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A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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Contents

2

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COVER PHOTO

Courtesy of Jim Kirvida and CustomFIRE

2

Cover Story – Wearing it Well

by Melinda Schnyder

12

Maintenance Tip – Revisiting Starter Generators

by Dean Benedict



12

18

Ask the Expert – Landing Gear Emergency Extension Differences

by Tom Clements

22

In History – A Tale of Two King Airs

by Edward Phillips



22

28

Value Added

32

Advertising Index

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An aerial photograph of a large cable-stayed bridge spanning a wide river. The bridge has two tall, light-colored pylons with numerous stay cables. In the foreground on the right, the nose and cockpit of a white Beechcraft King Air F90 are visible, flying towards the left. The river is dark blue, and the far bank is covered in dense green trees with some houses visible in the distance.

Wearing It Well

Master pilot celebrates 25 years of owning his Beechcraft King Air F90

by MeLinda Schnyder

Longtime pilot Jim Kirvida has owned many aircraft in the past half century, including Beechcraft, Cessna, Piper and more. “I typically tell my fellow aviators that I fly the Cessnas and I ‘wear’ the King Air. It’s the level of comfort that I have with N911CF. It fits me well.”



Jim Kirvida proudly reached 25 years of ownership of N911CF, a 1980 Beechcraft King Air F90, earlier this year. The president of Custom Fire Apparatus, Inc. in Osceola, Wisconsin, has previously owned and operated a King Air 200 (BB-843) and a King Air C90A (LJ-1198) as well as two Cessna 425 Conquest twin turboprop aircraft.

“I typically tell my fellow aviators that I fly the Cessnas and I ‘wear’ the King Air,” Kirvida said. “It’s the level of comfort that I have with N911CF. It fits me well: the allure, reliability, performance and cost of operation are all in line with our business operations, plus it is a real joy for me to fly. Charlie Fox and I have been through nearly every kind of aviation challenge one can experience as an aviator, except a catastrophic failure.”



In 2020, Jim Kirvida earned the FAA's Wright Brothers Master Pilot Award for more than 50 years as a pilot. He credits his father Mitch Kirvida for inspiring his aviation passion, which he has passed along to his two sons.



The Waseca (Minnesota) Fire Department took delivery of a new truck at the CustomFIRE facility at the L.O. Simenstad Municipal Airport (KOEO) in Osceola, Wisconsin. CustomFIRE's 1980 Beechcraft King Air F90 is in the background.

This 2018 photo shows the fleet of aircraft owned and flown by Jim Kirvida and Custom Fire Apparatus, Inc., a company focused on custom design and manufacturing of structural fire apparatus and rescue squads. Most of the company's facilities at L.O. Simenstad Municipal Airport (KOEO) in Osceola, Wisconsin, were previously used to manufacture Bellanca Champion, Cita-bria, Scout and Decathlon aircraft.



How it started

Kirvida purchased N911CF in April 1998. It wasn't his first airplane, or even his first King Air; we'll have to go back further to get the full story.

Kirvida's grandfather Elmer Abrahamson was a small town blacksmith in Minnesota who in 1931 transitioned from smithing to building fire trucks. Kirvida's father Mitchell was Elmer's son in law, and he joined the business when he was discharged from the Navy after World War II. Eventually Mitchell ran the day-to-day operations, and Kirvida joined him after active duty training to maintain the Navy's aircraft followed by college.

In October 1982, Kirvida left the family business to grow Custom Fire Apparatus, Inc., a side business he had established four years earlier in Osceola, less than 50 miles from the Twin Cities and near the Minnesota/Wisconsin border.

The business began as a manufacturer of grass fire-fighting equipment and mobile water tankers, then moved into building high quality and creative brush trucks (designed to assist in fighting wildfires), tankers and light rescue apparatus. They also became known as a refurbishment destination of other makes of fire apparatus, which gave them insight into how apparatus should be built to resist the effects of time, action and the elements.

Today, CustomFIRE has nearly 40 employees and custom builds several trucks every month, from light rescue squads and brush trucks to the most elaborate heavy rescues and pumpers. The company designs each apparatus with Pro-E engineering software and laser cuts each part to ensure a technologically advanced precision fit and quality. Their custom designs combine the best of modern technology and the personalized traditions of the historical fire apparatus industry, Kirvida said. In recent years, they've used their engineering and manufacturing capabilities

“Their custom designs combine the best of modern technology and the personalized traditions of the historical fire apparatus industry ... ”

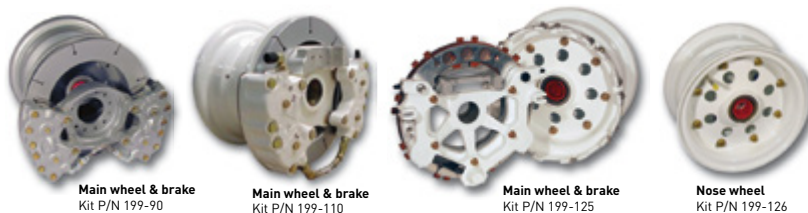
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Despite buying and selling many aircraft over the years, Jim Kirvida says his 1980 King Air F90 has survived trade-off for the past 25 years of ownership, in part because it has never left him stranded.



Mitch Kirvida bought this 1955 Beechcraft Bonanza F35 in 1973 and his son Jim Kirvida flew it as the first aircraft for the family business. The aircraft has remained in the Kirvida family for 50 years.

to branch into Specialty Vehicles and Industrial Fire Protection product lines.

“Now, 40+ years later, both of my sons, Wayde and Ryan, are carrying on the tradition of manufacturing fire apparatus,” said the 75-year-old Kirvida. They also are carrying on a family legacy of flying.

Kirvida said his passion for aviation came from his father, who grew up on a farm in Gackle, North Dakota, and told his son of being thrilled every time he saw an airplane. Kirvida started flying while on active duty in the Navy, just nine months out of high school. He was assigned to training at the Naval Air Reserve Training Unit-Memphis in September 1966, and on the weekends he would take flight lessons at the Navy Memphis Flying Club, not possible on his airman recruit’s income but with the financial help of his father. He first soloed in October 1966, flying a Piper Colt, and once he had a job and money, he received his private pilot’s certificate in 1972.

“My father was just as excited as I was,” Kirvida said. “Only a year later, he purchased N4919B (a 1955 Beechcraft Bonanza F35), and a few years later my wife and I gifted him his first lessons. In 1979, my father and I flew N4919B to Wichita and ordered a new A36 Bonanza, and we had Olive Ann Beech assist with color selections.”

Kirvida’s father purchased the F35 for the business, and since Kirvida was the only pilot in the family at the





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Jim Kirvida has owned N911CF for 25 years. The 1980 Beechcraft King Air F90 is one of three Beechcraft King Airs he has owned in his 51 years as a pilot.



