speed for climb or cruise, for me it is a three-step process: twist the friction knob a half-turn or so counterclockwise, move the propeller levers, then snug the knob back up. When acting as a co-pilot or instructor in the right seat, I always have the index and middle fingers of my left hand resting at the base of the power levers when they are being pushed up for takeoff by the left-seat pilot ... lightly enough that I won’t interfere with a possible abort, but firmly enough that there’s no way those levers are going to creep when the pilot’s hand leaves them to raise the gear or turn off the landing lights

Other pilots rarely ever change a friction setting and that’s fine, presuming they were set properly



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initially. Sure, maybe this causes fractionally more wear in the mechanism, but in the overall scheme of things that's a tiny worry. But what about the pilot who is in the habit of not adjusting friction and then he or she flies another King Air, one that either just came out of maintenance with loosened friction or one operated by a pilot who routinely loosened them for ground operations? Unless the pilot tightens them back up to the position he is used to using prior to takeoff, the deck has been stacked for an embarrassing, comical, boo-boo soon after liftoff at best, or dead people and a destroyed airplane at worst!

4 Gotcha number four is the **Upper Forward Cowling Not Properly Secured.** It is not uncommon that one of the four latches that secure the upper forward cowling in place fails to engage properly when this cowling piece is installed. On my

walk-around inspections, I use the palms of both hands to give this piece a firm upward hit, on each side, making sure that I cannot dislodge it. This is especially important if I know the cowling has been removed and reinstalled prior to this flight.

Even having done so, however, there may come a time or two when the air loads imposed on the cowling in flight cause the incorrectly fastened latch to finally let go. As you do your *After Takeoff* checks, you notice the upper forward cowl is lifted up an inch or so! I suggest you do three things.

First, slow the airplane down. The faster you fly, the more air loads are created and the chance of the cowling actually departing the airplane are increased, so keep the indicated airspeed down to no more than, say, 140 KIAS. Second, extend the ice vanes. The engine anti-ice system, the inertial separator, creates a venturi effect in the

cowling when extended, reducing the inlet air pressure considerably. You will almost assuredly observe the loose cowling suck down a bit once you've extended the vanes. Third, return for landing. Taxi in, shutdown, and get a half-inch, thin walled socket and use it to tighten that temperamental latch properly.

5 Getting Too Slow at MDA is Gotcha number five. More and more, as WAAS-corrected GPS units allow us to have vertical guidance on almost every instrument approach, we are doing less of the non-precision, "dive and drive" type of approach. But if and when you find the need to level off with approach flaps and landing gear extended, there is a trap here waiting for the unwary.

The King Air exhibits considerable momentum, such that we can level off without adding sufficient power, yet the rate of airspeed decay is so slow and insidious that it can go undetected until we find ourselves far on the backside of the power curve, nearing stall speed. Close to the ground, perhaps still in IMC ... this is not good! It has caused fatal accidents.

Here's where knowing the "magic numbers" for your airplane is very important. If this term is unfamiliar to you, where have you been during training?! Anyway, the same power setting that yields 160 KIAS, clean, level, will be almost exactly what is required to hold about 120 KIAS, level, with flaps at approach and the landing gear down. (90-series, about 800 ft-lbs; 100-series, about 900 ft-lbs; F90 and 200-series, about 1,000 ft-lbs; 300 and 350 series, about 40 percent. All of these presume the propeller speed is at the normal cruise setting for the model.)

This magic number is important even on a severely clear day. You come abeam the touchdown point on your downwind leg, lower the gear in anticipation of starting down and turning base, and then the tower directs you to extend your

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downwind due to straight-in traffic. Don't hesitate, just push the power levers up to the magic number, hold altitude, and continue ahead. It is comforting to know that your use of the correct power setting will never allow the airspeed to stray too far from exactly what you want.

Well, there you have them: My *top five King Air Gotchas*. There are others, certainly, but of decreasing frequency of occurrence. As we know, the King Air is an easy-flying, forgiving airplane in almost all respects, yet it, too, has the capability to bite the unwary. Be safe! **KA**

King Air expert Tom Clements has been flying and instructing in King Airs for over 44 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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The Hollywood Travel Air

In 1928 Tinseltown's Wallace Beery paid Walter H. Beech \$18,500 cash for a custom-built Travel Air Type A6000A cabin monoplane that, in terms of luxury, performance and quality, foreshadowed the Beechcraft King Air that flew 36 years later.

by Edward H. Phillips

On a typical business day late in 1927, Walter H. Beech, president of the Travel Air Manufacturing Company located in Wichita, Kansas, sat at his desk puffing on his ubiquitous pipe. By this time in his career Walter had traded the open cockpit of a biplane for the comfort of a spacious office, and a fur-lined flying suit and leather goggles for a custom-made, three-piece business suit and tie.

