King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

MARCH 2025 • VOLUME 19, NUMBER 3 • $6.50

King Air Market Report

A buyer's rep assessment

ice shield
de-icing systems

MADE IN USA

WHAT DOES ICE SHIELD OFFER FOR KING AIR?

Pneumatic De-Icers
Ice Shield® PDI operates by activating the inflation tubes with air pressure to remove ice during both inflation and deflation. Available in PSA and standard applications.

Propeller Electro-Thermal Boot De-icers
Ice Shield® propeller de-ice boots prevent ice from forming on your propeller by heating the root of each blade.

Engine Inlets
Ice Shield® engine inlets de-icing systems protect the engine from collecting dangerous ice around the engine cowling.

Wire harnesses, Inflatable Door Seals and More! Contact us today!

SMR TECHNOLOGIES INC – ICE SHIELD DE-ICING SYSTEMS | **ICESHIELD.COM** | 1-800-767-6899

King Air
March 2025 Volume 19 / Number 3
A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

Contents

EDITOR
MeLinda Schnyder

EDITORIAL OFFICE
2779 Aero Park Dr.,
Traverse City MI 49686
Phone: 231-946-3712
Email: melinda@kingairmagazine.com

PUBLISHERS
Dave Moore
Village Publications

GRAPHIC DESIGN
Rachel Coon

PRODUCTION MANAGER
Mike Revard

PUBLICATIONS DIRECTOR
Jason Smith

ADVERTISING DIRECTOR
Jenna Reid
King Air Magazine
2779 Aero Park Drive
Traverse City, MI 49686
Phone: 816-699-8634
E-mail: jenna.reid@vpdcs.com

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

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

ONLINE ADDRESS
www.kingairmagazine.com

SUBSCRIPTIONS

King Air is distributed at no charge to all registered owners of King Air aircraft. The mailing list is updated bi-monthly. All others may subscribe by writing to: King Air, P.O. Box 1810, Traverse City, MI 49685, or by calling 1-800-447-7367. Rates for one year, 12 issues: United States $15.00, Canada $24.00 (U.S. funds), all other foreign $52.00 (U.S. funds). Single copies: United States $6.50, Canada/Foreign $9.00.

COVER PHOTO
King Air 360ER
Courtesy of Textron Aviation

2025 King Air

PHOTO CREDIT: AOPA

Market Report

From a buyer's rep perspective

by Chip McClure

I must admit, it was tempting to pull out the article on the King Air market I wrote last year about this time, change the dates and submit!

The reality is that not much has changed in the past year. We've seen some softness in the King Air 350 market, but other than that, if you're in the market to buy a King Air, it's still tough to find a nice airplane at a price that makes sense. It may be tempting to pay a premium and settle for a below-average airplane. The problem is these purchases often come back to haunt you in the future.

The lack of inventory may sound like good news for sellers, but the reality is that even with the market being incredibly tight, we're currently seeing downward price pressure. While nice examples of our beloved King Airs are hard to come by, there are other airplanes that may suit a buyer's needs and are more obtainable. In the past year, we've had acquisition clients who decided to purchase Socata TBMs, Cessna Citation M2/CJ2+/CJ3 models and Pilatus PC-12 aircraft instead of King Airs, simply because it was too difficult to find a King Air that met their requirements.

Availability of competitor aircraft is one factor creating downward price pressure in the King Air market. These include (clockwise from upper left): Socata TBM 910, Cessna Citation M2 Gen3, Pilatus PC-12, Beechcraft Denali.

PHOTO CREDITS: DAHER, TEXTRON AVIATION, PILATUS, TEXTRON AVIATION

The strength of the King Air market has always been the vast number of airframes produced. However, most of the King Air fleet was produced prior to the year 2000, and a stunning fact I just discovered is that the year 2000 was 25 YEARS AGO!