“It only took a few flights in the weather to realize I had made a mistake, as I sorely missed the speed and over-the-weather pressurization of the King Air.”

time, he earned his instrument rating in 1974 in order to fly the aircraft on sales and delivery trips. A year later Kirvida earned his multiengine rating so he could fly the company’s new cabin class Cessna 411 twin-engine, allowing for all weather operations and bringing prospective customers to Minnesota for factory visits.

“In 1979, after becoming a pilot himself, my father purchased the A36 Bonanza to replace the C-411,” Kirvida said. “Tragically, in 1991 my father died in an icing accident while piloting the A36.”

After leaving the family business in 1982 to focus on his own business, Kirvida continued to fly recreationally and to grow the CustomFIRE business by building relationships with customers and suppliers around the world.

“In 1983, the first aircraft CustomFIRE operated was in partnership with two other business pilots,” he said. “It was a 1969 Piper Comanche C model. In a perfect partnership, I flew its wings off and the others shared all expenses!”

CustomFIRE’s first solely owned and operated aircraft, a booted Beechcraft Baron B55, was purchased in 1986. A few months later, the first pressurized aircraft, a Cessna 414, was added. The company and Kirvida

have owned many aircraft through the years. In 1992, Kirvida transitioned to multi-turbine, training in the company’s Cessna 425 Conquest, then acquiring his first King Air – a model 200 (BB-843) in 1994.

“In 1996, I sold the King Air 200 and purchased a new Cessna Caravan 208,” Kirvida said. “I wanted a new aircraft and thought the Caravan would suffice for business travel as well as recreational (on floats). It only took a few flights in the weather to realize I had made a mistake, as I sorely missed the speed and over-the-weather pressurization of the King Air. The Caravan was sold and the decision was made to purchase another King Air 200. Unfortunately, this was 1998 and the 200s had increased in value by more than a half million dollars. On the rebound, I purchased an F90, which provided similar performance in a smaller and easier to hangar package.”

That was the beginning of his long relationship with N911CF, a 1980 Beechcraft King Air F90.

“The lower purchase price of the F90 allowed us to own and operate a second turboprop, which at first was a C90A and later became another Cessna 425 Conquest,” he said. “In 2018, the Conquest was sold and the company purchased a Cessna Citation 560 (V/ Ultra). Now, some 22 years later, with the jet experience and a type rating accomplished, I was ready for another Caravan Amphib to replace the jet. The F90 has survived trade-off every time. Neither the 200, the C90A, nor the F90 have ever left me stranded for mechanical reasons; I can’t say the same for the other multiengine turboprops we’ve operated.”

How it’s going

Three years ago, Kirvida had EFIS avionics installed in the F90, and he plans to purchase new 5-blade props before the end of the year. He also wants fresh exterior paint; the current paint job was completed in 1996 by the previous owner, NASCAR driver Bobby Labonte.

Besides N911CF, Kirvida currently owns and operates a 1949 Piper PA-11-115 Cub Special, 1955 Bonanza F35 (the one his father purchased as the family business’ first airplane and has been in the Kirvida family for 50 years now), 1978 PA-18-150 Super Cub on floats,

2000 American Champion 7GCBC-160 Explorer and 1999 Cessna Caravan 208 Amphibian. The aircraft are based at the neighboring New Richmond Regional Airport (KRNH).

Kirvida has been an active pilot continuously now for 57 years. He has slightly over 15,000 total hours, which includes more than 12,000 of multi – nearly 5,000 hours flying King Airs. He’s accumulated all of his hours as a private pilot with airplane single engine land & sea, airplane multiengine and instrument ratings, and a CE560 type rating.

“I owe much to aviation, for how it has helped grow our family business and, of course, without the business one could not have warranted the variety of aircraft I’ve had the joy of piloting,” Kirvida said. “There were years when I flew in excess of 400 hours, but saved thousands of hours of driving and dozens of nights in a hotel. With the King Airs came far more comfortable travel, fewer trip hours and the ability to be home every night.”

CustomFIRE has grown from a one-person, part-time business operating from a 1,600-square-foot converted hangar on the L.O. Simenstad Municipal Airport (KOE) in Osceola to employing nearly 40 people and set to begin construction on a 24,000-square-foot fabrication and assembly building, which will bring the total footprint to 75,000 square feet of space for



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offices, inventory, manufacturing, training and delivery. Most of the company's facilities were previously used to manufacture Bellanca Champion, Citabria, Scout and Decathlon aircraft.

"Explicitly, since 1986 CustomFIRE's sales outreach and resulting growth is linked to its use of corporate aircraft," Kirvida said. "At the start, our factory-direct sales of fire apparatus required that the same person(s) engineering the fire trucks during the day, needed to travel and work jointly with the purchasing committees, wherever their location, and usually during the evenings. In my own situation, aircraft have allowed me as owner to make sales visits to and develop personal relationships with fire chiefs throughout the Midwest and East Coast regions. This was a distinct advantage that the competition could not duplicate."


Even with the convenience of emails, Zoom meetings and Dropbox services to exchange information, Kirvida said there are situations when the aircraft are vital to operations: from same-day emergency parts deliveries to sudden-notice repositioning of sales and service representatives and factory visits to their many component vendors. Most recently, he said, CustomFIRE has been engaged in the marketing and manufacturing of industrial fire apparatus, requiring frequent trips to the refineries and terminals of Texas and Louisiana.

The aircraft also are used for personal travel and humanitarian missions.

"My entire family, all 17 of us, have enjoyed the rewards of personal air travel for more than 30 years now," Kirvida said. "Both of my sons are active pilots, and on many occasions, we have mobilized two or more aircraft in order to have sufficient passenger seats."

Over the years, there have been many instances where the aircraft were used for charitable purposes, and Kirvida said among the most rewarding were the many years of flying the WWII 8th Airforce Pilots and Bombardiers on a day trip, with destinations ranging from Charles Lindbergh's home and museum in Little Falls, Minnesota, to the EAA Aviation Museum in Oshkosh, Wisconsin, and beyond.

In 2020, Kirvida earned the Federal Aviation Administration's Wright Brothers Master Pilot Award, awarded to those with 50 or more years of piloting experience. He credits three of his closest pilot friends for writing nominations on his behalf.

"This award is pinnacle of my accomplishments, a recognition I wish could have been shared with the person who inspired my passion of aviation – my father Mitch Kirvida," he said. 