Since taking the helm of the company following the resignation of pioneer aviator Clyde V. Cessna and talented designer Lloyd C. Stearman, Walter had begun to build Travel Air into one of America's foremost airframe manufacturers. As one of Wichita's earliest aviation enterprises, Travel Air had grown from a product line of one biplane, the 1925 Model A, to nearly half a dozen biplanes and one monoplane. Although most of Travel Air ships built were being bought by sportsman pilots, flying schools and clubs, as well as air taxi operators, Beech noticed that an increasing number of businessmen were buying airplanes and using them for business travel – air travel. The country's extensive railway system was an important asset, but trains were slow compared to the speed of an airplane, and that meant more time doing business and less time riding the rails and enduring layovers.

Walter Beech decided it was time to expand the product line further by offering a cabin monoplane

designed with the businessman in mind. The company had been building monoplanes since 1926, and in August 1927 Hollywood stunt pilot Arthur Goebel and navigator William Davis had flown a Type 5000 dubbed the *Woolaroc* from California to Wheeler Field, Territory of Hawaii, to win the Dole Race and \$25,000 in first prize money.

The Type 5000, however, was not marketable as a business aircraft. It was designed primarily for short-haul airline and light cargo service and was far too utilitarian inside and out to meet the needs of the businessman. As a result, Walter took action. He ordered an in-depth market survey (one of the earliest for aviation) to find out if businessmen would buy a Travel Air cabin monoplane, a fresh, modern design where they could conduct business aloft in shirtsleeve comfort instead of a cold, noisy open cockpit. The businessman who flew was a new marketing opportunity for all airplane manufacturers, and Beech intended to keep Travel Air ahead of the competition.

The company's chief engineer, Horace Weihmiller, listened to Walter as he explained his concept for the businessman's Travel Air. It would have to be fast, powerful, have a two-place cockpit, wheel brakes, and above all, a spacious cabin that could be equipped with useful options such as a lavatory with hot/cold running water, a typewriter, a desk and perhaps a mimeograph machine and a Dictaphone. In addition, Beech dispatched



The Type 5000 cabin monoplane was originally designed for service with National Air Transport flying passengers and mail but was unsuitable for business aviation.
(TEXTRON AVIATION)



The Type 6000 prototype expressed Walter Beech's concept of what a business airplane should be. Potential customers liked the monoplane but found the cabin too small and performance did not meet their expectations. (TEXTRON AVIATION)

the company's sales and marketing manager, Owen G. Harned, to the East Coast where he visited businessmen in major cities to determine what they thought a cabin monoplane should possess.

Based on the market survey and Harned's interviews, the decision was made to design and build a prototype business aircraft designated the Type 6000. Billed by Beech as the "Limousine of the Air," by the spring of 1928 Weihmiller and his engineering staff completed design and construction of a prototype (serial number 230, registered X4765) that first flew on April 15 with chief test pilot Clarence Clark at the controls.

In June Walter flew the ship in the Kansas Air Tour and nearly 100,000 people saw the airplane. Among those were company officials and executives, and Walter was kept busy flying demonstrations. By August it was clear that businessmen wanted the Type 6000. The only

serious complaint heard by both Beech and Harned during flight demonstrations was that the cabin was too small. As a result, the Type 6000 was redesigned and enlarged to become the Type 6000B with a larger cabin, six seats, a more powerful radial engine and improved overall performance.

In the fall of 1928 Walter, accompanied by Harned and a few friends, flew a Type 6000B to attend the Los Angeles Aeronautical Exposition. Many demonstration flights were conducted by Beech and Owen Harned and a few firm orders were received. Among those signing up for a flight was a famous Hollywood actor named Wallace Beery (see sidebar). An active pilot, Beery had been flying an aging Travel Air Type BW biplane and although he told Beech that he liked the "old crate," he was highly impressed by the performance and comfort of the big monoplane.



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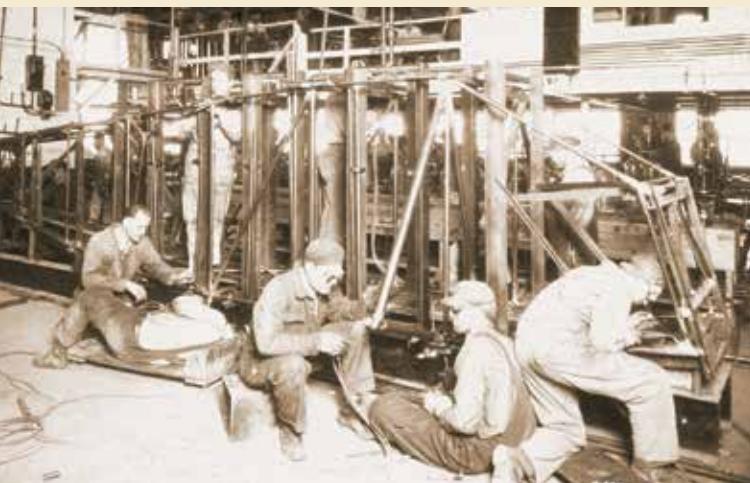




The Type 6000B was a larger production version of the prototype and was powered by a Wright Aeronautical J6-9 static, air-cooled radial engine rated at 300 horsepower. More than 150 of these monoplanes were built, including *Smiling Thru* built in 1929 to specifications of the Automatic Washer Company in Newton, Iowa. (EDWARD H. PHILLIPS COLLECTION)

Beery was so impressed that he sat down with Walter and ordered a custom-built ship for his personal use. It was, however, not a Type 6000B powered by a nine-cylinder Wright R-975 static, air-cooled radial engine that produced 300 horsepower. What Beery wanted was the ultimate Travel Air – the new Type A-6000-A that had been developed by the company. Beery wanted a number of custom features incorporated into the airplane that Walter agreed could be accomplished for a price. When Walter gave him an estimate of what the ship would cost – a whopping \$20,000¹ – Beery never flinched!