The glory days of Beechcraft production were the late 70s and early 80s. Beech was building more than 100 King Airs every year in the early 1980s! Production numbers have declined since. In fact, the company delivered fewer than 2,800 King Airs of all models in the past two and a half decades. During that same time frame, nearly 4,000 turboprops that are direct competitors to the Beechcraft King Air have been manufactured – and that number doesn't count the thousands of jets produced during the same period.

Why doesn't everyone buy a TBM 850 or M2 instead of a C90B? Or why not a Pilatus or CJ2+/CJ3 instead of a King Air B200/250?

Because there's just nothing like a King Air!

When you crunch all the numbers, consider all the factors and weigh all the pros and cons, it's hard to beat the venerable King Air.

Here is how the King Air market looks by model. Feel free to give me a call if you wish to discuss specific details; there are too many models and options to cover everything in a single article.

King Air 90 Series

The King Air 90 series encompasses several models, primarily divided by age roughly around the C90A/B model break. The market for legacy 90 series units is tight, but there are a lot of airframes. It's tough to find a pedigree airplane with Blackhawk engines and an upgraded Garmin panel. If you're less picky, the legacy 90 series airplanes can represent a good value. I've always been fond of the F90; it's a lot of airplane for the money.

C90GTi

B200GT

The later model King Air C90B/GT/GTi/GTx did represent a good value compared to the B200/250, but the scarcity of these airframes has leveled the playing field. Late model 90s are bringing a premium. Since they don't make them anymore, the fleet will continue to shrink.

King Air 200 Series

The 200/B200/B200GT/250/260 make up the King Air 200 series, representing most of the King Airs flying. Each model has its nuances and to some extent its own market. The center of the King Air universe is undisputably the King Air B200! The King Air 200 was introduced in 1974, and with the addition of several upgrades including -42 engines, the B200 made its debut in 1981. The King Air B200 would be in continuous production from mid-1981 until the last B200 was delivered to the Royal Flying Doctor Service in 2014, making it one of the longest production runs of any aircraft model. The B200 became such a staple that operators continued to order it for years after the model was replaced in 2008 by the B200GT, featuring -52 engines!

The length of the production run combined with the massive number of options and upgrades make the B200 market the single most complex market we follow. As time goes by, that complexity continues to increase. There has been a shift in what is considered legacy and what is considered late model. I think the break seems to fall at the 1999/2000 year mark.

As mentioned above, the later model B200s were produced in much smaller numbers, and many new B200GTs were exported because the market stateside was soft (recall what the U.S. economy was doing in the 2008-2009 time frame). The coveted 2000 or newer, U.S. pedigree, Blackhawk B200 with G1000NXi is a rare bird indeed! It is very difficult to determine fair market values of these late-model King Air B200s because we regularly see these aircraft sell at prices well above what we consider normal market pricing. When we do our sold ›

UNCLOUD YOUR WEATHER

STEER CLEAR OF STORMS WITH AUTO MODE ON THE GWX™ 8000 STORMOPTIX™ WEATHER RADAR. AVAILABLE ON SELECT GTN™ XI AND TXI™-EQUIPPED AIRCRAFT.

GARMIN.

The King Air 350/360 offers the double-club seating configuration, a distinguishing feature among aircraft of its size.

comparable research, we often hear, "It brought a premium because there's nothing else out there."

My advice to potential purchasers of B200s is to proceed with caution, do your homework and understand the market very well. It is easy to overinvest hundreds of thousands of dollars if the buyer is not careful.

King Air 300 Series

The King Air 300/350/350i/360 make up the 300 series, and like the 200 series, each one is related but in a separate market. For the sake of time, we'll cover the core of the market: the King Air 350. The 350 was introduced in 1990, replacing the King Air 300. It's longer than the 200/300 airframes, and its most notable difference is the full double-club seating arrangement. This makes the King Air 350/360 unique among aircraft of its size. You'll have to step up to a fairly large and expensive jet to find true double-club seating for eight adults!

