

# King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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Courtesy of Fremont Airways LLC  
pilot Mark Matthews

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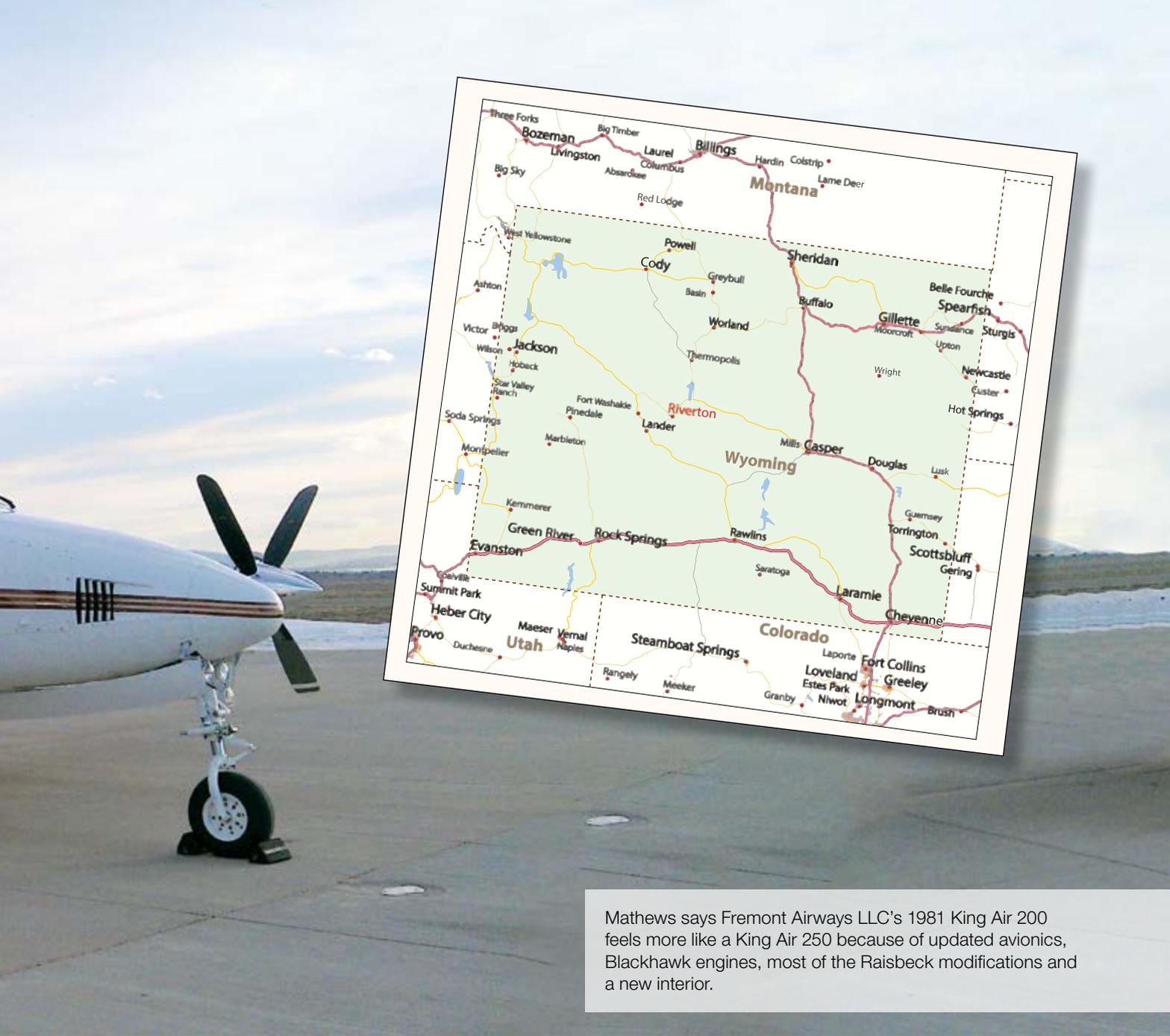
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# Rendezvous in Riverton

**Pilot connects two Wyoming  
families for King Air partnership**

by MeLinda Schnyder



Mathews says Fremont Airways LLC's 1981 King Air 200 feels more like a King Air 250 because of updated avionics, Blackhawk engines, most of the Raisbeck modifications and a new interior.

**L**ike any relationship, co-ownership of an airplane can be a great partnership when there's good communication and a healthy amount of respect between all parties.

Two Wyoming families have formed what they describe as a near-perfect relationship through a 1981 Beechcraft King Air 200 thanks to a pilot who brought them together four years ago and keeps them happy and flying.

Fremont Airways LLC pilot Mark Mathews brought the King Air partnership together and thanks to great communication and respect for the others' business needs, he says it's more like a big family than a partnership.



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Mark Mathews grew up in Riverton, a town of about 10,000 people in the central part of the state where four rivers meet. The city is nicknamed Rendezvous City for its cultural history as a gathering spot for fur trading rendezvous.

Mathews returned to his hometown in November 2011 to become a corporate pilot for the Bebout family. Eli Bebout, who turns 73 this month, is a veteran politician who has served in the state Legislature for more than three decades and Nick Bebout, 68, will always be a star after a standout career at left tackle for the University of Wyoming that led to an eight-season career in the NFL. Their families go back a few generations and they each have four children.

Mathews had stayed in touch with one of his closest childhood friends while he was accumulating 5,000 hours that include time as a flight instructor, flying eight years in Alaska for two Part 135 operations and most recently flying Beechcraft 1900 aircraft for Great Lakes Airlines for four years out of the regional airline's Denver hub.

With his buddy back in town, Sam Linden saw a lot more of Mathews and noticed how the Bebouts were using their King Air 200. When he heard that the brothers were interested in bringing a partner in on the aircraft, it was perfect timing as Sam and his father Mike Linden had recently started a new business providing equipment rentals and services for oil and gas operations from South Texas to Colorado to North Dakota and in between. ▶



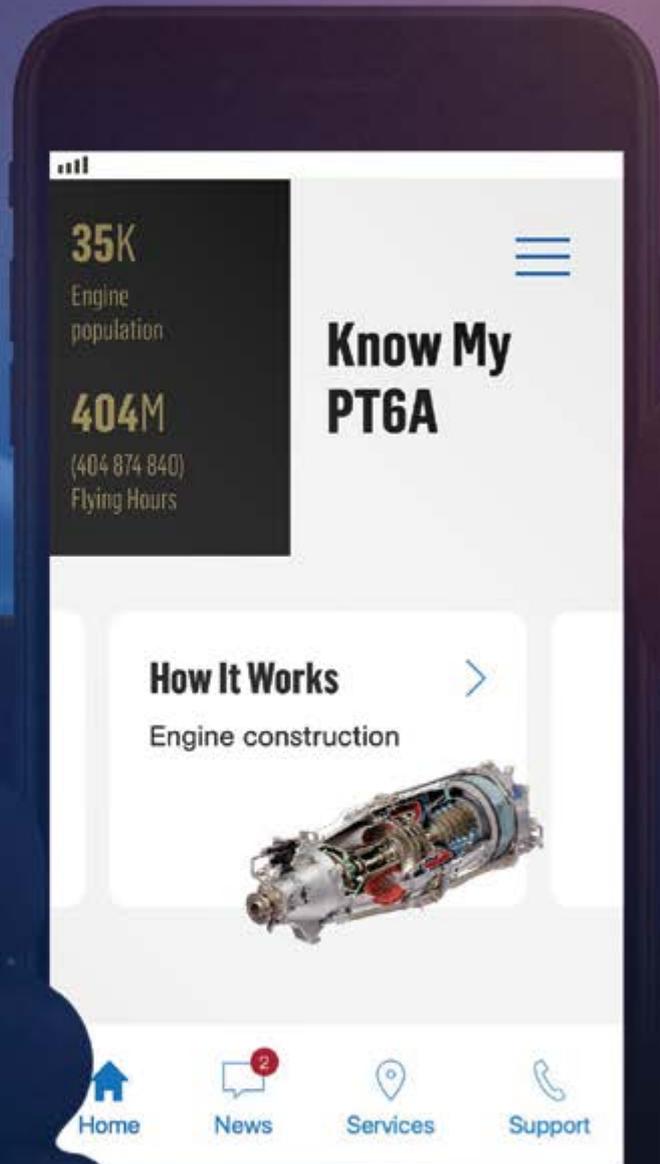
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“Sam bought into an airplane that was right here where he needed it to be in Riverton, with a pilot who was already there,” Mathews said. “It was just a sweet deal for him to get into that caliber of an airplane.”

It was a win for the Bebout family, too.

“It was a great deal for the Bebouts because they got someone who is financially stable, who uses the airplane, and who is respectful and courteous,” Mathews said. “It’s almost like we are a big family that gets along great. It saves everyone money, and I’m being utilized by two different companies instead of one. It’s perfect all the way around.”