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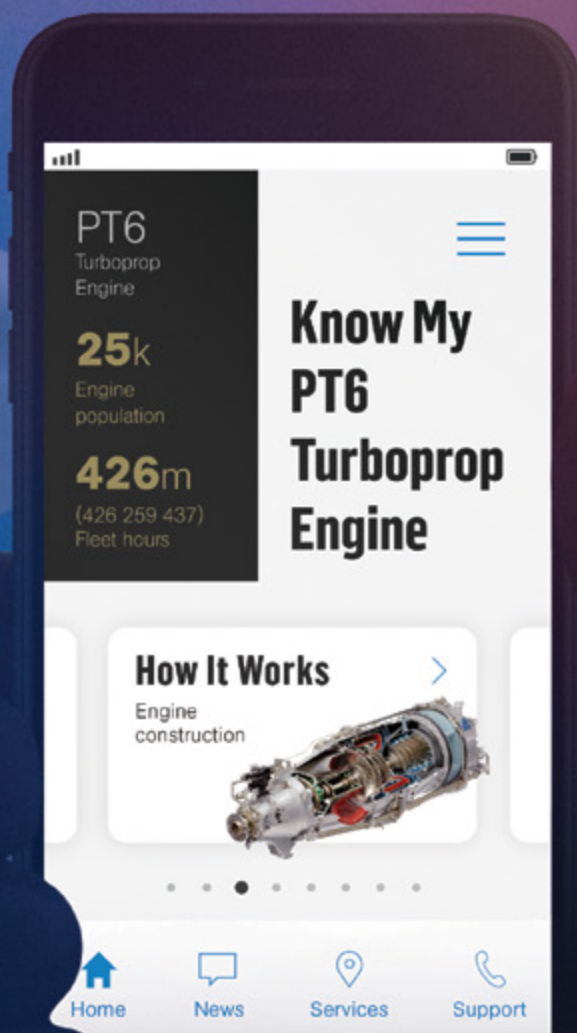
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Revisiting Starter Generators

by Dean Benedict



If you hit the starter switch in your King Air and nothing happens, or if you get a “gen out” light while in flight, starter generators will become top of mind. Generally speaking though, starter generators are not too problematic in most King Airs. The notable exception is the “Infamous -001” found in King Air 300s and 350s (more on that later).

The majority of King Airs flying today use one of three starter generator models. It’s common practice to refer to them by the manufacturer part number (23048-016, -018 and 23085-001) rather than the Beechcraft part number. My apologies to anyone flying a straight 90, A90, B90 or B100, as your starter generators will not be covered here.

Part Number: 23048-016

This is the most common starter generator used on King Airs; it is found on all 200s and B200s, all F90s and later model C90s. It incorporates a wet drive spline. The -016 is *not* subject to periodic spline lubrication or starter gear checks. For this reason, many King Airs that came with -018s, (early C90s, some E90s, straight 100s and A100s) have had their engines converted to accommodate the 23048-016. This involves installation of a Pratt & Whitney Service Bulletin during engine overhaul. Consequently, there is no benchmark serial number among C90s that identifies which type of starter generator it may have.

Part Number: 23048-018

Model E90s, early C90s, straight 100s and A100s all had starter generator, part number 23048-018. It has a dry drive spline which must be lubricated every 400 hours. The starter generator must be removed so the spline can be lubed. Additionally, the starter gear must be inspected for excess wear using a special tool developed by Pratt & Whitney specifically for this purpose. Failure to perform the drive spline lube on a -018 results in premature wear of the spline itself. If not detected and remedied, the spline will wear out the starter gear inside the accessory gearbox at the rear of the engine. Replacement of the starter gear requires removal of the engine accessory gearbox. This gets very expensive. The 400-hour drive spline lube on a -018 is cheap insurance against this situation.



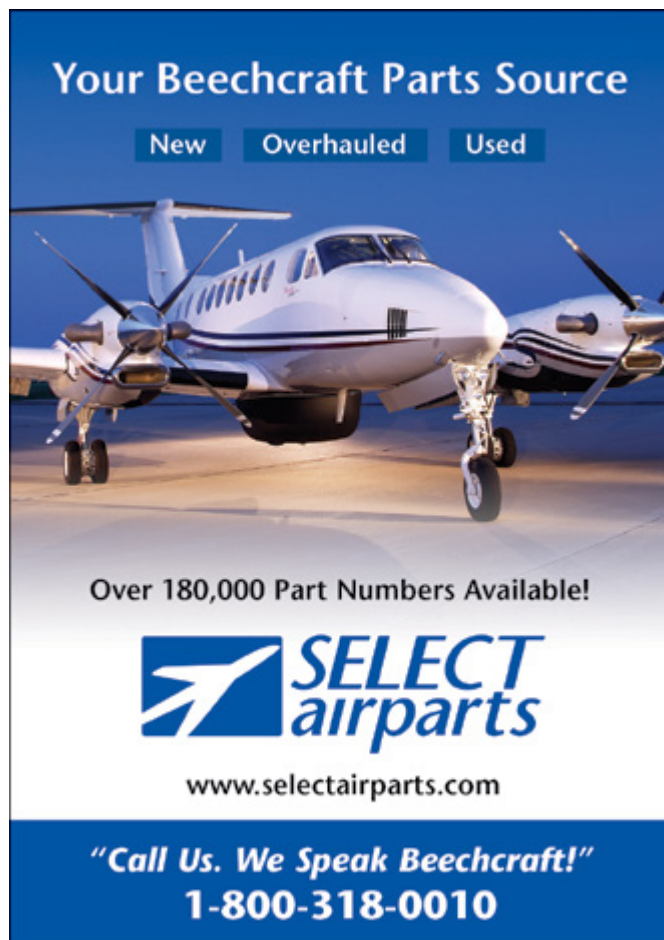
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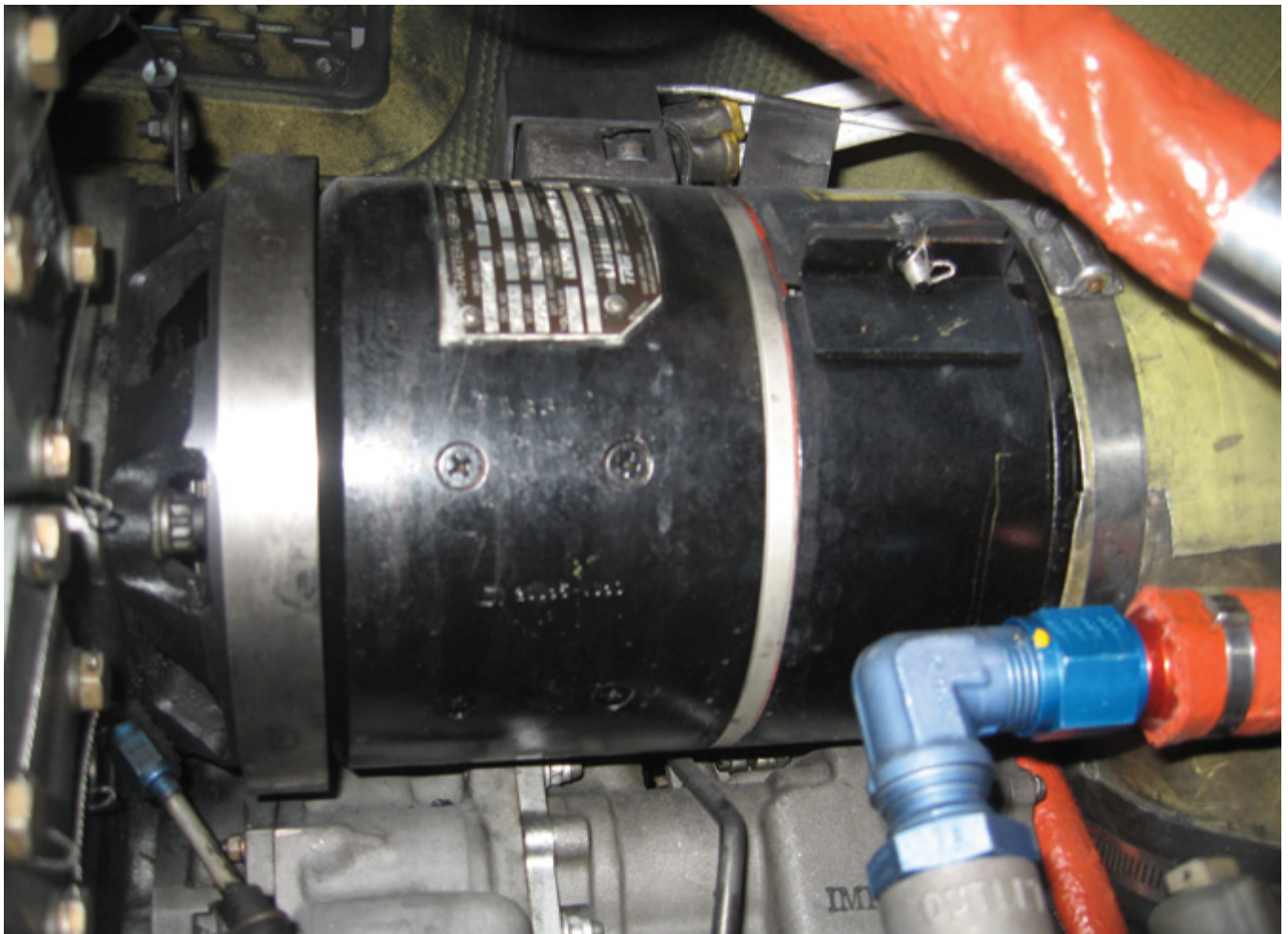
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A starter generator installed on a King Air.