Although the production Type 6000B boasted a stout airframe that could accommodate more than 300 horsepower, the Type A-6000-A would be powered by the fire-breathing Pratt & Whitney Wasp Jr" radial engine rated at 420 horsepower. Today the engine is generally known as the Pratt & Whitney R-985 rated at 450 horsepower at 2,300 RPM, with a bore and stroke of 5.2 inches and weighing 653 pounds (dry weight with no accessories).²

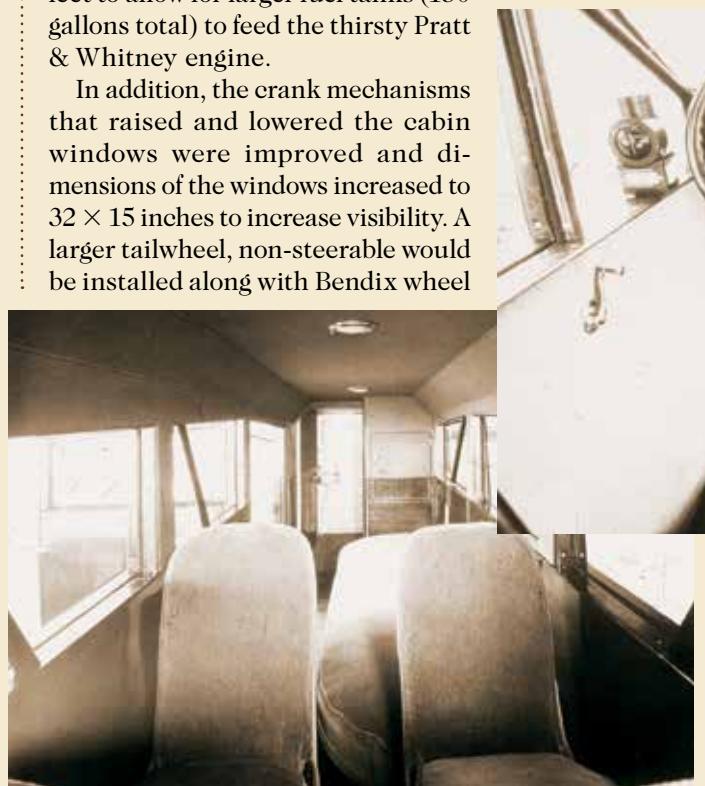


It required a team of highly-specialized welders to complete the steel tube fuselage of Beery's Travel Air A-6000-A. Angle iron jigs held tubing in place while welders used acetylene gas to forge tubes together into a strong structure. (TEXTRON AVIATION)

When Beech returned to Wichita, he quickly ordered the engineering department to work out details of modifying the Type 6000B to accommodate the big Wasp powerplant. Beery's airplane, however, shared the same basic airframe of the Wright J6-9-powered Type 6000B: The forward cabin was widened four inches and lengthened five inches, while the width of the aft fuselage forward of the empennage was increased five inches. The throttle quadrant was essentially the same with throttle, mixture and spark advance/retard levers placed within easy reach of the pilot.

Other major changes were hidden from view. Engineers added steel tube bracing in specific areas of the wings to handle the stress induced by the Wasp, and total wing area was increased to 340 square feet from 282 square feet to allow for larger fuel tanks (130 gallons total) to feed the thirsty Pratt & Whitney engine.

In addition, the crank mechanisms that raised and lowered the cabin windows were improved and dimensions of the windows increased to 32 × 15 inches to increase visibility. A larger tailwheel, non-steerable would be installed along with Bendix wheel

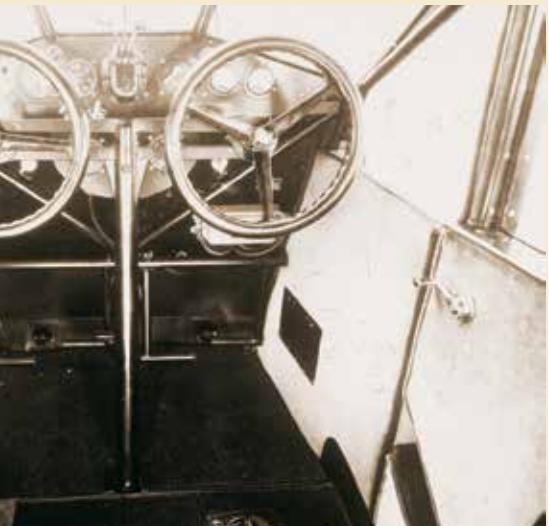


Beery ordered a special divan (couch) and a lavatory (visible aft of the main cabin) with hot/cold running water and a flushing toilet. Windows had to be cranked up and down. (TEXTRON AVIATION)

brakes with 36 × 8-inch tires. The interior would include a large divan, lavatory, and a porcelain sink with hot/cold running water. Although the passenger and pilot seats were standard wicker construction, Beery specified that the cushions be covered with a specially-ordered, thick, plush mauve-colored velour cloth. The final touch would be a folding table mounted in the cabin for writing and playing cards.