## The Bebouts

The Bebouts’ father and as many as seven other relatives served in World War II, including one uncle

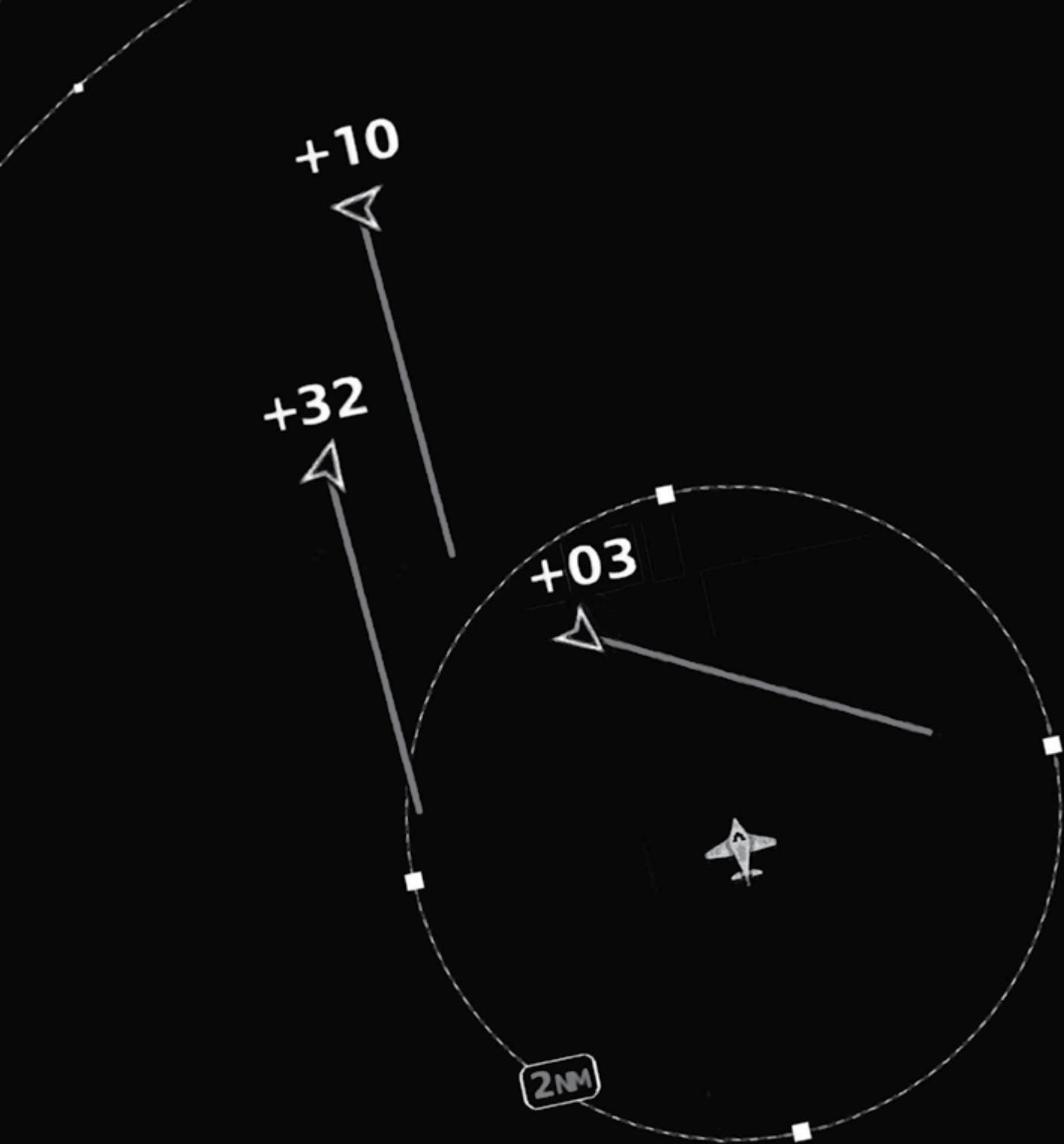
who was an ace gunner and another who was involved in the Army Air Force’s dangerous airlift operation over India taking supplies to Chinese forces fighting Japan. It was a younger uncle, Mike Svilar, who would become the family’s first pilot, though.

That got the brothers interested in aviation at an early age. Eli attended the Air Force Academy in 1964 and finished school at the University of Wyoming with an engineering degree. Nick starred at Wyoming from 1970-1972, then was drafted by the Atlanta Falcons in the sixth round of the 1973 NFL draft. He played in Atlanta until the Seattle Seahawks selected him in the 1976 expansion draft. He stayed with the Seahawks through the 1979 season, then went to the Minnesota Vikings in 1980, the final of his eight professional seasons.

The brothers knew they wanted to live and raise families in Wyoming, but there weren’t many jobs so they

Brothers Nick (left) and Eli (right) Bebout with their wives Pam and Lorraine. An uncle who became a pilot, got the brothers interested in flying at an early age.





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**GARMIN.**

N712GJ taxiing at the Dubois, Wyoming, airport (KDUB). The King Air 200 is shared by two families used mainly as a business tool flying approximately 230 hours a year.



An advertisement for Factory Direct Models (FDM) featuring a model of a Beechcraft King Air 200. The ad includes the text "GET Your Airplane Built Into an Executive Desktop Model", "ORDER EASILY 866.580.8727", "direct: +1.602.633.4646", "FACTORY DIRECT MODELS.COM", and "OFFICIAL BEECHCRAFT SUPPLIER".

decided to start their own company in 1976. In those days, Nick said, offensive linemen often had jobs outside the football season. Nick had worked on some rigs owned by other people in college so he was familiar with the industry and Eli had worked for Shell Oil after college.

“In Wyoming, oil, gas and minerals were where the action was,” Eli said. “We’ve been in and out of different companies dealing with oil and gas and mineral development since 1976.”

The Bebouts’ core operations have been across three businesses since the early 1980s: Nucor Drilling, Nucor Oil and Gas and Nucor Inc., a construction company. They also have farm and ranch operations.

“The oil and gas industry is a volatile industry, so we have concentrated on diversifying to protect ourselves,” Eli said. “When the oil and gas business is struggling because of outside pressures of pricing and other things, we developed the construction arm of the business to mitigate the subsidence for underground abandoned coal mines. The key for us has been our diversification and the use of an airplane plays a huge role in allowing us to do what we do.”

The brothers both became licensed pilots in 1977, laughing as they retold the often-told tale of Nick wedging his NFL-conditioned 6-foot-7, 300-pound frame into a Cessna 152 for his checkride.

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Eli Bebout is also a veteran politician in Wyoming and the only person in the state's history to have had stints as Senate president and speaker of the house during his career.

Their first aircraft was a Cessna 182 that was soon replaced with a factory-new 1980 Cessna T210N Centurion Turbo.

“My brother is 6-foot-7, I’m 6-foot-4 and all my uncles and my dad are large individuals,” Eli said. “We were in the 182 with two of our uncles and trying to fly to Denver and it would never level off. We decided we needed a 210 so we traded in the 182 in 1980.”

Aircraft was part of their business plan from the start, allowing them to fly to remote locations with no commercial airline service to check on drilling rigs throughout the Rockies.

“We shuttled parts and sometimes people,” Nick said. “It was a real tool for us.”

They still own and fly the T210N and through the years they added an Aero Commander 690 and an

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Nucor Drilling is one of the Bebout's core businesses, along with Nucor Oil and Gas and Nucor Inc., a construction company. The larger rig is one of Nucor's drilling rigs getting ready to move on a job in the Powder River Basin of Wyoming.

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Aviat Husky. They traded the Aero Commander in for the King Air in 2007.

The brothers each have close to 3,000 hours but rely on Mathews to fly the King Air and he often flies the T210N as well. Between business and personal flights, they fly about 150 hours in the King Air each year, another 100 hours in the T210N and “fewer hours in the Husky mostly looking for the cows on the winter range,” according to Eli.

Typical flights in the King Air are 60 to 90 minutes with six on board, though they take it as far as San Antonio on a regular basis. In recent years the Bebouts have spent time in Arizona, California, Colorado, Montana, Nevada, Oklahoma, Texas and Utah working real estate transactions as well as buying and selling at equipment auctions.

Like his politics, Eli said, he's conservative when it comes to operating the airplane and likes to

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**PRE-OWNED DIRECT**



Sam Linden (right) founded Fluid Pro with his father Mike, which provides solids control services and equipment rentals mainly in Wyoming, North Dakota, Colorado, Utah, Nebraska, Montana and Texas. They are standing in front of upright tanks, some of the equipment they rent.



Besides growing his business, Sam Linden appreciates what the King Air 200 does for him personally as well. He says it has made him a better dad because he's able to do business wherever that may be during the day but be home for his daughter that night.

maximize the personnel on board. He occasionally uses the King Air to travel to the state capitol in Cheyenne, at his own expense.

He first started serving in the House of Representatives in 1987 and has been in the Senate since 2007. He's the only person in Wyoming history to have had stints as Senate president and speaker of the house during his career.

"Once in a while during the legislative session when we're working really hard and we all need a break but there are blizzards and difficult road conditions, I'll take seven or eight members of the legislature on the King Air with me and drop them off on the way home so everyone can go home for the weekend," he said. "Then we pick them up on the way back."

### The Lindens

The Linden family also has a history in the Riverton area and great entrepreneurial success in the oil business. Mike Linden and son Sam sold one of the oil field service companies they had built together, and the new corporate owner asked Sam to run the business for them for about five years. In that role, Sam bounced from

Houston to North Dakota to every hot oil spot in the country, chartering a Cessna 421 several times a month.