If you fly a King Air with -018 starter generators, you might want to check your logbooks to verify that both your starter generators are getting the drive spline lube at the required interval. Logic might dictate you look in your engine logs, but starter generators are an airframe item. Although attached to the engine, starter generators are engine accessories and the aircraft manufacturer (Beech) decides which accessories they want to use. Accordingly, all maintenance information regarding starter generators belongs in the airframe book. Maintenance on anything that came with the engine from the manufacturer (Pratt) belongs in the engine logbooks. Starter generators and tach generators are airframe items. Fuel controls and high-pressure fuel pumps are engine items. Unfortunately confusion abounds on this issue. It is not unusual to find airframe information in the engine logbooks and vice versa, so check all your logbooks to make sure you don't miss anything.

Brushes

Both the -016 and the -018 starter generators are due for overhaul at 1,000 hours or when brush wear is down

to minimum. Brushes should last 1,000 hours unless subjected to extreme use. A high volume of starts (as in high-cycle, low-time aircraft) will wear the brushes down faster.

There are those in the field who, if they found brushes worn-out before the 1,000-hour mark, would try to save money by changing the brushes only. In fact, there are some who subscribe to the idea of just changing the brushes until the unit fails completely. Changing just the brushes may be penny-wise, but is pound-foolish.

The problem with new brushes installed in the field is that the brushes won't seat properly. New brushes have a straight edge but the armature is contoured. This makes the contact between the brushes and the armature very poor. Severe arcing at startup and at altitude is the result. Arcing burns up the armature and pits the new brushes. A vicious cycle ensues: the armature and the brushes degrade rapidly in their fight to obtain a better fit together. So the effort to save money by rebrushing the starter generator only serves to hasten the failure of both the brushes *and* the armature.

The brushes on your starter generators are checked at every phase inspection. Whenever I found brushes worn





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“It’s important to know that an overhauled starter generator comes with new brushes that have been properly seated ... done through the use of specialized equipment ... ”

down before the 1,000-hour mark, I would overhaul or exchange the unit at that time. It’s important to know that an overhauled starter generator comes with new brushes that have been properly seated (contoured) to the armature. This is done through the use of specialized equipment that spins the armature without putting current to it, and it can take many hours.

Overhauls and Exchanges

If you shop around, you can find an exchange -016 for as little as \$1,200. My sources in the industry tell me that \$1200 barely covers the cost of changing the bearings and brushes on the core units they receive for overhaul. Keep this in mind when it comes to core charge bill-backs. If the core unit you send back needs *anything* beyond bearings and brushes, you will get a bill-back on that core. I remember a pair of -016s I sent in for overhaul – one needed a new end bell and the other needed its armature completely re-wound. The overall cost was double the exchange price. This is par for the course with starter generators as the rotatable pool ages.

If I were to come across a low-time King Air with starter generators approaching 1,000 hours for the first time, I would recommend overhaul providing the owner could afford the added downtime. I hate to see a relatively new unit tossed into the rotatable pool in exchange for one that’s been around the block many times, barely meets minimum specs, and will probably need a new armature (or more) at the next overhaul, providing it makes it that far.

The Infamous Part Number: 23085-001

The starter generator found on King Air 300s and 350s is Part Number 23085-001. It is very similar to

23048-016, but for some reason the bearings in this particular model tend to fail early. And when a bearing fails, the unit destroys itself – hence the “infamous” description.

The 23085-001 has the same 1,000-hour overhaul interval as the other units discussed, but in my experience, very few of them make it. For this reason, I always advised my 300 and 350 customers to exchange or overhaul their 23085-001 starter generators at around 600-700 hours.

When a -001 goes, it is always at the most inconvenient moment – you’re on a trip and you need to fly. You call around for exchanges only to find there are none available! Now you must search for a unit to buy outright for \$12,000-\$15,000.

But let’s say you find an exchange for \$3,000. You need it immediately. In the crate it weighs 50-plus pounds and costs \$600 for overnight shipping service. Then there’s the labor to remove and replace the unit on short notice at outcall rates. Once installed, your core unit goes back to the vendor and is found BER (Beyond Economical Repair). These days, full core value on a 23085-001 can range from \$10,000-\$20,000. All in all, this is a \$25,000 adventure once it is over and done. So, save yourself time, money and untold aggravation by overhauling or exchanging your -001 starter generators early.

One parting shot: In the unlikely event that you have a -001 that makes it to 1,000 hours, it will likely be found BER at overhaul and you will be paying the full core value anyway. That’s just the way it is with this part and it’s one of the reasons why they are suddenly scarce when you are desperate for one.

The *only* time I recommend that an aircraft owner exceed maintenance requirements and do something early, is because I have seen that it will save money in the long run. I am very respectful of an aircraft owner’s maintenance dollar. I think you will agree that 3,000 ounces of prevention by early compliance is worth the 25,000 pounds of cure needed when you wait until the final hour. **KA**

Dean Benedict is a certified A&P, AI with over 45 years of maintaining King Airs. He owned and ran Honest Air Inc., a maintenance shop that specialized in Beechcrafts with an emphasis on King Airs. Currently, with BeechMedic LLC, Dean consults with King Air owners, operators and maintenance shops on all things pertaining to King Air maintenance. This includes troubleshooting, pre-buys and maintenance management. He can be reached at dr.dean@beechmedic.com or 702-524-4378.