In early December 1928, Beery's ship was completed and ready for flight tests. Clarence Clark took the big monoplane aloft for a series of checks to ensure it was ready for delivery. It was during one of the early flights that the fabric ripped away from the upper fuselage because of the airplane's higher cruise speed that approached 130 miles per hour. An engineering "fix" was quickly developed and applied that solved the problem (the "fix" later became standard on all A-6000-A ships built).

On December 14 Walter sent William "Pete" Hill on a short road trip from Wichita northeast to Newton, Kansas, where Beery had



The cockpit of Beery's airplane was essentially the same as the Type 6000B with throttle, mixture and magneto spark advance/retard grouped together in a quadrant on upper center of the instrument panel. Wheels were known as "Dual Dep side-by-side" controls, with rudder pedals below. Mechanical brakes were controlled by a separate lever. Note position of the magnetic compass on left sidewall. (TEXTRON AVIATION)



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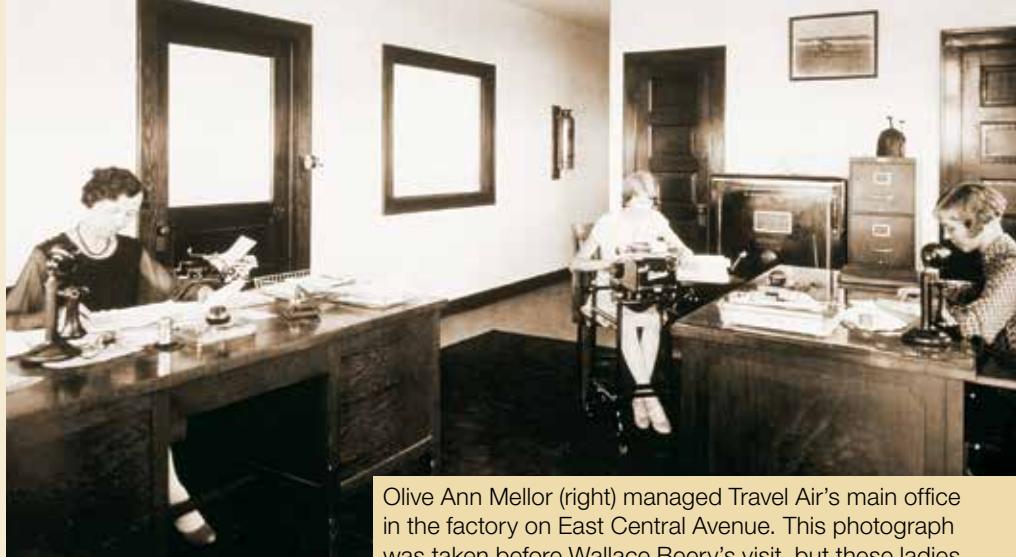
landed in his Type BW after a leisurely, multi-stop, cross-county flight from California. The famous thespian was suffering from a bout with influenza but retained his cheery disposition. He was accompanied by George H. "Slim" Maves, who would be overseeing the care and preventive maintenance of the new Travel Air. As with Beery, Maves held a Transport License.

After arriving at the factory on East Central Avenue, Beery was given a warm welcome by Walter Beech and escorted on a tour of Travel Air's extensive facilities. Next, he was introduced to the ladies in the business office including the manager, Olive Ann Mellor. He chatted with Olive Ann and the others before remembering with a chuckle that he had some unfinished business with Ms. Mellor – he still owed Travel Air the balance of \$10,000 on his airplane. Grinning ear-to-ear, he reached into his coat pocket and pulled out a huge wad of greenbacks secured around the middle by a rubber band. He handed \$10,000 in cash to Olive Ann, took his receipt stating, "Paid in full" and bid farewell to the ladies as he was whisked off to Walter's office. The three girls had never seen \$10,000 in cash. Olive Ann allowed each one of them to hold the wad in their hands for a few moments before placing it in the company safe for deposit.³

That afternoon Walter, Beery and Maves inspected the Wasp-powered monoplane. It was accepted by Beery who expressed his enthusiasm about every detail of the airplane. Later that evening Wallace and Walter went to the Crown Uptown Theater to view a flying movie before retiring for the night. The next day Beery flew the ship with Pete Hill on a familiarization flight to learn how to best handle the Travel Air, and then took off with Maves for a two-hour flight.