In 2013, Sam resigned to start his own company with his father as a partner. Fluid Pro provides solids control services and equipment rentals mostly in Wyoming, North Dakota, Colorado, Utah, Nebraska, Montana and Texas. The company rents and operates the equipment needed to operate a drilling rig's backyard: Power generation, dewatering, fluid recovery and total solids control, which involves recycling drilling fluids, separating the dirt from the fluid and returning the fluid back to the crews for drilling.

"I knew right away that as fast as we were growing that a plane was going to be needed," Sam said. The first year he was traveling frequently via charter as he opened satellite yards and shops where he could ship equipment and store spares. Because there were no charter operators out of Riverton, though, he didn't have the quick response time he often needed for unplanned trips.

He'd flown frequently in a King Air 350 with a vendor who fabricated equipment for Fluid Pro, and he'd flown in the Bebouts' King Air 200. When the chance to co-own the aircraft popped up about nine months into his endeavor, he knew it was a great solution.

He flew 90 hours the first year and has settled in at about 70 to 80 hours a year since then. He also bought in on the T210N for frequent trips to Denver when weather isn't a concern.

The King Air 200 is the perfect size for crew changes that the Lindens have once a month and it also handles movement of materials when needed.

"Last week we landed at San Antonio and backed in a pickup truck to unload a lot of fabricated iron stuff that we build along with huge pump parts," Sam said. "If we're going, we might as well take it with us."

Whereas the Bebouts usually have their trips scheduled well in advance, Sam said only one of every 10 of his trips are planned; the others pop up the night before or the day of in emergency situations.

"Customers will get in a jam drilling their oil or gas wells, if we can be there as fast as we can, they'll give us the job instead of someone else," he said. "A lot of time it's just me getting there before the equipment so I can have a plan when the equipment shows up."

He estimates the company has grown an extra 20% because of the use of business aviation, but more important to him, it's helped him manage being a single dad.

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Artist Lorraine Bebout, Eli's wife, designed N712GJ's new interior including making the decorative pillows.

“It’s helped us grow because it’s got me more places and allowed us to be a bigger, stronger company,” he said. “And, it’s by far made me a better dad. I’m single and I have my little girl 50% of the time. Having the King Air has solved any problem of me not being home because I can be in Texas during the day and back home with her that night.”

The nature of the oil and gas industry could put a strain on the partnership, but the owners and pilot have communicated well and managed to avoid that.

“Eli is great. If there’s any way to make it work, he does. And the same with me. He’s had a few trips come up and I already had the plane booked. We just make it work. We figure it out. We might jump on together and split costs, or we have an agreement that if Eli’s got the plane and I need it, I pay to get it home to get me and I pay to get it back, and vice versa. Whatever we can do to help each other, it works,” he said.

## The King Air

Mathews works for Fremont Airways LLC, the company the Bebouts and Lindens have to manage the King Air 200 and Cessna T210N. In addition to his pilot duties, Mathews schedules the aircraft, handles catering on

board if needed, rental vehicles at the destination and setting up hotel rooms.

Even though the Bebouts aren’t flying the King Air, Mathews said he appreciates their pilot backgrounds and respect for weather conditions. All three owners have confidence in Mathews’ ability to handle Wyoming’s snowstorms, icy runways or strong crosswinds given his experience handling the weather and terrain challenges of Alaska.

They feel like they own a new King Air 250 because they have “not glass, but good, up-to-date avionics, the Blackhawk engine upgrade, most of the Raisbeck modifications and we just redid the interior.”

By far, Eli said, the engine upgrade has made the biggest difference.

“Wow. The brand-new -52 engines took it up to 305 KTAS and it just rocks and rolls,” he said.

Mathews said he’s pleased they decided to take advantage of incentives to replace rather than rebuild the engines about four years ago.

“We were able to get the -52 engines with the higher limit on the temperature gauge for the same price as the

-61s,” he said. “I’ve been really happy with the power of the -52s in getting off the ground and holding a really good climb angle up to cruise.”

As for the partnership, even a complete interior refurbishment in 2018 went off without a hitch, Mathews said.

It helped that Sam, a single 39-year-old oil field hand, was fine with taking the lead from Lorraine Bebout, Eli’s wife and an artist who had a concept in mind as she picked out materials and colors. Centennial Aircraft Interiors near Denver completed the work, replacing carpet, headliner, seat coverings and installing a new table system in the club seating area. Lorraine designed and sewed decorative pillows for the cabin.

“I would still approve everything with Sam because he’s part owner and it’s his investment, too,” Mathews said. “He was happy with everything during the process and he is still extremely happy with how it turned out. It went very well, as has everything else. It’s a beautiful relationship.” **KA**

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# Third Party Liability

by Kyle P. White

**W**hen it comes to addressing claims, there are two parts to your King Air insurance policy. One is for physical damage to your aircraft and the second is for third party liability. For this article, I am focusing on the latter.

The hull and liability policy is very broad in nature. In the insurance industry there is a general understanding that “if it doesn’t say it isn’t covered, then it is covered.” The policy is designed to protect the King Air owner from occurrences that arise from the “ownership, operation or use” of the aircraft that causes bodily injury or property damage.

Every day, claims transpire that don’t make the NTSB reports. In the insurance industry we call these attritional losses, which are high frequency and low severity; occurrences such as slips and falls, hangar rash and FOD claims. Sophisticated insurance buyers try to limit their exposure to these types of claims in a variety of ways. If you are working with a large FBO and have read your hangar lease, you are nodding your head “yes” in agreement with me right now. The FBO intends to

protect their balance sheet and insurance program. They do this by pushing as much liability and opportunity for claims back to you and your insurance policy.

As the aviation insurance market continues to narrow, resulting in less coverage and higher rates, it is imperative to understand what exposures you have, the ones you are assuming and how you are managing them. The next time you head to the airport, look around you from the moment you drive onto airport property and think “risk.” Once you drive through the gate you have “on airport auto liability” exposure. Perhaps you hired a car service or Uber? You’ve contracted with them, and they are on the airport at your direction, therefore you are liable for their actions. All of this is outlined in the 30-page hangar lease you signed. Perhaps you didn’t drive onto the airport in a car, but with a golf cart or some other means of transportation. This falls under liability for operation of “mobile equipment.” The list of exposures that result directly from your actions or the actions of others that are involved in your operation and are out of your control is seemingly endless.

So what do we do when bodily injury or property damage occurs due to our activity at the airport? It is very common for corporate flight departments to have Emergency Response Plans (ERPs). While they are designed for what the industry calls “cat losses” (catastrophic losses) where an accident occurs and the aircraft is damaged and passengers are injured or deceased, I always encourage adding a section to their plan for attritional losses. The NTSB and FAA document what action items should be taken for something as minor as causing “\$25,000 in property damage as a result of operating the aircraft.” Like the NTSB, the insurance company attempts to objectively address the process for notifying them in the insurance policy under the section called “conditions.”

All aircraft policies have a “conditions” section and will outline what the insured is required to do for a liability claim as opposed to a claim for actual damage to the insured’s aircraft. Below is wording from Allianz’s aircraft hull and liability policy form AGCS-AC 1400 (09-09). Under the “Conditions” section of this policy it states:

**3. Notice of Occurrence, Loss, Claim or Suit**

*a. The Named Insured must promptly notify the Company of an occurrence that may result in*

*a claim. Such notice shall be in writing to the Company claims notification address which is set forth with this policy. Such notice shall include all of the following:*

- 1. particulars sufficient enough to identify the Insured,*
  - 2. how, when and where the occurrence took place and*
  - 3. the names and addresses of any injured person and witnesses.*
- b. If claim is made or suit is brought against the Insured, the Named Insured must see to it that the Company receives prompt written notice of the claim or suit. The Named Insured and any other Insured involved must:*
- 1. immediately send the Company copies of any demands, notices, summonses or legal papers received in connection with the claim or suit,*
  - 2. authorize the Company to obtain records and other information,*
  - 3. cooperate with the Company in the investigation, settlement or defense of the claim or suit and*

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4. assist the Company, upon the Company's request, in the endorsement of any right against any person or organization which may be liable to the Insured because of injury or damage to which the insurance may also apply.

c. No Insured will, except at its own cost, voluntarily make a payment, assume any obligation or incur any expense, other than for first aid, without the Company's consent.

This is the exact language from the contract between the insurance company and the aircraft owner/insured. This wording represents the intent of many aircraft hull and liability policies. When you review yours, you will find very similar language. What does all of this mean, and how does the process actually work?

First of all, do not assume and act like this will just go away. At the first inclination you may be getting served legal papers, call your insurance professional/broker. Even for something as simple as "defamation of character." Assume you have coverage unless the insurance company determines you do not via a "reservation of rights" letter. Furthermore, your broker is, in essence, your risk manager. They do not have the authority to tell you something is or is not covered; that power resides solely with the insurance carrier. Your

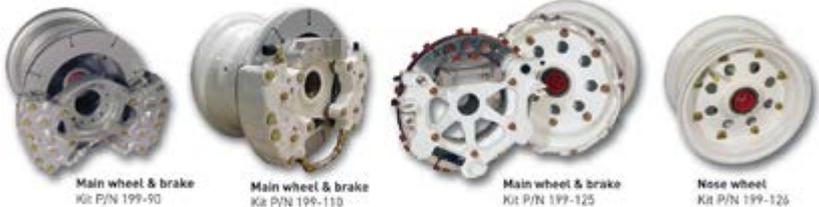
broker should guide you through the claims process and be your sounding board/trusted advisor. Be open and honest with them so they can provide you the best advice possible.