If you are reading this as a King Air 350 seller, I don't have great news for you: It's

the only King Air market that has slowed down in the past year, mainly due to the fear that King Air 350s operated by Wheels Up are hitting the market and will eventually drive prices down. If you're a buyer, it is the only King Air market that seems promising right now, but that is subject to change quickly. We anticipate the new U.S. administration will reinstate 100% bonus depreciation, creating another buying frenzy, driving inventory down and prices back up.

New King Airs

We've recently helped clients purchase a factory-new King Air 260 and King Air 360 and even order a Beechcraft Denali, Textron Aviation's single-engine turboprop expected to earn FAA certification this year. The market for new King Airs is red-hot with prices for "new flips" that are high enough to require supplemental oxygen.

This is based on high demand and relatively low production numbers that have plagued all manufacturers since the pandemic. The bad news is availability is only going to get worse. The King Air is not only popular with owner pilots, businesses and charter operators, it's also very popular with our military, and they have placed orders (see box on this page) that will consume a good portion of new King Air production.

What does this all mean?

In summary, if you own a King Air, you've likely made a very good investment. If you don't own one yet but wish to, you have two options: Dig deep to find one or consider an alternative.

Want to order a new King Air? You should place your order as soon as possible. Or call me and we'll talk about the Denali; its streamlined design and ease of manufacture may make it the Beechcraft that you can actually get.

Did I just commit blasphemy? It is a Beechcraft – not a Cessna as originally planned – but it's not a King Air … or is it?

Stay tuned for more. There's an article in the works for *King Air* magazine that will compare the Denali with the King Air. Will King Air loyalists accept it? We'll all find out together.

Until then, happy buying and happy flying! KA

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

Military orders

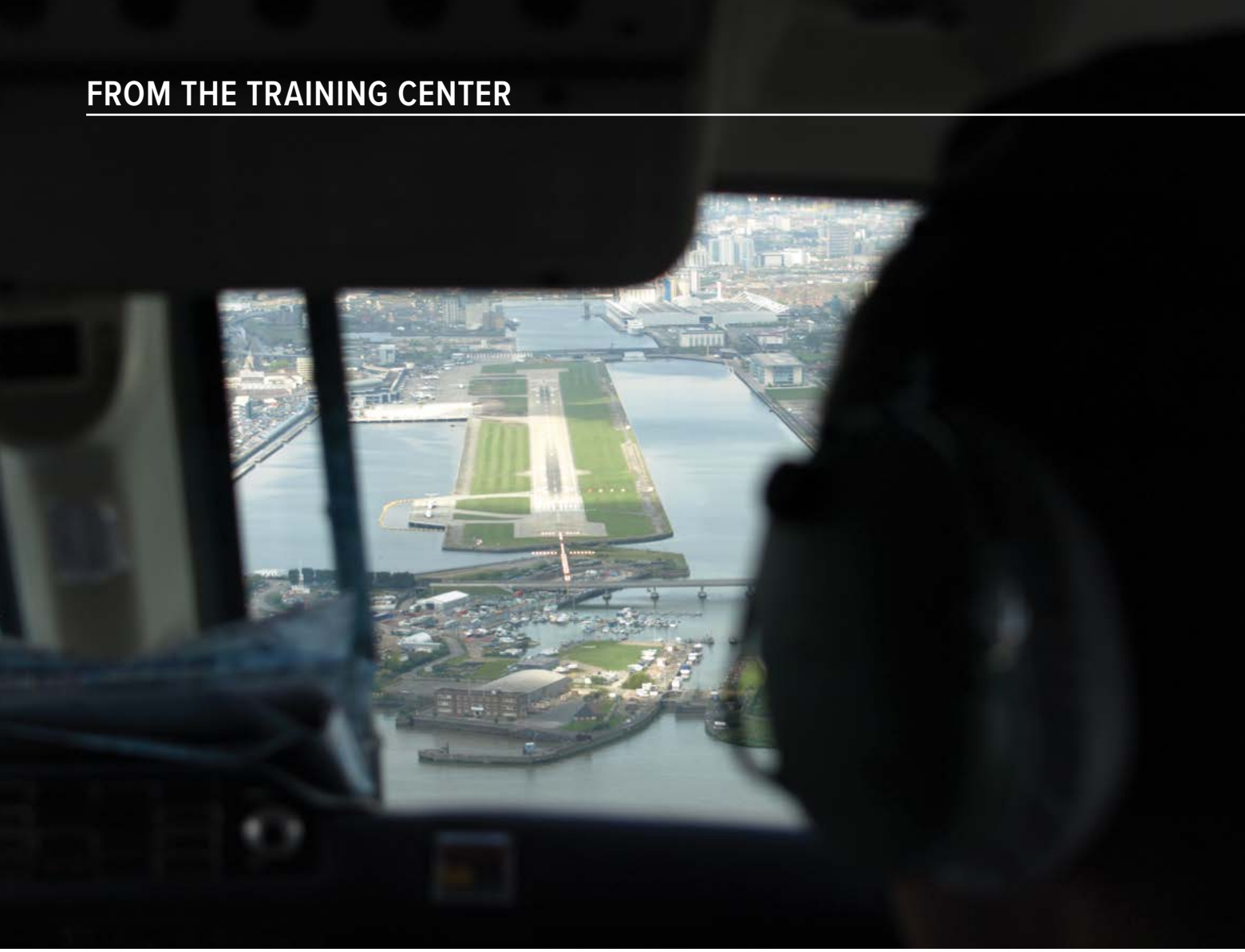
Among the recent Textron Aviation order announcements for King Air variants:

Jan. 27, 2025 – the first international sale of seven King Air 260 military multi-engine training aircraft. SkyAlyne and KF Aerospace selected the King Air 260 in support of the Future Aircrew Training program to train pilots for the Royal Canadian Air Force.

Nov. 19, 2024 – the first of two multi-mission King Air 360CHW aircraft (cargo door equipped and fitted for heavy weight operation) have been delivered to the Peruvian Air Force. Delivery of a second aeromedical evacuation-equipped King Air 360CHW is expected in 2025.

April 22, 2024 – delivery announced for the first two of up to 64 King Air 260 aircraft for Naval Air Systems Command's Multi-Engine Training System (METS). The aircraft, which will be known as the T-54A, replace the Chief of Naval Air Training fleet of T-44C Pegasus aircraft at Naval Air Station Corpus Christi.

Beechcraft King Air 260 Multi-Engine Training System (METS) T-54A for the U.S. Navy.



Are You a Stable Pilot?

by Pete Marx

I believe we all have heard the term stabilized approach. But what is a stabilized approach and why should you practice it?

One of the many aspects that makes the King Air appealing is that it is a forgiving airplane. This makes it a great platform to transition into from a slower, nonpressurized, reciprocating aircraft. Once experience is gained and we are comfortable in the King Air, we can sometimes push the limits of what the airplane can do.

For example, when the controller asks us, "King Air XYZ, can you make a short approach to runway xx?" Too often we find ourselves complying by performing a very close in base-to-final, with a 45-degree bank angle and high sink rate. In a turboprop airplane, the pilot can pull the power levers to idle at any time without concern for cooling the engine too rapidly. Consequently, rapid descents with the propellers in low pitch can be dramatically steep. The King Air is so forgiving that you may be able to get away with this maneuver. This can be fun; however, it is reducing our buffer of safety significantly. If it results in a successful landing, it will reward unsafe behavior.

What do I mean by buffer of safety?

Think of a target that represents safety, where the center of the target is the highest level of safety. As you move toward the outer rings, your safety level decreases until you are outside the target resulting in an accident

or incident. Our goal is to be as close to the center of the target as possible (See Figure 1). This will give us the biggest buffer of safety. If something goes wrong, we will have that buffer to fix it. If we are already operating near the edge of the target and something goes wrong, then we fall off the target and end up with an incident or accident (See Figure 2).