HALO 350

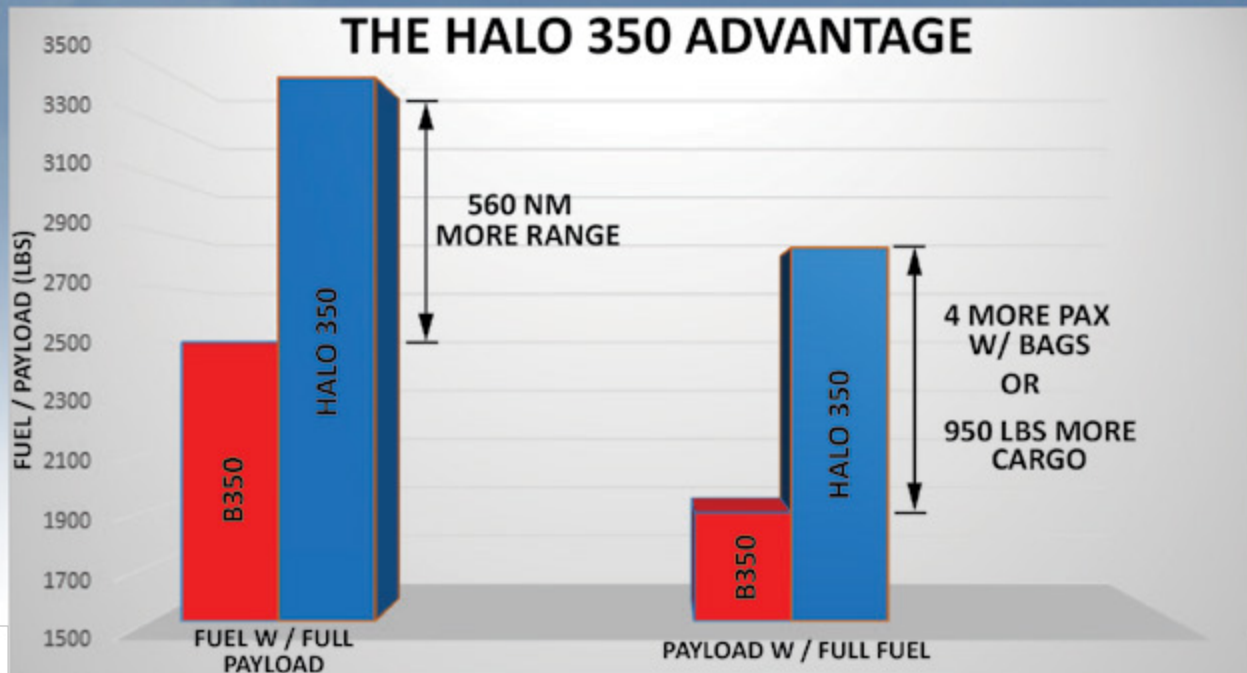
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Payload Increase	950

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Landing Gear Emergency Extension Differences

by Tom Clements

This is a question I've published in the past, but is a good one to repeat for those who may not have owned a King Air when it was published earlier.

I was looking through some BE-200 landing gear information and wondered about the following:

For 200s and B200s with the electro-mechanical gear, the checklist says that airspeed should be below 130 knots and states, "Do Not Stow the emergency gear extension handle after you have pumped the gear down sufficiently to get all three green lights."

For the B200s with the later hydraulic gear, the checklist makes no mention of slowing down first and

specifically states that if all three green down lights are illuminated to go ahead and "Stow the emergency gear extension handle."

Would you please clarify why there is a difference? If you have any other comments on peculiarities and other differences in these landing gear systems, feel free to throw them in too!

I personally do not believe the 130 KIAS figure is very important but, by being at a slower speed, the initial



opening of the nose gear doors is a little easier, since their leading edges tuck a bit into the air flowing past the nose. In the hydraulic system, those first pumps merely remove the pressure that is holding the gear up and gravity will now take over and do much of the rest. Since the relative wind helps the mains extend but hinders the nose, the mains fall to what appears to be fully extended – but they’re not locked – whereas the nose ends up at about a 45-degree angle. So it still takes close to 100 pumps on the red handle (even more than those needed in the mechanical system!) to finally get all three green

lights to come on as the locking takes place.

There is so much mechanical advantage designed into the manual ratchet device associated with the electro-mechanical system that pumping it past the point of the gear being fully down and locked could lead to damage ... probably bending an actuator rod or nose gear brace since there is no more room for further travel of the gear. Since taking even an extra half-stroke or so to stow the handle could cause damage, it’s not advisable. After all, the mechanic is going to have to jack the plane and see what’s wrong anyway, right?

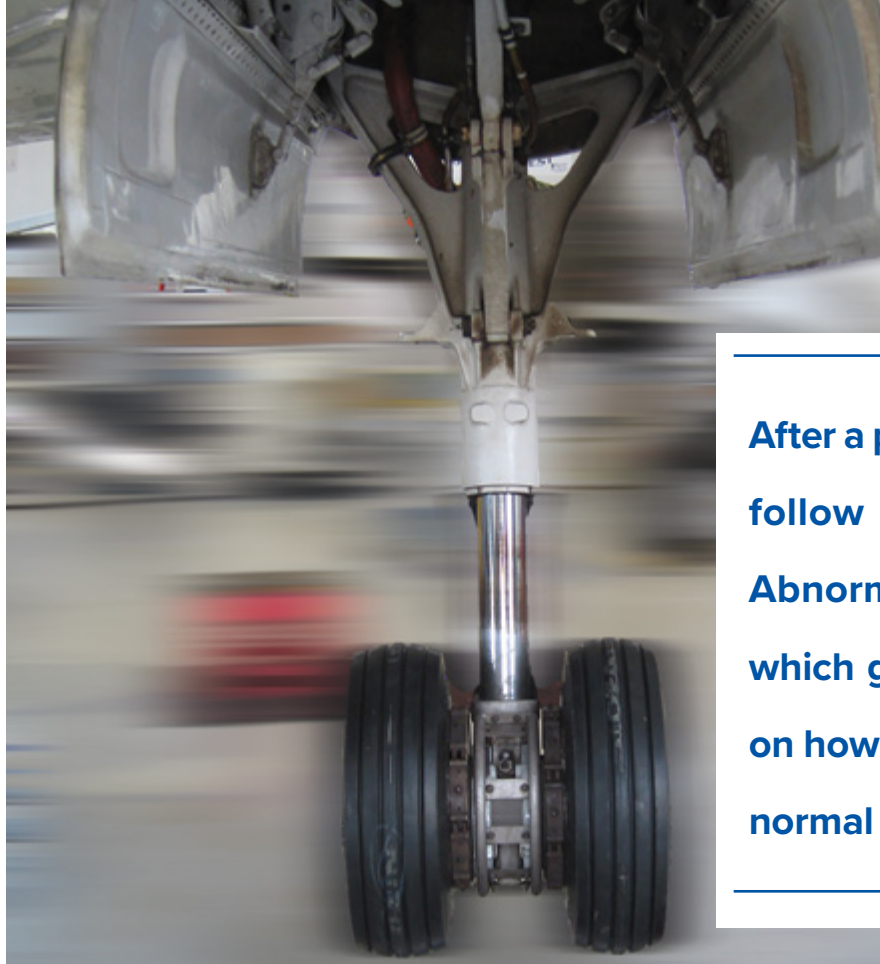
The main reason for stowing the handle in the hydraulic system is that when the handle is down to floor level, it relieves the pressure in the emergency extension lines. Once the green lights come on, indicating the gear is mechanically locked in the fully down position, there is no reason to maintain the pressure there, so relieving it (1) leads to less chance of a leak developing, and (2) makes it possible for the gear to be retracted normally. (That is especially important if this was an in-flight emergency extension conducted for training purposes.) If