Many aircraft policies have a "failure to report" clause in the policy that states you must report a claim within a certain number of days. If you fail to report the claim during that timeframe, they could deny the coverage. Though it is rare a claim would be denied under that clause, it is possible. So, notify your broker immediately at the first indication you may have a claim or suit on your hands.

Next, gather all of the facts as stated in the "conditions" above. Not assumptions, just facts as you know them at the present time. Send all of this information, in writing, to your broker and they will be able to help you through the process of notifying the carrier.

The insurance company will assign a claims adjuster and review the circumstances to determine how coverage applies. In the vast majority of situations, coverage is available to protect and defend the insured. The insurance company will retain an attorney with aviation expertise to defend you. These attorneys are not amateurs, they know aviation, specifically aircraft hull and liability policies, and they've defended thousands of operators just like you.

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Your FBO is keeping a watchful eye on their exposure to keep their premiums in check; you can do the same. The next time you ask a third

# R L I A B I L I T Y S K

party to detail your King Air, including stripping and sealing the boots, think about how they are going to access the horizontal stabilizer to give those de-ice boots a mirror-like reflection. Odds are, they are going to be getting on a scissor lift and weaving in and out around other aircraft to get to your tail. Whether this is an employee of yours or a young person working nights and cleaning aircraft in the evenings, you have exposure. They could damage your airplane, other aircraft or hurt themselves or a passerby.

Ask for a certificate of insurance from the contractor naming you as an “Additional Insured” with a “Waiver of Subrogation.” Make sure the certificate of insurance they issue you has coverage for “hangar keepers,” “products and completed operations” and the exclusion for “your work/your product” has been removed. To really get in the details, look over your hangar lease

and extract that language in an agreement between you and your vendors who are providing your on-site aviation services. The last thing you want is to be liable, per the hangar lease you signed, for not only your actions, but for the negligence of your contractors.

Remember, the legal process to bring your situation to a close could take years, a significant amount of your time, and cost you and your insurance company millions of dollars. Proactively prepare for a claim through an amendment to your ERP, contract/insurance certificate review, and other risk management strategies. Managing your risk is the best way to secure the lowest premiums in this hardening market. **KA**

Kyle P. White is an aviation insurance specialist for a global insurance brokerage 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 [kpwhite816@gmail.com](mailto:kpwhite816@gmail.com).



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# NOSE GEAR STEERING: The Bungee and the Clip

by Dean Benedict

In 2017, the owner of a King Air 200 was landing at his home base; when the nose touched down, the aircraft lurched violently to the right. Luckily, he managed to keep the aircraft going straight down the runway with the nose tire sliding sideways! This was a nose-steering failure.

Once he was safely off the runway, he looked up in the nose wheel well and found the bungee clip broken, as well as the housing for the steering bungee. He called me and let me know what happened. This King Air was fairly new to him. Earlier that year I had consulted on his pre-buy and supervised the inspections, so I had some familiarity with his aircraft. There was no damage to the nose gear, but his shop had to replace the nose steering components and install a new nose tire. This meant he and I weren't going to meet up at King Air Gathering II (KAGII) in Dayton, Ohio, as we had previously planned.

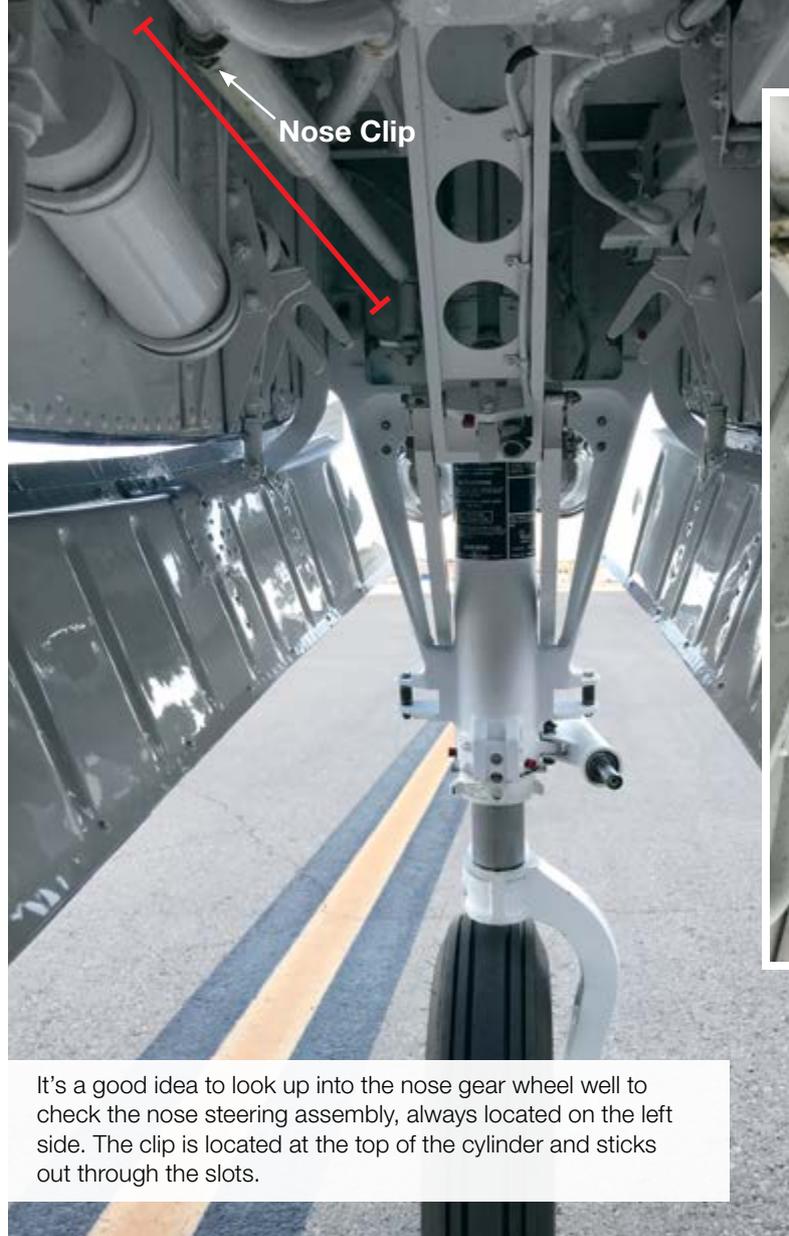
## Coincidentally ...

I was scheduled to make a presentation at KAG II in a hangar with a King Air on jacks for demonstration purposes. My talk was on pre-flighting a King Air with a few tips on exactly what to look for. One of the KAG II attendees volunteered his F90 to be on jacks for the demonstration and he was interested in my feedback on his King Air.

Since I was seeing this aircraft for the first time, I did a preliminary walk around and checked on a few things. When I peeked into the nose wheel well, guess what I found? The nose steering bungee clip was broken and the bungee spring was on the verge of busting loose!

Needless to say, I had plenty to talk about that day.

I don't normally run across failed bungee clips on a daily basis. This was just a coincidence; however, it points to the need to check out your nose steering from time to time.



It's a good idea to look up into the nose gear wheel well to check the nose steering assembly, always located on the left side. The clip is located at the top of the cylinder and sticks out through the slots.

## Expand your Preflight Routine

During your preflight inspection, as you work your way around your King Air, it only takes a moment to poke your head into the wheel well of the nose gear to check the bungee clip and the nose steering assembly. All King Airs have the same nose gear steering setup. The bungee housing is cylindrical with a connecting arm extending forward into the nose gear assembly; it's always on the left side. On a model 90, as in the photo above, the steering assembly is above the gear door retract mechanism.

The clip has rounded corners that protrude into slots in the bungee housing and should be intact. The slots in the housing should not be enlarged or cracked.

## The Bungee and the Clip

Long before people began jumping off tall bridges tethered by a long elastic rope, the word "bungee" was an aeronautical term for "springs or elastic tension



The cylindrical bungee assembly (left) houses the steering bungee which is a spring. A shaft moves through the center of this spring, and operation of the rudder pedals moves the shaft. Notice at the top of the assembly are the slots with the clip protruding.

devices, as the spring attached to movable controls of aircraft ...” (*dictionary.com*).

The steering bungee is a spring inside a cylindrical housing. A shaft moves through the center of this spring, and operation of the rudder pedals moves the shaft. While taxiing, when you turn to the right, the shaft moves as to compress the spring; this transmits pressure to the steering collar. When you turn left, the shaft pulls on the spring, compressing it from the opposite end; this, in turn, pulls on the steering collar.

The clip has many names – circlip, bungee clip, circle clip, etc. It’s actually “square-ish” in shape with rounded corners that bulge out and fit into slots in the bungee housing. The manual calls it a “retainer,” which is probably the most appropriate name, as it holds the all-important spring (bungee) in place. This clip is crucial. It keeps tension on the bungee spring.