On Jan. 4, 2020, a King Air B200 was making an approach in instrument conditions at the Morristown, New Jersey, airport. The pilot reported that he saw an area of patchy fog over the approach end of the runway and leveled off to avoid the fog. He landed the airplane with about 3,000 feet of the nearly 6,000-foot-long runway remaining and felt the airplane hydroplaning while using a combination of wheel braking and the beta range of the propellers. The airplane subsequently overran the end of the runway onto grass and mud, causing the nose landing gear to collapse. The airplane sustained substantial damage to the forward fuselage.

Why was the pilot unable to stop in 3,000 feet? Stopping a King Air B200 in 3,000 feet should not be too difficult. Let's say the pilot was on speed and descending normally on the approach. We don't know what altitude the pilot leveled off. If the approach is flown to minimums and the runway is not in sight, the pilot needs to go around. By leveling off at some point then diving for the runway when it came into sight, the airspeed may have increased to a higher-than-normal approach speed. It is also possible that the decent rate was higher than normal. The pilot is no longer in the center of the safety target and has moved closer to the edge.

But all is well, right? The King Air is a forgiving airplane. The pilot is thinking, "I can stop this airplane in 3,000 feet." Fast and max braking is used as the airplane touches down. The standing water, which was not accounted for, causes the event to go outside the edge of the safety target. The pilot has lost the buffer of safety, resulting in a runway overrun.

Figure 1

Figure 2

When imagining a buffer of safety in your flight operations, consider the center of the target (Figure 1) the highest level of safety and that your safety level decreases as you move toward the outer rings (Figure 2).

How do we stay near the center of the safety target?

We have all heard the saying, "A good approach makes for a good landing." A stabilized approach is a way to mitigate risks during the landing phase of flight. These risks could potentially result in a runway excursion, loss of control or collision with terrain. Following stabilized approach procedures, FAA best practices and aircraft checklists will keep us in the center of the target of safety, giving us a buffer for fixing excursions. This lowers our overall risk.

According to Chapter 9 of the FAA's Airplane Flying Handbook, there are seven elements of a stabilized approach.

- **Glide path**

  Typically a constant 3 degrees to the touchdown zone on the runway (obstructions permitting).

- **Heading**

  The aircraft tracks the centerline to the runway with only minor heading/pitch changes necessary to correct for wind or turbulence to maintain alignment. Bank angle normally limited to 15 degrees once established on final.

- **Airspeed**

  The aircraft speed is within +10/-5 knots indicated airspeed of the recommended landing speed specified in the airplane flight manual, 1.3 Vso or on approved placards/markings. If the pilot applies a gust factor, indicated airspeed should not decay below the recommended landing speed.

- **Configuration**

  The aircraft is in the correct landing configuration with flaps as required; landing gear extended and is in trim.

- **Descent rate**

  A descent rate (generally 500-1,000 feet per minute for light general aviation aircraft) makes for a safe approach. Minimal adjustments to the descent rate as the airplane approaches the runway provide an additional indication of a stabilized and safe approach. If using a descent rate in excess of 500 fpm due to approach considerations, the pilot should reduce the descent rate prior to 300 feet AGL.

- **Power setting**

  The pilot should use a power setting appropriate for the aircraft configuration and not below the minimum power for approach as defined by the AFM.

- **Briefings and checklists**

  Completing all briefings and checklists prior to initiating the approach (except the landing checklist) ensures the pilot can focus on the elements listed above.

If the approach is no longer within the stabilized approach criteria, a go-around should be initiated.

I'm sure the pilot of the B200 accident aircraft mentioned earlier in this article would have gladly traded the overrun for a go-around.

What is a best practice when facing an unstable approach?