“The main reason for stowing the handle in the hydraulic system is that when the handle is down to floor level, it relieves the pressure in the emergency extension lines.”

the pressure is not relieved before the CB is reset and the gear handle is raised, often the motor will run in excess of the 14 seconds or so that triggers the automatic shutdown, including the blowing of the Landing Gear Relay circuit breaker.

You didn’t mention it, but I am sure you know the checklist for the procedure relating to the hydraulic system also specifically states to *not* stow the handle and, in fact, to keep pumping it often until jacks are under the jack points, if a green light will not illuminate. The thinking here is that even if the gear actuator wasn’t moving all the way to cause the lock to function, missing it by just a bit, sufficient pressure kept in the emergency extension lines may keep the gear extended until the maintenance folks get the jacks positioned.

One last comment: If you are doing a landing gear manual extension exercise for training purposes in the electro-mechanical system – either during a training flight or while the airplane is supported on jacks for routine maintenance – sometimes you may run into a little snag when the procedure is finished and the three green lights are on. Since the procedure directed you to not stow



After a practice manual extension, follow the steps in the Beech Abnormal Procedures checklist which gives specific instructions on how to get everything back to normal after the exercise.



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the handle, now what? The Beech Abnormal Procedures checklist specifically includes a procedure for getting things back to normal after a practice manual extension ... since, of course, at some time the handle has to be stowed to return to normal.

This extra procedure directs you to rotate the C-ring counterclockwise and let it return down to floor level. What this *should* do is release the manual system and allow the motor to again take control. The little snag is that, sometimes, it binds up and does not release. How do we know? Because the ratchet handle is still stiff and hard to move. Remember that we're not supposed to pump any more, due to the probability of damaging something, so stroking the handle again in hopes of releasing the binding is not a good idea.

Here's the technique that almost always works: Place the gear handle in the up position. (You will have to use the downlock release button since with the landing gear relay circuit breaker (CB) that pulled the handle's downlock hook remains engaged.) Now, "bump" the CB. What this means is to grasp the CB firmly between thumb and finger, push it in only until you hear the motor start to run, then immediately pull it out again. In other words, we give just a little bump to the motor. Invariably, this trick frees up what was binding the manual extension handle. Make sure the handle moves freely – which I am

sure it will – and go ahead and stow it in the retaining clip. Depending upon where you want the gear to be, either verify your airspeed is below gear retraction speed, push the relay breaker in, and watch the gear retract normally. Or leave the handle down, reset the breaker (the motor will probably run for just a fraction of a second) and verify normal gear down indications.

Thanks for the good question. I welcome readers to ask about anything at all, King Air related, and I hope I can provide a clarifying answer. ✈️

King Air expert Tom Clements has been flying and instructing in King Airs for over 50 years and is the author of "The King Air Book" and "The King Air Book II." He is a Gold Seal CFI and has over 24,000 total hours with more than 16,000 in King Airs. To order his books, go to KingAirBook.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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A Tale of Two King Airs

Beech Aircraft Corporation's versatile Model 300 and Model B300 exemplified the company's determination to keep a firm grip on the premier cabin-class, turboprop market segment

by Edward Phillips

As the decade of the 1970s came to a close, management at Beech Aircraft Corporation decided the time had come to expand the company's King Air product line. Although sales of the Model 200 *Super King Air* and its successor, the Model B200 that entered service in 1981, remained strong, the advent of Special Federal Aviation Regulation 41C (SFAR 41C) provided a window of opportunity for the airframe manufacturer to offer customers a more capable Super King Air.

Under provisions of SFAR 41C, the maximum takeoff weight (MTOW) could be increased beyond the limit of 12,500 pounds as prescribed by FAR Part 23, under which the Model 200 was originally certified in December 1973. Although temporary in nature, the new rule allowed small, propeller-driven airplanes to seek a MTOW of up to 14,000 pounds – a definite advantage that the company could not afford to ignore. The rule, however, also mandated additional airworthiness requirements to warrant the higher MTOW.

As a result, Beech Aircraft engineers began a systems and performance upgrade program for the Model 200 that would transform it into the improved Model 300. In addition to the higher takeoff weight, the latest version of the Super King Air would incorporate a number of significant upgrades. Chief among these were installation

of more powerful Pratt & Whitney Canada PT6A-60 turboprop engines each rated at 1,050 shaft horsepower (shp), new exhaust stacks and four-blade propellers.

The powerplants were enclosed in "pitot-type" cowlings that offered improved air intake efficiency at high altitudes compared with the previous cowling design. Other modifications to the basic Model 200 airframe included relocating the wing leading edge forward 5 inches and installing a 3,000-psi hydraulic landing gear system (replacing the electro-mechanical system used in the Model 200 series up until serial number BB-1193), and a multi-bus electrical architecture.

These and other systems modifications were made to Model 200 serial number BB-343 that also had served as the prototype Model B200. With company senior engineering test pilot Bud Francis in the left seat and



Introduced in 1983, the Model 300 Super King Air featured Pratt & Whitney Canada PT6A-60 engines and a maximum takeoff weight (MTOW) of 14,000 pounds. A lightweight version, known as the 300LW, was offered for the European market but was limited to an MTOW of 12,500 pounds. The Model 300 shown was one of 19 built for the FAA in the late 1980s. (Textron Aviation)

fellow test pilot George Bromley flying as co-pilot, the reengineered Super King Air first flew October 6, 1981. Nearly two years later on September 3, 1983, the pre-production prototype Model 300 took off from Beech Field under the command of company test pilot Vaughn Gregg.

In January 1984, Federal Aviation Administration (FAA) certification was granted to the Model 300 under an amendment to the Model 200's original Approved Type Certificate designated A24CE. Initial deliveries to customers began early that year. A total of 27 airplanes left the factory in 1984 followed by 60 in 1985 – the highest year of production for the company's new flagship Super King Air. Another batch was delivered in 1986 and 104 Model 300s rolled off the production line from 1987-1991. In addition, in 1987-1988 the company built 19 Model 300s to serve the FAA as national airway/navigation systems inspection and certification aircraft. These special King Airs were issued the distinct serial numbers FF-1 through FF-19.