The vibration inherent in flight and in ground maneuvering will eventually cause wear and tear on the bungee clip and the slots it fits into. I’ve seen clips break. I’ve also seen the slots on the bungee housing give out. Since the clip is steel and the housing is aluminum, the clip can wear down the slots over time. If a weakened slot

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The clip (left) and shown in the slots (right). The clip is critical as it keeps tension on the bungee spring. It's important to check the clip and slots as they can break due to wear and tear.

breaks apart, the clip falls out, the bungee spring snaps open and busts through the housing. If this happens, tension is lost and your nose steering goes out the window.

You don't want a failure like that, and you really don't want one on landing. You might not be as fortunate as the 200 I mentioned, so please add this simple check to your preflight checklist.

### Stiff Steering is Not Normal

I often tell a story of a King Air pilot that grappled with really stiff nose steering. He'd been told repeatedly that all King Airs have stiff steering and you just have to learn to live with it (not true!); but his was really bad and he was desperate for a solution. By the time he got to my shop, he had spent over \$4,000 in parts and labor on his nose steering with zero improvement.

I taxied his airplane and the steering was horrible indeed. But then I jacked the nose to take the load off and found the rudder pedals moving freely. So, the problem wasn't his nose steering, it was his nose gear – it needed grease.

You've got to have grease between the nose gear upper casting and the shock absorber tube; but know that grease will never get in there if the nose gear is on the ground. This really stiff nose steering was remedied immediately by properly greasing the strut, with the nose jacked. The pilot was ecstatic. He almost ran his King Air into the dirt median the first time he taxied out but got the hang of it and was amazed at the difference.

Once in a while I find a King Air that steers easily in one direction but gets stiff going the other way. Typically, this is because the bungee spring is dry. Again, grease is the answer.

If nose steering stiffness continues after proper lubrication, I would check the gap between the nose gear upper casting and the shock strut. This is a last resort. Per the maintenance manual, the maximum allowable gap is .015 inches, and in all my experience with King Airs, I've found that .015 inches gives the best performance. Tighter settings make the nose steering too stiff, in my opinion.

If, following a gear overhaul, your nose steering is suddenly too stiff, I'd have the clearance between the nose upper casting and the strut double-checked to see if it is too tight. But while you're at it, make sure that strut was greased with the aircraft on jacks.

In summary, if your nose gear steering is stiff, most likely your nose steering bungee is doing its job but your nose strut needs grease. Your nose gear steering should be smooth and easy. Just be sure to take a look in your nose wheel well from time to time. Check the clip in the bungee housing.

Happy taxiing in your King Air. **KA**

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Dean Benedict is a certified A&P, AI with nearly 45 years' experience in King Air maintenance. He's the founder and former owner of Honest Air Inc., a "King Air maintenance boutique" (with some Dukes and Barons on the side). Now, with BeechMedic LLC, Dean consults with King Air owners and operators on all things King Air related: maintenance, troubleshooting, pre-buys, etc. He can be reached at [dr.dean@beechmedic.com](mailto:dr.dean@beechmedic.com) or 702-773-1800.



# The Importance of Fully Implementing NextGen and Canada's ATC User Fees Increase

by Kim Blonigen

## NBAA's Bolen Speaks to Senate Committee regarding NextGen

The National Business Aviation Association (NBAA) recently released that President and CEO Ed Bolen told members of the Senate Committee on Commerce, Science & Transportation's Subcommittee on Aviation and Space that full implementation of the Next Generation Air Transportation System (NextGen) is critical to maintaining America's lead in global aviation – a shared priority for all stakeholders, including business aviation.

“The United States has the world's largest, safest, most efficient and most diverse aviation system, supporting more than 200,000 general aviation aircraft,” said Bolen. “However, to maintain our leadership, we must continually modernize the ATC [air traffic control] system. This imperative to modernize is why NBAA has taken a leadership role in partnering with the Federal Aviation Administration (FAA) to advance our shared modernization goals. With more than 1.1 million jobs

and \$219 billion in annual economic impact tied to general aviation, our industry is committed to growing and moving forward.”

Business aviation serves small towns and rural communities across the country and can reach more than 5,000 public-use airports, Bolen explained. NBAA is a key stakeholder in the ATC system, and with its 11,000 member companies delivers a unique perspective on NextGen.

NextGen modernization is producing significant results, already delivering \$4.7 billion in benefits to the aviation system, Bolen noted. But, with air traffic controllers projected to handle nearly 16 million more aircraft by 2040, and unmanned aircraft systems (UAS) capacity forecast to grow significantly in the next five years, Bolen said that there is still much to achieve.

This includes full equipage of Automatic Dependent Surveillance-Broadcast (ADS-B) by the FAA's Jan. 1, 2020, deadline. Bolen told the subcommittee that NBAA has launched a targeted campaign to business

aviation to highlight the critical importance of meeting the ADS-B equipage deadline. “Our work has paid off, with nearly 70% of turbojet and turboprop business aircraft now ADS-B equipped according to the FAA’s Equip 2020 working group, an increase of nearly 15% since the beginning of this year,” reported Bolen.

NBAA also continues to work with the FAA on the privacy and security implications of ADS-B’s real-time

tracking of general aviation and looks forward to a solution that will provide ATC and other government stakeholders all needed tracking information, while safeguarding real-time movements from public view. “We appreciate the FAA’s work on this project and look forward to a solution in the coming months,” noted Bolen.

Congressional support of NextGen is critical to its success, and passage of the FAA Reauthorization Act

of 2018 highlighted Congress leadership in providing certainty and the needed investments for the aviation industry to be successful, said Bolen.

However, NextGen needs funding protection from the negative effects of government shutdowns, which can halt progress and introduce months of delays to modernization efforts. To mitigate these adverse effects, NBAA supports the Aviation Funding Stability Act of 2019, a law that will permit FAA the use of funds from the Airport and Airway Trust Fund during lapses in government funding, Bolen told the subcommittee members.

“NBAA has always been steadfast in its support and advancement of NextGen technologies that allow equal and fair access to airports and airspace for all aviation stakeholders, and this hearing provides an important opportunity to review our progress,” Bolen concluded.

## ATC User Fees Increase in Canada

Nav Canada, the private, not-for-profit company that operates Canada’s air traffic control (ATC) system is increasing user fees, the company said, for the first time in 15 years. The increase will be used to recover costs of providing ADS-B surveillance data services in terminal areas and domestic en route and North Atlantic oceanic airspace. The services had been provided on a no-cost trial basis since March.

The increases will be implemented in two phases. The first, already taking effect Sept. 1, is enforced to recover the cost of domestic ADS-B services and averages an 0.8% increase. The second phase will be carried out to recover the cost of providing ADS-B surveillance within the North Atlantic oceanic airspace. Starting Jan. 1, 2020, a flat rate per flight will be C\$155.03 (US\$116.55). **KA**

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# Using Big Numbers

by Tom Clements

**Y**ears ago, I was conducting recurrent King Air 200 training with the two experienced and professional pilots of a Midwest corporation. As part of their takeoff briefing, they used the phrase, “We’ll use big numbers.”

“What did you say?” I asked. “What does that mean?”

Their explanation made a lot of sense to me then, as it does now. It is a procedure that I have adopted and use regularly. I believe it adds a degree of safety that helps to stack the deck in our favor. With one very minor exception – that I will address later in this article – I can see no detriment or downside to it whatsoever. Let me explain.

Not all King Air models have differing takeoff speed numbers depending on conditions. The fine E90 model, for example, bases all of its takeoff data on using a rotate speed of 95 KIAS (knots indicated airspeed) and a 50-foot speed of 100 KIAS. Although Beech does not use the terms  $V_1$  and  $V_2$  for the E90 – reflecting its date of certification, its weight, and the rules that then applied – those two numbers would be the 95 and 100. These speeds apply to all airport elevations, all outside air temperatures and all weights. I much appreciate the simplicity they provide. Although they may not be “perfect” for all situations, the E90 is such a fine performer that it does very well using them in all situations.

As the King Air history evolved and the larger and heavier model 200 appeared – with first deliveries in 1974 – takeoff numbers became more elaborate. Although I have written and spoken about my disagreement with

Beech’s choice of  $V_1/V_R$  for the 200, I have no problem whatsoever with their  $V_2$  choices.  $V_2$  varies from a low of 99 KIAS – while using approach flaps for takeoff at a light weight of 9,000 pounds – to a high of 121 KIAS – clean, at the maximum gross weight figure of 12,500 pounds. Similarly, the 300-series use a wide range of V-speeds that vary based on flap setting and weight.

Here’s the idea of “big numbers”: The day that I first learned of this technique – with the two pilots of the 200 in the Midwest – we were about to depart from an elevation of 800 feet, at 11,500 pounds, with an OAT of 20°C, and about an 8-knot headwind component. However, the crew – years before in the comfort of their hangar office – had worked out a lot of takeoff performance problems for their own home-base airport as well as other airports they frequently used. In all cases, they did the exercise based on worse-than-expected conditions. In this home-base case, they used 1,000 feet elevation, 45°C temperature, 12,500 pounds, no wind, no flaps. They found that both Accelerate-Stop and Accelerate-Go distances were less than the 8,000-foot runway they would be using.