Accompanied by Maves as a passenger, Beery flew the airplane back to Los Angeles, California, stopping along the way at Tucson, Arizona, on December 18. According to the Davis-Monthan Aviation Field Register, on March 14, 1929, Beery landed again at Tucson with a load of five passengers on board the Travel Air, enroute from Los Angeles to El Paso, Texas. When Travel Air finally received an Approved Type Certificate for the A-6000-A in March 1929, it stipulated that existing airplanes be reworked with a larger empennage. Soon after Beery's flight to El Paso, the airplane was flown to Wichita for the required modifications that were completed on March 22.

Sadly, the Travel Air was destroyed in a crash on March 25, 1930, at Alhambra, California. Piloted by Maves, who was accompanied by his wife Cynthia and friend Lynn Hayes, eyewitness reports stated that the airplane "nose-dived" into the ground during final approach for



Olive Ann Mellor (right) managed Travel Air's main office in the factory on East Central Avenue. This photograph was taken before Wallace Beery's visit, but these ladies were the ones allowed to hold \$10,000 cash in their hands before Ms. Mellor locked the money inside a company safe. (TEXTRON AVIATION)

landing. The occupants were burned beyond recognition and the monoplane was destroyed. When asked about the accident, Beery told the press that Maves was never permitted to fly the airplane and Beery was unaware that he had used the airplane for a personal flight.

According to the FAA Aircraft Registry, a license for Travel Air Type A-6000-A, serial number 816, registered NC9015, was cancelled on April 25, 1930, bringing to an inglorious end the short, two-year career of Wallace Beery's Hollywood Travel Air. KA

NOTES:

1. Beery's monoplane was the most expensive Travel Air built by the company. The second most expensive monoplane was "*Smiling Thru*" – a Type 6000B custom-built for the Automatic Washer Company (later Maytag). It was lavishly equipped as a flying office for company president H.L. Ogg. With the office equipment removed from the cabin, the airplane could carry three washing machines for demonstrations, powered by a special 12-volt auxiliary power supply.

2. Smith, Herschel; "*A History of Aircraft Piston Engines*"; Sunflower University Press, Manhattan, Kansas, 1986.

After World War One engine development in the United States centered primarily on water-cooled, upright 12-cylinder designs such as the famous "*Liberty*" powerplant. It was the work of Charles L. Lawrence that led to development of the first practical static-air-cooled radial engine manufactured in America. In 1921 he built the J-1: a nine-cylinder radial that produced 180 horsepower. It was followed by the J-2 of 200 horsepower that became the foundation for development of the famous J-4 and J-5 engines that powered many aircraft in the late 1920s, including Travel Air biplanes and propelled Charles A. Lindbergh's "*Spirit of St. Louis*" across the Atlantic Ocean from New York to Paris.

3. In 1981 the scene was recounted to the author by Madge Doyle who was working in the office that memorable day. She remembered Beery's deep, gruff voice and his pleasing demeanor, but it was holding and smelling that wad of \$10,000 that left the most lasting impression on her.

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.



Hollywood's Wallace Beery

Wallace Fitzgerald Beery was not only one of Hollywood's top ten, highest-paid actors during the 1920s and early 1930s, but he was an avid supporter of aviation, a licensed pilot and owner of a number of airplanes during his career including a Travel Air Type BW biplane and the powerful Type A-6000-A cabin monoplane.

Born in Clay County, Missouri, in April 1885, Beery began his acting career in 1904 when he joined his older brother Noah Beery, Sr., in New York City. Wallace sang in comic operas and later appeared on Broadway in *The Belle of the West* in 1905 before landing a role in *The Yankee Tourist* that gained him notable recognition. Before the outbreak of World War I Beery had established himself as a star of comedy films before moving on to play more serious roles as a villain, including his portrayal in 1933 of Mexican partisan Pancho Villa in *Viva Villa!*

Beery also acted in films based on history such as King Richard I in *Robin Hood*, alongside Hollywood movie titan Douglas Fairbanks, Jr. In 1930 Beery reached true stardom in *Min and Bill* that proved to be a box office hit despite the Great Depression. He also found success in *The Champ*, for which he received an Academy Award (shared with Frederic March) in 1931, and *The Secret Six* where he played a gangster and shared the marquis with Clark Gable and starlet Jean Harlow.

Beery's first aviation movie was *Hell Divers* produced in 1932, once again teaming up with the young but rising star, Clark Gable. The film, in which Beery portrays Chief Petty Officer "Windy" Riker as a veteran aerial gunner in a squadron of Curtiss Helldiver biplanes, includes rare footage of flight operations aboard the aircraft carrier U.S.S. Saratoga. In 1935 he played seasoned flight instructor "Big Mike" Stone in *West Point of the Air* – an epic Hollywood production that centered on the rigors of training Army Air Corps cadets at Randolph

Travel Air serial number 816, registered 9015, after initial test flights and before delivery to Wallace Beery. He flew the ship on many cross-country flights and was enamored with its comfort and performance. In March 1930 the airplane was destroyed in a crash that killed pilot George Maves, his wife and a friend. (TEXTRON AVIATION)

Field, Texas. The film includes excellent footage of Fleet primary trainers.