The temporary nature of SFAR 41C essentially limited the number of Model 300s that could be built. When the regulation expired, it automatically terminated the airplane's production certificate, which occurred October 17, 1991. Facing a limited market in the United States for the "heavyweight" version of the Model 300, Beech

Aircraft turned its attention to offering the airplane as a "lightweight" version (MTOW 12,500 pounds) of the Super King Air to customers in Europe and other regions of the world.

With future expiration of SFAR 41C firmly established by the FAA, in 1988 Beech Aircraft announced its intention to develop the Model 300LW, although the standard Model 300 would continue to be available in the United States but only at a MTOW of 12,500 pounds, as permitted by FAR Part 23 rules. As for the Model 300LW, it received special certification under European airworthiness regulations at a MTOW of 12,500 pounds (the lower takeoff weight also reduced airway user fees that would have been higher if the 14,000-pound limit was approved). According to Beechcraft Corporation, from 1984-1994, a total of 230 Model 300 and 300LW were built. The 300LW Super King Air, however, were selected units built within the production run of the Model 300, and their data does not break out which ones were straight 300s and which were 300LWs. In addition, Beech Aircraft offered customers a kit that included an airspeed indicator with appropriate markings as well as specific pages that were inserted into the FAA-approved Airplane Flight Manual. The kit gave customers the ability to convert a Model 300 into a Model 300LW or reconvert to a Model 300.

Delivery of the King Air 350 started in March 1990 and quickly proved itself in the competitive market of the cabin-class turboprop.



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In terms of performance, the Model 300 had a maximum speed (in level flight) of 317 knots (365 mph) and a maximum cruising speed of 315 knots (363 mph). Maximum rate of climb (sea level) was an impressive 3,277 feet per minute (fpm), decreasing to 867 fpm (sea level) with one engine inoperative. Empty weight increased to 8,580 pounds compared with 8,060 pounds for the B200; zero fuel weight increased to 11,500 pounds from 11,000 pounds (B200). Best range of 2,273 statute miles was achieved at an altitude of 35,000 feet, decreasing to 1,215 miles at an altitude of 18,000 feet.

Always focused on the future, Beech Aircraft Corporation officials knew the Model 300's days were numbered, and as early as 1988, design of its successor was well underway. It would prove to be an airplane that lived up to its famous name – Super King Air – by being a “super-capable” hauler of both people and cargo. Dubbed the Model B300 Super King Air, the latest company flagship was introduced at the 1989 National Business Aircraft Association convention and would be marketed under the designation *Super King Air Model 350* (in 1996 the word “Super” was deleted from the designation of the B200, B300 and Model 350, which were rebadged as the *King Air*).

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The most salient alteration made to the Model B300 airframe centered on a 34-inch extension of the fuselage. The “stretch” was achieved by adding 14.4 inches forward and 19.6 inches aft of the main spar, respectively, according to Bob Pedroja, former project engineer for the Model 350. The three-foot extension increased the length of the passenger cabin to 19 feet, 6 inches and permitted the installation of two more windows on each side of the cabin, bringing the total per side to seven. In addition, overall wingspan was increased by 18 inches to 57 feet, 11 inches, and winglets were added to the wing tips.

The B300 retained the Pratt & Whitney Canada PT6A-60A turboprop engines of its predecessor, each still rated at 1,050 shp. From an operator’s viewpoint, however, the Model 350’s ability to take off (sea level, ISA conditions) with a full payload and fuel tanks full (539 gallons) was the most important improvement of all. First flight of the B300 pre-production prototype (serial number FA-1) occurred Sept. 13, 1988, under the command of Bud Francis. FAA certification was achieved December 12, 1989, under provisions of FAR Part 23 through Amendment 34 as applied to the Commuter Aircraft Category.

By taking advantage of the Commuter Aircraft rules, Beech Aircraft was able to boost the B300’s MTOW

(and maximum landing weight) to 15,000 pounds – a 1,000-pound increase compared with the B300 Super King Air. Empty weight rose to 9,051 pounds and zero fuel weight was increased to 12,500 pounds. The maximum speed was 315 knots (363 mph), and service ceiling exceeded 35,000 feet. Initial deliveries of the Super King Air 350 began in March 1990. The company also offered the Model B300C version that was equipped with a combined airstair/cargo door (measuring 52 inches by 52 inches) on the left side of the aft fuselage section. FAA certification of the cargo door version occurred in 1990. The Super King Air 350 quickly proved itself in the highly competitive cabin-class, turboprop market segment. 

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, Kansas. 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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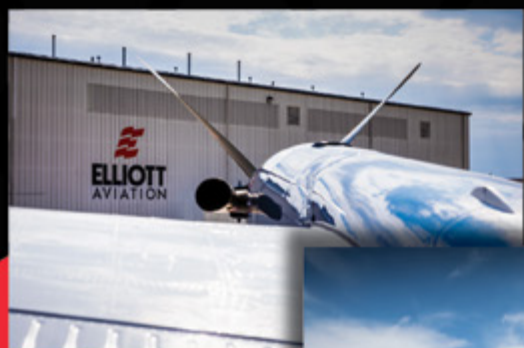
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VALUE ADDED



Garmin Autoland and Autothrottle to become retrofit installations in select King Air aircraft

Garmin has announced imminent Federal Aviation Administration (FAA) certification to bring Garmin Autoland and Garmin Autothrottle to the retrofit market, starting with select G1000® NXi-equipped King Air 200 series aircraft, and soon after, select King Air 300 series.

The certification marks the first time Garmin Autoland and Autothrottle have been offered as a retrofit solution, as well as the first certification with G1000 NXi. Full Autothrottle integration with the G1000 NXi reduces crew workload in the cockpit by managing aircraft speed and power and provides engine protection against potential engine exceedances. In the event of an emergency where the crew can no longer perform their duties, Garmin Autoland can control and land the aircraft without human intervention¹.

“Bringing Garmin Autoland and Autothrottle to the Beechcraft King Air, and for the first time to the aftermarket, is a tremendous step toward transforming the general and business aviation fleet with safety-enhancing autonomous technologies. The G1000 King Air retrofit program was launched in 2007, initially on the King Air C90, with now over 800 G1000 retrofits in the King Air fleet. We are pleased to provide these operators an upgrade path to Autoland and Autothrottle, demonstrating our deep commitment to developing and continually supporting G1000 and our customers that have trusted us with this investment in their aircraft.”
– Phil Straub, Garmin Executive Vice President and Managing Director, Aviation

Garmin Autothrottle

Garmin’s Autothrottle is fully integrated with the G1000 NXi system and provides automatic control of the engine power levers from takeoff to landing allowing for the proper power setting, negating the threat of a



possible throttle rollback. Power settings are based on manufacturer or user-configurable climb, cruise and descent schedules, including ITT limits. Additionally, Garmin Autothrottle provides ITT and torque protection by reducing power when the system senses potential overtemperature or overtorque conditions.