If the airplane can perform satisfactorily using these worse-than-actual conditions, then is it not correct to believe that the actual performance will be better than (and certainly no worse than!) the performance numbers the POH provides even if we use the higher V-speeds for the higher weight? After all, we will reach those speeds in less time and our climb rate, using the higher  $V_2$ , will be greater than the chart presents since we are at a lighter weight. As a side benefit, our margin

above  $V_{MCA}$  and  $V_S$  will be greater than what the chart assumes, again due to our lighter weight. In effect, our margin for error is improved when “big numbers” are used. Even if we over-rotate and fall a bit below the “big number”  $V_2$ , we may still be at or above the actual  $V_2$  for our real conditions.

The only detriment that comes with using the higher speed appropriate for a greater weight is increased tire wear, since we will be rolling on the runway to a higher speed. Personally, I am very willing to accept the slight extra maintenance cost, thinking the safety benefit it provides makes the cost worth it.

Last year, I was involved in transitioning a Phoenix-based flight department from their B200 into their newly purchased 350. The 350 had been extensively upgraded by Stevens Aerospace and Defense Systems (formerly Stevens Aviation) in Nashville as a part of the purchase. These upgrades included the Blackhawk XP67A engine swap and installing the Garmin G1000 NXi package ... making a great airplane even greater! (This magazine had an article about that airplane and its owner/operator a couple of months ago.)

Being based at Cutter Aviation on the south side of Phoenix’s Sky Harbor Airport, the runway we were usually assigned was 7R – 25L, 7,800 feet long. Using

the POH, as modified by the Blackhawk STC, I worked a takeoff performance problem using 2,000 feet Pressure Altitude (field elevation is 1,135 feet), 45°C OAT, 15,000 pounds takeoff weight (the maximum limit), Approach Flaps and no wind. Takeoff Field Length came out to be 5,672 feet, more than 2,100 feet less than what we had available. The “big numbers” associated with these conditions were 104, 105 and 109 KIAS for  $V_1$ ,  $V_R$  and  $V_2$ . My suggestion was to use these numbers for all of our KPHX takeoffs giving us a safety cushion, since rarely would all the variables conspire to be as bad as my assumed conditions.

As a side note: With the acceleration this rocket-ship of a King Air has, if the pilot can truly differentiate  $V_1$ ,  $V_R$  and  $V_2$  he/she has better eyesight and reaction times than I!

As I write this (August 2019), my heart remains saddened by the tragedy that took place June 30 at KADS, Addison Airport in Dallas, Texas. A 350 crewed with two professional pilots and loaded with eight passengers crashed on takeoff, killing all souls onboard. I believe this is the first fatal crash involving a 350 in the United States. The King Air never left the airport boundaries, crashing into a hangar on the left side of the runway when it rolled inverted as control was lost. Speculation on the cause has been rampant. When the

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NTSB issues its final report, I pray it will present the correct, well-researched and reasonable cause that we can all accept. Meanwhile, I know this is a situation in which “big numbers” could have been used ... that the actual conditions would have permitted it with margins to spare. Were they used? Would it have helped prevent the tragedy? We don't yet know.

Before I close, I want to emphasize that all of the King Air models up to and including the 200-series are “light twins.” Only the 300-series fall into a category in which engine failure on takeoff needs to be officially considered. Although the POMs/POHs for the non-300-series do indeed present data based upon engine failures during takeoff, none of this is FAA-required information. Consider the E90 again. Just because it uses a  $V_1/V_R$  of 95 KIAS and a  $V_2$  of 100, should you always use them? I emphatically answer “No!” Using the long runways – 7,000 feet or more, for example – at most major airports, I would operate the E90 the same as I'd operate an Aztec or Baron or 414. Namely, I'd allow the airplane to fly “when it's ready,” having lightened the nose with the correct amount of elevator force. There would be no definite, firm, sudden rotation. The landing gear would be retracted when at least blueline ( $V_{YSE}$ ) airspeed has been reached. Then the pitch would be raised to about +10°, knowing that if an engine does indeed quit this attitude will eventually yield a speed close to blueline. I would

have the HSI's heading bug set on runway heading and I'd be prepared to use my feet to “step on the heading” if I felt asymmetrical thrust. My briefing to the other pilot about engine failure would be, “If the gear has not started up, we are chopping power and stopping. If the gear has started up, we're going.”

As I have said more than once recently in articles here, “Just because you can, doesn't mean you should.” Treat a King Air's takeoff like a FAR Part 25 Transport Category jet? In some cases, we can. But should we? **KA**

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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](mailto: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](mailto:editor@blonigen.net).*

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# Sportster!

In 1933 the Stearman Aircraft Company unveiled the Model 80 and Model 81 – transitional designs that represented the ultimate biplane at the dawn of the monoplane age.

by Edward H. Phillips

In 1932, the halcyon days of the “Roarin’ Twenties” were nothing more than painful memories for the American people. Wall Street was still in shambles three years after the horrendous stock market crash of October 1929, and President Herbert Hoover’s policy of laissez-faire did nothing to help spark the economic recovery the United States so desperately needed. The election of Franklin D. Roosevelt in November 1932, however, saw a major shift from Hoover’s Republican “let do” attitude to FDR’s democratic “let’s do” agenda. During the next year the gradual implementation of his “New Deal” program resurrected the banking system, restored the public’s confidence in the economy and began to put Americans back to work.

Despite Roosevelt’s efforts, by July 1932 the Dow Jones industrial average had plummeted from a high 350 in 1929 to about 50 in July 1932. Interpreted another way, the stock market hit bottom after losing 89 percent of its value during a three-year plunge. Beginning in 1930 and continuing into the early 1930s, the once thriving

aircraft industry in Wichita, Kansas, had come perilously close to annihilation. Many of its small companies had quickly succumbed to the Great Depression, and even the Travel Air Company, the city’s first truly successful airframe manufacturer, fell silent in 1931 followed by the Cessna Aircraft Company one year later. The Stearman Aircraft Company was hanging on by a thread, thanks to being part of the giant aeronautical conglomerate, United Aircraft & Transport Corporation (UA&TC). These three Wichita companies had built and delivered nearly 900 new airplanes in 1928 alone, and for 1929 local executives Walter H. Beech, Clyde V. Cessna and Lloyd C. Stearman had been confident that numbers would double.

It is important to mention that soon after an order for 12 Model 4CM Junior Speed Mail biplanes had been

The sole Model 80 “Sportster” was built as a custom biplane to specifications stipulated by businessman John Vette, Jr. He flew the airplane on cross-country trips promoting a new fastener called the Huck rivet that was designed for metal airframe structures. The handsome Stearman was delivered in 1933 and represented the zenith of biplane development by the company.

(Courtesy Kansas Aviation Museum)



completed and delivered to customer American Airlines, Lloyd Stearman decided to resign from the company he had founded in 1926 that still bore his name. His decision came in the wake of a business trip to New York City where he met with officials of UA&TC. Lloyd's announcement came as a surprise to many Wichitans, but his departure may have been inevitable given his independent nature and entrepreneurial spirit.

His company had become a mere cog in the wheel of a giant profit-oriented enterprise that had swallowed up not only Lloyd's company, but also Boeing Airplane Company, Pratt & Whitney Aircraft, Chance-Vought Corporation, Hamilton Aero manufacturing company and the Sikorsky Aircraft Company. Stearman told local newspaper reporters that he intended to leave Wichita and return to California "where he will take a rest and look into various business prospects," according to the July 7, 1931, edition of the *Wichita Eagle*. Lloyd also told reporters that, "The growth of aviation may be slow in the next few years, but it will be consistent and steady. I believe there is no question but that it will shortly become one of the great industries of the nation." He added that, "Because of Wichita's natural advantages as to climate, and because it is easily reached from the eastern and western airplane markets, this city will always be an important factor in the growth of aviation." In the second week of October 1931, Stearman and his family climbed into their eight-cylinder, four-door Packard and headed west.

After his resignation, Lloyd had begun working on the design of a completely new airplane intended for small airlines and airmail operators. In California, he teamed up with Walter T. Varney and Robert E. Gross to form the Stearman-Varney Aircraft Company. The Great Depression may have decimated the commercial aircraft industry, but it also provided unique opportunities for those brave enough to take a risk. So it was that in 1932 Lloyd, Gross and Varney cobbled together \$40,000 to buy the assets of the Lockheed Aircraft Company. Stearman was appointed president and at age 34 began the fourth phase of his distinguished career in aeronautics. In 1933 the new design Stearman had been working on in the parlor of his house in Wichita became the Lockheed Model 10 Electra, which first flew in February of that year. Lloyd would remain with the Lockheed company until 1935 when he resigned to pursue other aviation interests.

Meanwhile, back in Wichita the year 1932 had marked a low point in the fortunes of the Stearman Aircraft Company. The factory had grown quiet and only a skeleton crew remained on the slender payroll. The number of employees had sunk to fewer than 25 – down from 250 during 1929. Thanks to the hefty bank accounts of UA&TC, the Stearman operation still survived while senior officials of the company, Walter P. Inness, Jr., and Julius E. Schaefer, hoped for better days ahead. Meanwhile, the engineering department, still under



An aerial view of the new Stearman Aircraft Company factory was taken in the early 1930s. The sprawling facility on South Oliver Road remained unchanged until 1939 when large orders for primary training airplanes led to major expansions.