By 1928 Beery's flying career was taking off. He had earned a Transport License from the Department of Commerce and frequently flew his Travel Air Type BW open-cockpit biplane powered by a Wright J4 static,

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A well-known publicity photograph of Wallace Beery (left) and Walter Beech standing beside the Type A-6000-A in December 1928. The Pratt & Whitney "Wasp Jr." radial engine produced 420 horsepower and was partially enclosed in hand-made fairings to improve overall appearance. (TEXTRON AVIATION)

air-cooled radial engine rated at 200 horsepower. After owning the Type A-600-A Beery flew a number of other airplanes including a Howard DGA-11. In 1935 he was commissioned a Lieutenant Commander in the U.S. Navy Reserve and posted to Naval Reserve Air Base Long Beach, California.

On April 15, 1949, Beery was reading a newspaper in his home in Beverly Hills, California, when he collapsed and died of a heart attack. He was buried at Forest Lawn Memorial Park in Glendale, California. In 1960 Beery was posthumously awarded a star in the Hollywood Walk of Fame. KA

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FreeFlight Systems announces Complete ADS-B solution for Twin Turboprop aircraft

FreeFlight Systems announced that it has launched the Avail Performance Package that provides a cost-effective and complete ADS-B solution for King Air and twin turboprop aircraft. Included in the Avail package is dual 1090 Mode S/ES transponders, a RANGR-RX/G 978 ADS-B receiver with an internal WAAS/GPS, integrated WiFi, and a single control head. These remote-mounted solutions will provide twin turboprop aircraft a modular, all-in-one solution to equip with ADS-B In and Out for the upcoming January 1, 2020 mandate.

The FDL-1090-TX is one of the smallest Mode S/ES transponders available today – the unit can be mounted anywhere within the pressure vessel. The control head's intuitive user interface features positive control knobs and push buttons for squawk codes designation, IDENT and VFR operations on the sunlight-readable, backlit LED display, and fits in a standard two-and-a-quarter inch instrument mounting.

The TSO-certified RANGR-RX/G serves as the compliant position source required for ADS-B and provides pilots with critical ADS-B Flight Information Services Broadcast (FIS-B) and Traffic Information

Services Broadcast (TIS-B) data, both modernizing the aircraft cockpit and drastically improving situational awareness. The RANGR-RX offers clients an installed solution that provides inflight ADS-B In information to a multitude of preferred MFDs, mobile EFBs, and tablet devices for viewing traffic and weather while inflight.

The company said that with just over two years remaining to meet the ADS-B rule, there is a lack of cost-effective, high-quality options for twin turboprop aircraft, and this is an ideal solution where a non-disruptive, remote-mounted option is preferred.

FreeFlight also announced that it has partnered with Avidyne to offer an ADS-B solution for Avidyne's IFD series GPS/com navigators. The solution includes Avidyne's IFD and AXP340 or AXP322 ADS-B-Out-capable mode-S transponder plus FreeFlight's RANGR-RX ADS-B In receiver. Avidyne can provide the entire package at a bundled rate.

Europe's Brinkley Propeller Services Named Hartzell Recommended Service Facility

Hartzell Propeller Inc. named Brinkley Propeller Services, one of Europe's leading propeller repair and overhaul operations, as its newest Recommended

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The following King Air 90 models are now certified under European approval EASA #10039114 and Brazilian approval ANAC #9210-04:
Os seguintes modelos King Air 90 são agora certificados sob aprovação europeia EASA N°10039114 e aprovação brasileira ANAC N°9210-04:

• 65-90	• B90	• C90-1	• C90B	• C90GTi
• 65-A90	• C90	• C90A	• C90GT	• C90GTX

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Service Facility in the United Kingdom. Based 40 miles north of Central London in Biggleswade, Bedfordshire, Brinkley's modern 14,250 sq. foot campus was designed for quality, efficiency and meeting on time delivery schedules.

As a Hartzell Recommended Service Facility, Brinkley heavily invested in tooling, equipment and training, and is audited on a regular basis by EASA, other international airworthiness authorities, and by Hartzell, so customers can rest assured their propeller maintenance is being conducted to the highest standards possible.

The addition of Brinkley Propeller Services as Hartzell Propeller's 27th Recommended Service Facility embodies the company's commitment to grow facilities around the globe capable of meeting rigorous standards for customer service. In many cases, Hartzell Propeller requirements significantly exceed those of the governing airworthiness authorities.

The company encourages customers to use a Hartzell Recommended Service Facility for propeller repairs and overhauls. As a member of the network, Brinkley provides the highest-quality propeller overhaul and repair work available, reflecting Hartzell's customer commitment to quality and performance.

To achieve Hartzell's Recommended Service Facility designation, Brinkley met several stringent requirements, including on-site quality systems and process audits and use of factory trained and highly qualified propeller experts. In addition, the new Recommended Service Facility is required to maintain Hartzell-approved specialized propeller tools and equipment along with meeting the company's special process approvals on an ongoing basis.