Autothrottle will also activate automatically in the event of an aircraft overspeed or underspeed situation and takes into account flap and gear position, providing additional peace of mind for pilots operating the aircraft. If Autothrottle detects an engine failure, it automatically sets the power lever on the failed side to a fixed position and adjusts the operative throttle lever to maintain the selected airspeed reference.

Garmin Autoland

Autoland determines the most optimal airport and runway, considering factors such as weather, fuel on board, runway surface and length, terrain, obstacles and more. In the event of an emergency, passengers can



activate Autoland by the press of a button, located in the back of the center pedestal for easy access. Autoland will activate automatically if the system determines it's necessary.

Once activated, the system calculates a flight path to the most suitable airport, initiates an approach to the runway and automatically lands the aircraft. The system takes into consideration a breadth of information and criteria and will automatically communicate with air traffic control (ATC) throughout the entire event, advising controllers and pilots operating near the aircraft of its location and intentions.

Throughout an Autoland activation, the system provides simple visual and verbal communications in plain language, so passengers have the information and know what to expect. The flight displays show the aircraft's location on a map alongside information such as the destination airport, estimated time enroute, distance to the destination airport and fuel remaining. Airspeed, altitude and aircraft heading are labeled in an easy-to-understand format and passengers also have the option to communicate with ATC by following instructions on the multi-function display.

During an Autoland activation, the Garmin Autothrottle system is used to automatically manage aircraft speed and engine power so the aircraft can climb, descend or maintain altitude as needed. If temperatures are conducive to ice accumulation, Autoland activates anti-ice and deice systems for the engines and control surfaces. On approach to landing, the system initiates

a controlled descent to the airport. If the aircraft needs additional time to descend or slow down during the approach, the Autoland system initiates a standard holding procedure. Once Autoland configures the landing gear and flaps, the aircraft begins its descent to the runway and lands.

New G1000 NXi Features

With the latest G1000 NXi upgrades, King Air owners can take advantage of additional features. Synthetic Vision Technology (SVT™) has been upgraded to now include a 3D exocentric view of the SafeTaxi® airport environment to aid situational awareness while taxiing.

Additionally, Garmin's recently announced PlaneSync™ connected aircraft management system² will simplify the lives of King Air³ owners and operators by automating database updates, providing real-time remote aircraft status⁴ and automatically transmitting flight log and engine data to the cloud after landing⁵. The system also includes Emergency Descent Mode (EDM) as a standard feature that is enabled automatically in the event of a loss in aircraft pressurization.

Adding on to Garmin's revolutionary electronic stability and protection (ESP™) technology, one engine inoperative ESP assists the pilot in maintaining control in the event of a single engine failure. ESP pitch and roll limits will adjust to prevent excessive pitch or bank angles while the pilot performs single engine procedures.

Garmin Autoland and Autothrottle are planned to be available in the third quarter of 2023 for retrofit installations through the approved Garmin Authorized Dealer network for King Air 200 G1000 NXi installations and in 2024 for the King Air 300 series.


To learn more about the G1000 NXi upgrade and Garmin Autothrottle, visit Garmin.com/KingAir. For additional information about Autoland and the Garmin Autonomi family of autonomous safety-enhancing technologies, visit www.garmin.com/Autonomi.

- 1 See Garmin.com/ALuse for Autoland system requirements and limitations.
- 2 Active PlaneSync and database subscriptions required for automatic database updates. Active PlaneSync subscription plan required for flight log uploading. Features are available on-ground only and requires GDL 60 to have active LTE or Wi-Fi connectivity; signal strength and other factors may apply. See Garmin.com/PlaneSyncCoverage for LTE coverage details.
- 3 Available for the King Air 200 series.
- 4 Remote aircraft status requires active PlaneSync subscription. User's smart device must have internet connectivity. Feature is available on-ground only and requires GDL 60 to have LTE connectivity; signal strength and other factors may apply. See Garmin.com/PlaneSyncCoverage for coverage details.
- 5 PlaneSync engine and flight data logging capability will be available in 2024.



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Banyan Air Service Joins SmartSky's Network of Installation Partners

SmartSky Networks, the innovative air-to-ground inflight connectivity provider, announced Banyan Air Service as a new sales and installation partner. The Florida-based full-service Maintenance, Repair and Overhaul (MRO) operation is now offering services to install and upgrade private jets and turboprop aircraft to the fastest and most reliable connectivity solution in operation today.

"We are proud to provide more services than any other aircraft support facility in Florida and are committed to offering our customers the latest and greatest enhancements to their aircraft. As a sales and installation partner for SmartSky, we have experienced the system for ourselves. We are pleased to say it delivers an impressive connectivity experience, as advertised, and we are excited to bring this game-changing product to our customers," said Director of Avionics for Banyan Air Service, Danny Santiago.

Banyan is authorized to install both the SmartSky Flagship system for mid to large cabin jets as well as SmartSky LITE, the first-ever streaming-level connectivity solution for smaller business aircraft.

Santiago continued, "We do a lot of work on King Airs here and it is really exciting that these smaller business aircraft are going to be able to have a streaming-level IFC solution in a smaller 'footprint' platform. This will allow King Airs to upgrade to SmartSky's broadband connectivity, just like larger aircraft."

Based at Fort Lauderdale Executive Airport, Banyan is an FAA and EASA-approved repair station and has earned repair station designations and approvals for over 10 countries. The experienced MRO provider offers 24-hour, full-service operations for aircraft owners, charter operators, corporate flight departments, flight schools and government agencies. 



SmartSky's King Air equipped with their system shows the Full-Duplex Quad (FDQ) antenna on the underside of the aircraft.

McCauley Achieves FAA Certification for B300 High-performance Propeller

McCauley Propeller Systems recently announced that its newest C780 propeller for the Beechcraft King Air B300 series, featuring four aluminum swept blades and a 105-inch diameter, has successfully achieved certification from the Federal Aviation Administration (FAA).

The new high-performance propeller offers King Air B300 operators additional payload, increased takeoff and climb performance, reduced noise in the cabin and cockpit and greater time between overhauls.

"The McCauley C780 is a new, lightweight, scimitar blade design propeller that enhances the already legendary King Air flying experience," said Heidi McNary, vice president and general manager, McCauley Propeller Systems. "We're proud to continue to offer customers the quality and craftsmanship that aviators have come to expect from McCauley over the past 85 years."

With the new C780 propeller, King Air B300 owners and operators will experience:

- Propeller weight savings of more than 50 pounds
- Increased takeoff and climb performance
- Reduced noise in the cabin and cockpit
- Extended Time Between Overhaul (TBO) of 5,000 hours or 72 months
- Textron Aviation's 4,000 hours or 36-month limited propeller warranty

King Air B300 customers can have the propeller installed on their aircraft at a Textron Aviation Service Center or Authorized McCauley Service Facility without any additional modifications required.

For more information, visit <https://mccauley.txtav.com/en/products-overview>.

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