(Edward H. Phillips Collection)

the capable leadership of Mac Short, had been reduced to only a few souls and blueprints were collecting dust on the drawing boards. Money for new projects was extremely tight and the business was operating day-to-day on a shoestring budget.

Fortunately, in September 1932 the situation suddenly took a turn for the better. The Boeing Airplane Company had contracted with the Stearman factory to manufacture hundreds of detailed parts and assemblies for the Model 247 airline transport – a new, all-metal, twin-engine monoplane featuring retractable landing gear and controllable-pitch propellers. The factory would be responsible for building the transport's main landing gear, cockpit control columns, instrument panels and seats for the pilot and co-pilot. The Boeing 247 would soon sound the death knell of aging Ford Trimotors, Curtiss Condors and even Boeing's Model 80 transports that had served the nation's airline system well during the late 1920s and into the early 1930s. The Boeing 247 was designed to carry up to 10 passengers and about 500 pounds of mail at a cruising speed of 175 mph. United Air Lines had ordered a large fleet of the monoplanes and planned to operate the airliners on routes between Chicago and California. The order from Boeing would prove to be a blessing for the Stearman Aircraft Company and probably saved the enterprise from extinction.

In addition, the Boeing contract would allow Schaefer to begin interviewing and hiring experienced, skilled mechanics, machine operators, welders and sheetmetal craftsmen, many of whom had been laid off by Travel Air, Cessna and Stearman during the past three years. Although some of the men had found work in other parts of the country, a majority had remained in Wichita and the surrounding areas and were quickly notified of the job opportunities. Looking ahead to 1933, some of

these workers would play a pivotal role in the fabrication and assembly of two special, custom-built biplanes that would be the last of their breed for the Stearman Aircraft Company.

Within weeks Schaefer's recruiting efforts were paying off handsomely. He needed a minimum of 100 workers and he had no trouble filling those positions. The factory was soon humming with activity, filled with the sights, sounds and smells of workers building flying machines. In addition, the Boeing deal ensured that the band of employees would be kept on the payroll well into 1933. Although the company was not producing its own airframes, only components and assemblies for Boeing, it was playing a vital role in the manufacture of airline transports that would help launch Boeing on a path to become the world's premier supplier of piston- and jet-powered airliners.

As workers manufactured parts and assemblies for the Boeing 247, it seemed as though the Stearman Aircraft Company would never build another design of its own. In late December 1932, however, a young businessman named John D. Vette, Jr., contacted Schaefer to discuss construction and pricing of a special-order biplane for his personal use. Schaefer quickly fired off a reply reassuring Vette that the company was still in the business of building airplanes and was fully capable of complying with every aspect of his custom-built Stearman. Virgil

Simmons, a Stearman distributor based in northern California, had spearheaded the sale after teaching Vette to fly at the Boeing School of Aeronautics in San Francisco.

The airplane Vette wanted did not exist within the company's existing inventory of designs. It would have to be engineered and built according to Vette's specifications, and was exactly the type of challenge that chief engineer Short and his team were eager to tackle. Vette intended to fly the airplane as part of a nationwide promotion tour extolling the features of a new fastener for joining metal structures. The fastener, called a Huck rivet, had been designed by his brother-in-law Louis C. Huck. Once details of the contract were settled between Vette and Schaefer, Short and his engineers began the massive effort of making Vette's biplane a reality, and the contract stipulated that delivery had to be made no later than March 1933.

The engineering department was soon busy working long hours on the two-place, open-cockpit design, which Short dubbed the Model 80 "Sportster." It would prove to be the company's last hurrah in a long line of purely commercial aircraft produced by the company. To power the biplane, Vette had specified a Pratt & Whitney supercharged, nine-cylinder Wasp Jr. T3A static, air-cooled radial engine rated at 420 horsepower at 2,200 RPM. It would turn a two-blade, Hamilton-Standard



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The forward cockpit and a small windshield are visible in this photograph taken with the cover panel removed. The three small circles on the side of the fuselage covered parachute-type flares that could be ejected, slowly drifting downward to illuminate a landing area at night. (Courtesy Kansas Aviation Museum)



controllable-pitch propeller that would improve takeoff and climb performance.

The engine was equipped with an Eclipse electric starter and the electrical system included a 15-volt, 15-ampere Eclipse generator with a control box and a master switch in the aft cockpit. An Exide storage battery operated the instrument panel lights in both cockpits. Based on slide rule calculations, Short estimated that the Model 80 would have a maximum speed of 175 mph and a cruising speed of 150 mph. Range would be about 700 statute miles, rate of climb 1,500 feet per minute with a service ceiling of 20,000 feet.

Other specifications included:

- Wingspan: upper panels – 35 feet, lower panels – 27 feet
- Total wing area: 275 square feet
- Empty weight: 2,436 pounds
- Maximum gross weight: 3,500 pounds
- Fuel capacity: 104 gallons
- Stall speed: 58 mph

The Model 80's basic airframe would be based on the Model 4 series but with a number of changes that

would set it apart from its older siblings. For example, to increase speed the engineers chose the NACA 4412 airfoil that provided a good cruising speed without sacrificing slow-speed handling and landing characteristics. A new empennage was designed that incorporated an offset rudder tailing edge to help counteract the Wasp Jr.'s torque during takeoff and climb. The fixed, semi-cantilever main landing gear featured only two struts per side and was an advance compared to the braced configuration that had served Stearman airplanes well since 1926.

Throughout the design process Short worked closely with Vette to ensure the Model 80 would be exactly what the customer ordered: "Stearman engineers are collaborating with Vette and have extended themselves in an effort to design a plane not only to meet the special requirements, but to be the last word in comfort, utility and speed." The aircraft featured dual flight, engine and wheel brake controls in both cockpits as well as a dual set of Pioneer flight and engine instruments. In the aft cockpit only, workers installed Sperry gyroscopic attitude and heading indicators for flying by reference to instruments. As a final touch, Vette ordered a sliding canopy to cover the aft cockpit.



In 1927 Mac Short, a graduate of the Massachusetts Institute of Technology with a degree in aeronautical engineering, worked side-by-side with Lloyd Stearman to transform their designs into production aircraft. As with Stearman, Short was a native Kansan and a key figure in the Stearman Aircraft Company from 1927 until the late 1930s. As chief engineer, he led the team that created the overall design of the Model 80 and Model 81.

(Courtesy Wichita-Sedgewick County Historical Museum)

Sparing no expense, Vette also specified installation of a Lear Radioaire receiver set with a frequency range of 235-720 kilo cycles, and one headset. In a time when very few personal aircraft carried radio communication equipment, the Model 80's airframe was bonded to minimize interference with the radio. A final specification



In 1932 the Stearman company was given responsibility for marketing the Northrop Beta 3D monoplane – an all-metal, semi-monocoque airframe designed by Jack Northrop for wealthy sportsman pilots. The photograph was taken in 1934 after the factory rebuilt the ship after an accident and installed another Pratt & Whitney Wasp Jr. radial engine.

(Courtesy Kenneth D. Wilson)

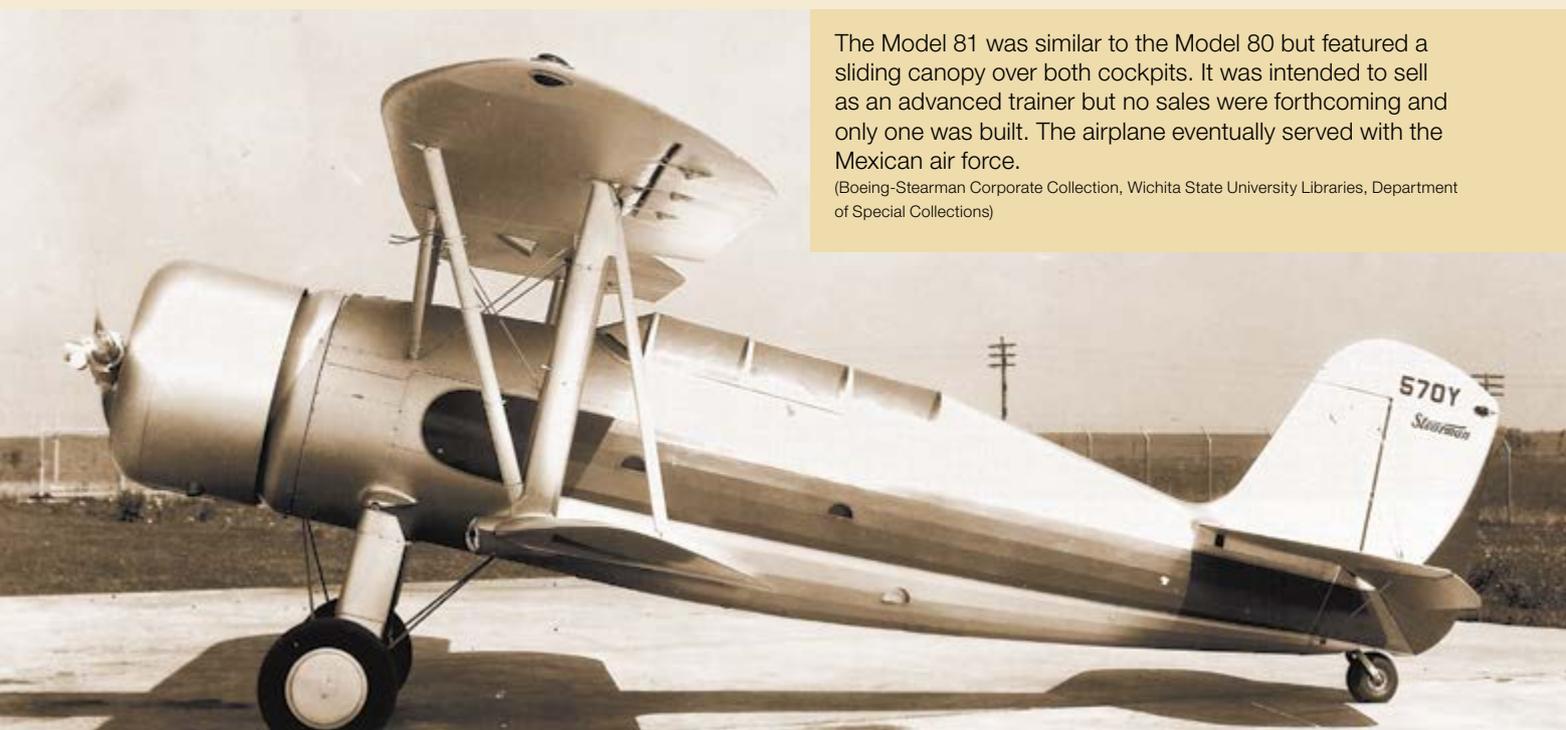
called for retractable landing lights manufactured by C.M. Hall, as well as five Elgin flares that were electrically discharged for illumination of the ground if a forced landing was necessary at night.