According to Advisory Circular 91-79B, paragraph 5.2.1 – Unstabilized Approach: Deviations in airspeed, altitude, descent rate, glideslope, runway aim point and localizer control place pilots in a position where recovery to the desired flight path is unlikely. It is the pilot's responsibility to inform ATC when compliance with an instruction will result in an unstabilized approach.

Going back to our earlier example when the controller asks, "King Air XYZ, can you make a short approach to runway xx?" The best practice would be to reply, "Unable, we will need to continue downwind."

I can hear the grumblings of some King Air pilots after reading that last sentence. The controller may not be happy with your response, and you are not getting a shortcut to land early. However, you have now reduced your overall risk for that approach. If more King Air pilots said no to the types of requests that would result in an unstable approach, the controllers would be less likely to issue those requests. The controllers don't push the airliners into an unstable approach because those pilots say "unable."

We all know that the King Air can do some amazing things. Every time we make a successful landing that is not a result of a stabilized approach, it feels rewarding, making it seem like unstable approaches are fun, normal and not a problem. Not as obvious is the fact that an unstabilized approach is taking us closer to the edge of the safety target. We now have less of a buffer for recovery if something unforeseen happens that may result in an incident or accident. We can limit our overall risk if we practice stabilized approaches. KA

Pete Marx has more than 30 years of experience in the aviation industry, from flying as a captain and first officer on Beech 1900s, Jetstream 42s and Dash 8s for commuter airlines to flying cargo as a flight engineer and check airman in the Airbus 300 and DC-8 for DHL. He has been instructing in King Airs for the past 13 years and is currently an instructor at King Air Academy in Phoenix, Arizona.

DON'T LET OVERHAUL COSTS GROUND YOU.

The cost of overhauling your King Air 350 engine is soaring, with prices reaching new heights. Don't let uncertainty about future costs ground your aircraft. Blackhawk offers a smart solution: engine upgrades that deliver superior performance, enhanced reliability, and fuel efficiency while deferring the inevitable and costly overhaul.

Don't gamble on the future of your aircraft. Choose certainty with Blackhawk.

CONTACT BLACKHAWK TODAY
+1 (844) 832 4456 | info@blackhawk.aero

BLACKHAWK

BLACKHAWK.AERO

Tax Planning: Charitable Flying

by Daniel Cheung, CPA

Having been involved in the general aviation industry for over two decades, I have always recognized the positive contributions our industry provides to society. Whether it is responding to natural disasters, transporting veterans and ordinary folks needing medical treatments or relocating pets and wildlife – pilots and aircraft owners, fixed base operators and numerous other stakeholders in our industry step up to provide invaluable support.

The Internal Revenue Code offers support for aircraft owners who fly for charitable organizations. For aircraft owners who use their aircraft in a business, tax deduction is available for a variety of charitable uses of the aircraft. With tax law changes in recent years, business owners can deduct the full costs of operating the aircraft when the charitable flights are handled correctly.

Tax treatment for an individual aircraft owner

The flight needs to be conducted for a qualified charity. Numerous organizations are registered with the Internal Revenue Service as qualified charities. Educational, humanitarian and religious organizations generally qualify. An inquiry with the group that you fly for can confirm its status.

Deductible charitable flights must be directly related to a qualified charity's exempt purposes. Flying a patient for medical treatment, organized by a qualified charity, will be a tax deductible flight. Flight to a charity fundraiser gala or flying a charity's board member to attend a board meeting is not considered tax deductible charitable flight.

Only direct operating expenses can be deducted – fuel and oil. If you purchase a special insurance policy for the charitable flight, this premium is deductible. Any fixed costs cannot be deducted. You also cannot deduct the value of the time that you spend on a flight.

Deductible expenses for your charitable flying can be deducted on Schedule A, Itemized Deductions, on your personal income tax return, Form 1040.

Tax treatment for a business aircraft owner

The general rule for business aircraft deductions is that the flight is conducted for business travel. By definition, a charitable flight is not a business flight. With the recent changes to the tax code, however, a business owner can now take full tax advantage of certain non-business flying, defined as personal non-entertainment flight.