Brinkley joins a network of Hartzell Recommended Service Facilities located throughout the Americas, Europe, the Middle East, Asia, Australia and New Zealand.

Mexican Validation of Beech King Air 200/250 and 300/350 with 5-blade MT-Propellers

MT-Propeller Entwicklung GmbH has received the DGAC Mexico Validation of the EASA STC for the installation of the 5-blade MTV-27 propellers on the Beechcraft King Air 200/250 Series powered by engine P&WC PT6A-41, -42, -52, and -61 models and the Beech King Air 300/350 Series powered by P&WC PT6A-60A engines.

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The installation is already certified by EASA, FAA, Transport Canada and ANAC Brazil.

According to MT-Propeller President Gerd Muehlbauer, the installation of the 5-blade MTV-27 Propellers on the King Air 200/250 and 300/350 series aircraft feature the following advantages:

- General performance improvement (for the 200/250, five percent takeoff and climb, three knots cruise and for the 300/350 eight percent takeoff and climb, four-to-five knots cruise)
- Approximately 25 pounds less weight than the original 4-blade propellers with aluminum blades
- Provides best vibration damping characteristics for almost vibration free propeller operations
- Has bonded-on nickel alloy leading edges for superior erosion protection of the blades
- No propeller speed restrictions on ground while operating in low idle
- More ground clearance which allows for less FODs
- Has lower ITTs during start-up for less engine wear
- Provides a significant cabin noise and vibration reduction
- Has no life limitation



- Has FOD repairable blades
- Unbeatable aesthetic ramp appeal

The company also recently received EASA approval for its blades in the Beech 99/100 series models.

MT-Propeller is holder of over 210 STCs worldwide, and OEM supplier for more than 90 percent of the European aircraft industry as well as 30 percent of the U.S. aircraft

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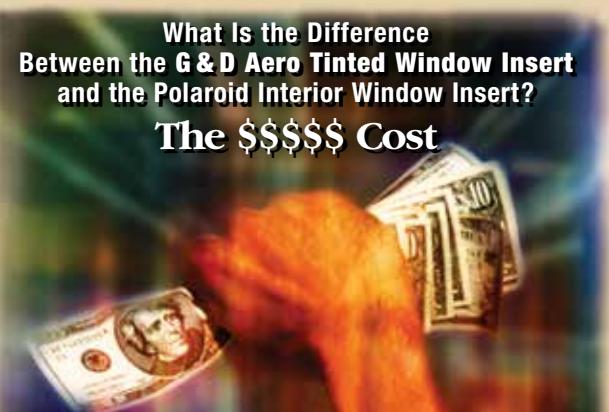
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industry. There are 20,000 propeller systems in service, compiling 130 million fleet hours.

ForeFlight Mobile App for Europe

ForeFlight is introducing a European region subscription option for its electronic flight bag app this summer, using Germany as its gateway.

The company says the app will be a single-point solution for European pilots – they can review airport information and maps, review NOTAMS, plan and brief flights, validate and file flight plans with Eurocontrol, navigate complex airspace, avoid terrain and obstacles with hazard alerts and synthetic vision, and access weather and traffic in flight. All European coverage plans will include Jeppesen's digital VFR data directly on the ForeFlight aeronautical map.

Customers can file flight plans directly from the mobile app or on the web. ForeFlight's global, redundant AFTN connection provides direct and unlimited access to filing flight plans with Eurocontrol at no additional cost or account configuration. Routes from the Graphical Route Advisor can be filtered based on IFR, VFR, YFR, or ZFR flight rules.

The app connects to select Garmin avionics via a Flight Stream 110 or 210 Bluetooth wireless gateway,

enabling two-way flight plan transfer and, where available, the display of ADS-B weather, traffic, backup attitude, and GPS position on an iPad or iPhone running ForeFlight Mobile. ForeFlight connects to Garmin's GTX 345 ADS-B Out transponders via Bluetooth to receive GPS, AHRS, pressure altitude, and ADS-B weather and traffic information with select models. The app can also connect via Wi-Fi to Avidyne's IFD 540/440 avionics to receive GPS position and flight plan information.

The company is offering three plan levels with individual subscriptions on the new app: Basic Plus, Pro Plus, and Performance Plus, which range in cost from \$89.99 through \$269.99, plus additional fees for specific add-ons. Those add-on options include Jeppesen VFR terminal procedures (formerly Bottlang charts), Jeppesen IFR global chart coverages (which is already available), and host nation VFR data packages such as charts and procedures from DFS, the company in charge of air traffic control for Germany. The new European subscription is also a result of ForeFlight's partnership with Jeppesen and makes extensive use of Jeppesen aeronautical data.

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Technically...