Despite every effort by the engineering department and factory workers, the company missed Vette's firm delivery target of March 1933. First flight did not occur until April 9 with veteran test pilot Eddie Allen at the controls. Following the initial flight, Allen performed a series of tests and declared the ship ready for delivery. In mid-April Vette arrived in Wichita and handed a check (amount unspecified) to Schaefer after inspecting the airplane to ensure that it met all of his custom

requirements. Donning a leather helmet and goggles, he climbed into the aft cockpit and took off for California. During the next few years Vette flew the Sportster extensively on cross-country excursions to promote the Huck rivet as well as for personal trips.

Although the climate for sale of new commercial aircraft was slowly improving by 1933, the market was still lethargic. Despite that fact, Stearman officials applied for certification of the Model 80 and received Approved Type Certificate (ATC) No. 504 May 3, 1933. Vette's one-of-a-kind Stearman creation eventually passed out of the hands of Vette, was modified with a 420-horsepower Wright J6-9 Whirlwind radial engine and eventually was sold into Mexico. The fate of the Model 80 remains unknown.

Later in 1933 the Stearman company followed up the Model 80 with the Model 81 that was essentially identical to the Sportster but was aimed at the market



The Model 81 was similar to the Model 80 but featured a sliding canopy over both cockpits. It was intended to sell as an advanced trainer but no sales were forthcoming and only one was built. The airplane eventually served with the Mexican air force.

(Boeing-Stearman Corporate Collection, Wichita State University Libraries, Department of Special Collections)



Another view of the graceful Model 81 taken at the Stearman factory in 1933. Note landing lights built into the lower wing panels. The airplane was powered by a Pratt & Whitney Wasp Jr., radial engine rated at 420 horsepower driving a two-blade, ground-adjustable propeller. The checkerboard-covered Ford Model AA fuel truck is also noteworthy.

for a military training aircraft. Only one airplane was built, apparently by the company on speculation that it would spark sales, particularly in Latin and South America. The Model 81 featured a multi-segment sliding canopy over both cockpits and was originally powered by a Pratt & Whitney Wasp Jr. rated at 400 horsepower. Later it was replaced with a Wasp Jr. developing 420 horsepower, and later still that nine-cylinder radial was replaced by a 420-horsepower Wright R-975-E2 (J6-9).

In 1933, the Model 81 was flown on an extensive demonstration tour of South America by Stearman sales and export representative, Clark M. Carr. His efforts, however, went unrewarded and eventually the handsome biplane was sold into Mexico and may have served with the Mexican air force. In October the airplane was certified through an amendment to the Model 80's ATC and was also approved for operation on Edo floats. In a final effort to arouse interest in the design, the company proposed building the Model 82 but the concept never went beyond the drawing board.

It would have been equipped with two forward-firing, 0.30-caliber machine guns in the upper wing center section and one 0.30-caliber machine gun mounted in the aft cockpit. Provisions for carrying small bombs on racks under the lower wing panels also would have been available.

The Sportster and the Model 81 helped the Stearman Aircraft Company survive into the mid-1930s when Congress loosened the purse strings allowing the United States military to acquire new aircraft. One of the airplanes designed to compete for Army and Navy contracts was the Stearman Model 70, but that is another story. 

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.

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## **From Mandatory Service Bulletin MTB-34-02**

### **Navigation – FDSA Software Update**

**Date:** September 13, 2019

**Effectivity:** King Air Model C90GTi, Serial Numbers LJ-2129 through LJ-2169; Super King Air Model B200GT, Serial Number BY-207, BY-239, BY-250 through BY-364; Super King Air Model B200CGT, Serial Number BZ-1; Super King Air Model B300, FL-954, FL-1010, FL-1031 through FL-1203; Super King Air Model B300C, FM-66 through FM-83.

**Reason:** To correct TCAS Fly-To cues that are currently presented relative to the horizon on the PFD but should be presented relative to the aircraft symbol. This could result in incorrect visual cues to the flight crew.

**Description:** This service bulletin provides instructions to install updated FDSA software.

**Compliance – Mandatory:** This service document must be accomplished within 600 flight hours or 12 months from receipt, whichever occurs first.

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acceptable standard practices in the aviation industry and governmental regulations.

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## **From Service Letter MTL-21-01**

### **Air Conditioning – Inspection of the Cabin Altitude and Differential Pressure and the Cabin Rate of Climb Indicators for Installed Shipping Plugs**

**Date:** September 10, 2019

**Effectivity:** King Air Model 100, Serial Numbers B-1 through B-247; King Air Model B100, Serial Numbers BE-1 through BE-137; King Air Model 200/B200, Serial Numbers BB-2 through BB-2021; King Air Model 200C/B200C, Serial Numbers BL-1 through BL-171; King Air B200GT, Serial Numbers BY-1 through BY-351; King Air Model B200CGT, Serial Number BZ-1; King Air Model 300, Serial Numbers FA-1 through FA-230, FF-1 through FF-19; King Air Model B300; FL-1 through FL-1182, FL-1184 and FL-1187; King Air Model B300C, FM-1 through FM-80 and FN-1; King Air Model 90 (Models 65–90, A90, B90 and C90), LJ-1 through LJ-2162 and LJ-2164; King Air Model E90, LW-1 through LW-347; King Air Model F90, LA-2 through LA-236.

**Description:** This service document provides instructions to inspect the cabin altitude and differential pressure and the cabin rate of climb indicators for installed shipping plugs and remove, if found.

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

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## From Multi-Engine Turboprop Communiqué # ME-TP-0016

**Date:** September 2019

### ATA 34 – Phase 3 B200GT and B300 King Air Pro Line Fusion Radar RTA-4122 Non-Volatile Memory Reset

Phase 3 Fusion aircraft equipped with the Collins Aerospace MultiScan RTA-4112 radar have internal

non-volatile memory (NVM) which captures component diagnostic data.

The NVM in the Radar Transmitter Antenna (RTA) currently has the potential to lock up when 991 entries are stored. When this lock up occurs, the radar will display a continuous WXR Fault and will need to be returned to Collins for the NVM to be cleared. Collins estimates that in normal operation the limit could be reached in approximately 330 flight legs. Collins has identified the root cause and will release Service Bulletin (SB) 8 for the RTA in mid-2020 to correct the issue. In the interim, to prevent the NVM from reaching this limit, Collins has released information document (IDOC) 0168-19 titled “Information and Usage of the RTA-41XX NVM Erasure Tool.” The IDOC provides procedures and lists equipment which will allow the NVM to be cleared in the field prior to it reaching its limit precluding removal of the RTA for clearing. Textron Aviation is recommending that aircraft with RTA-4122 have the NVM cleared during routine inspections until SB 8 is released and incorporated. The RTA-4122 was installed in production as standard equipment beginning at FL-1161 and was a factory option on BY-324 and after. Any phase 3 B200GT, B200CGT, B300, B300C aircraft could have also had the radar installed post-delivery.

### ATA 52 – Cabin Door Channel Part Number 50-430043-1329 Cracking

All

[Textron Aviation] continues to receive reports that channel part number 50-430043-1329 is cracking. This channel is located at the

cabin door hinge as shown in the picture above. When this channel cracks it causes damage to the hinge. This condition is more prominent on airplanes equipped with only one handrail cable although it can also occur on airplanes with the dual cabin door handrail if the cables are not rigged so that both cables can share the load of passengers using the door.



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Textron Aviation has developed a channel made from heavier material that can be used to replace the current channel. The procedure and part number of the new channel can be found in the King Air Structural Inspection and Repair Manual Chapter 52-00-01.

*The information provided in this column may be abbreviated for space purposes. For the entire communication, go to [www.txtavsupport.com](http://www.txtavsupport.com).*

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