From Beechcraft Service Bulletin # MTB-52-01

Date: April 12, 2018

Doors – Inside Airstair Door Handle Snap Ring Modification

Effectivity: Model C90GTi, Serial Numbers LJ-1 through LJ-2150; Model B200GT, Serial Numbers BY-1 through BY-323; Model B200CGT, Serial Number BZ-1; Model B300C, Serial Numbers FM-1 through FM-76; Model B300, Serial Numbers FL-1 through FL-1145.

Reason: This service document is being issued to modify the inside airstair door handle installation.

Description: This service document provides parts and instructions to install an improved snap ring in the inside airstair door handle.

Compliance – Recommended: This service document should be accomplished at a scheduled maintenance period or inspection.

A service document published by Textron Aviation may be recorded as *completed* in an aircraft log only when the following requirements are satisfied:

- 1) The mechanic must complete all the instructions in the service document, including the intent therein.
- 2) The mechanic must correctly use and install all applicable parts supplied with the service document kit. Only with written authorization from Textron Aviation can substitute parts or rebuilt parts be used to replace new parts.
- 3) The mechanic or airplane owner must use the technical data in the service document only as approved and published.
- 4) The mechanic or airplane owner must apply the information in the service document only to aircraft serial numbers identified in the Effectivity section of the document.

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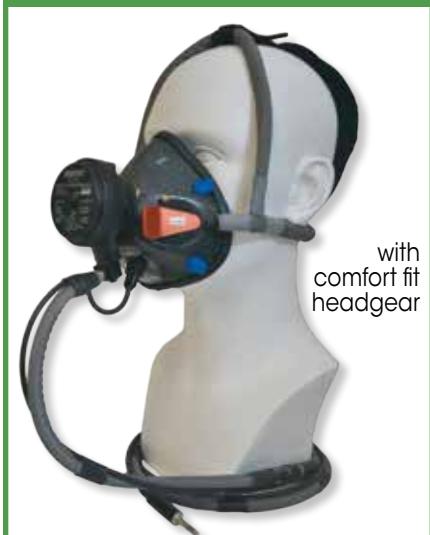
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- 5) The mechanic or airplane owner must use maintenance practices that are identified as acceptable standard practices in the aviation industry and governmental regulations.

No individual or corporate organization other than Textron Aviation is authorized to make or apply any changes to a Textron Aviation-issued service document or flight manual supplement without prior written consent from Textron Aviation.

Textron Aviation is not responsible for the quality of maintenance performed to comply with this document unless the maintenance is accomplished at a Textron Aviation-owned Service Center.

From Multi-Engine Truboprop Communiqué # ME-TP-008

Date: April

ATA 31 – Pro Line Fusion AFD 3700 Connector Knurled Knobs and Set Screws

Some customers have reported finding loose or missing AFD 3700 connector backshell knurled knobs and/or set screws. We have found that this is due to the knob set screws working loose during aircraft operation. All aircraft harnesses delivered to Textron in 2018 and on will have a thread lock compound applied to the set screws during harness buildup to prevent future occurrences. If you should find either item missing, the replacement part numbers are shown on the Communiqué in its entirety online. There are two sizes of this backshell type used on the AFDs, however, both use the same part number knob and set screw. These are Rockwell Collins part numbers and can be ordered through Textron Aviation Parts and Distribution or directly from Collins. If a maintenance action requires the AFDs to be removed on earlier Fusion-equipped aircraft, we recommend checking the security of all the AFD connector knobs and set screws applying a thread lock compound as needed.

ATA 33 – Emergency Exit Sign Battery Getting Hot (Rev. 1)

King Air Communiqué 2016-10 provided some information regarding the batteries on the Emergency Exit Sign getting hot. The initial issue of the Communiqué mentioned the part number and the size of the battery which were incorrect. The batteries used in Emergency Exit Sign are "C" size batteries with the part number of 14A.

ATA 34 – Pro Line 21 Equipped B200 and B300 Airplanes with Rockwell Collins 3.5 Disk Database Unit (DBU) 4100

In 2017 Rockwell Collins announced that starting January 2019 (AIRAC cycle 1901), they would discontinue distribution of Navigation databases via 3.5

floppy disks. Databases after December 2018 will only be distributed in USB format. They will also discontinue guaranteed repair and support of the associated DBU 4100 which was installed in Pro Line 21 King Airs prior to BB-2001, BL-154, BY-61, FL-600, and FM-67. Any operators still utilizing this format are reminded that the discontinuance date is rapidly approaching. Current DBU 4100 users have several upgrade options and for a limited time. Collins is offering special pricing to their dealers on some of those options. Please contact your regional service center to get additional details and pricing.

ATA 52 – Medeco Door Handle Cylinder Maintenance and Lubrication

Aircraft Security is the manufacturer of the Medeco cabin door handle assembly used in the current production King Air and King Airs that have replaced them as spares. Aircraft Security recommends that the Medeco cylinder be lubricated with FLUID FILM®. This lubricant is available commercially or from Textron Aviation Parts. For more maintenance information about the Medeco Locks, visit their web site at <https://support.aircraftsecurity.com/hc/en-us>.

The above information may be abbreviated for space purposes. For the entire document, go to www.txtavsupport.com. KA

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