A PNE flight is a personal flight that is not for the entertainment of the taxpayer. A charitable flight will qualify as a PNE flight (despite the significant personal satisfaction and joy a taxpayer will experience). Medical and bereavement travel are other examples of PNE flights.

A PNE flight is treated as a tax-deductible compensation use of the aircraft by the taxpayer. Valuation of this compensation can be based on the SIFL (standard industry fare level) method. The valuation rate is published and updated by the IRS every six months. SIFL income shall be reported to the taxpayer as a noncash fringe benefit. By reporting the SIFL income to the taxpayer, the charitable flights are essentially fully tax deductible.

Income tax treatment can vary based on your corporate and aircraft ownership structure. Consult with your tax advisor for the proper treatment of your charitable flying. KA

Daniel Cheung, CPA, is the principal of Aviation Tax Consultants. Daniel is a board member of Angel Flight West (angelflightwest.org) and he encourages readers to identify a charity that aligns with one's values and enjoy some very satisfying flying!

PHOTO CREDIT: MINDJANA JONES

Attending King Air Gathering in Phoenix?

If you'll be in Phoenix for this year's King Air Gathering, March 19-22, Jet Center Foundation invites you to stay through Saturday and attend a night of elegance and generosity benefiting Angel Flight West, whose volunteer pilots fly people to medical appointments at no cost to the passenger.

The Arizona Jet Center Hangar Party 2025 is 5 to 9 p.m. on Saturday, March 22 at the Southwest Aero Hangar at Scottsdale Airport. All-inclusive tickets are $200 and include a glamorous night with a reception, dinner, open bar and live music, all set among exotic and collector cars, airplanes and fine art.

Learn more and buy tickets at *jetcenterevents.com*.

Power Rollback in a King Air?

by Joe Casey

I think I've got the best career ever. I wake up every morning, go to the airport and fly some of the coolest airplanes on the planet. In a typical year, I'll fly every variant of the Piper PA46, the Socata TBM and the Beechcraft King Air. Whether it's initial or recurrent training, flying one of our managed King Airs or ferrying an airplane to the far reaches of our spinning globe, I get to fly nearly every day. It's a privilege that I don't take lightly. I love my job!

The bottom line is I get to fly single-engine and multi-engine turbines nearly every week, and there is one major difference between flying the two: the MOR. MOR stands for "manual override," and it is a critical aspect of flying a single-engine turbine. But a multi-engine turbine does not have a MOR. Why?

To answer that question, we need to understand why a single-engine turbine has a MOR. A MOR (usually either a switch or a lever) allows the pilot to control the engine in the event of a power rollback. A power rollback is the nemesis of single-engine turbine operation and one of the least understood aspects of flying a multi-engine PT6-powered turbine. During a power rollback, the engine rolls back to idle, and the pilot cannot control the engine with the power lever. A rollback to idle is deadly because the propeller could windmill. A windmilling propeller causes an immense amount of drag that must be understood to handle properly.

In King Air emergency procedure training, the focus has traditionally been on a single engine failure. A failure

occurs when the Ng stops turning, when the ITT drops off the cliff, when the oil pressure reads below minimums. A traditional single engine failure usually has a whole host of caution/advisory lights illuminated and the gauges read so low that the offending engine is easy to identify. It is certainly a terrible potential, especially if the failure occurs at a critical time in flight. An engine failure just after takeoff can be deadly and the training community is right to train pilots to handle engine failures. But can an engine lose the ability to produce torque and not fail? Can a PT6 engine lose the ability to produce thrust but still have normal oil pressure and normal (albeit lower) ITT readings? Can a PT6 engine lose the ability to respond to pilot input? Yes, it can. It is called a power rollback, and it is a potential that I believe is one of the least understood emergencies in the King Air community.

Two of my favorite airplanes to fly are the Piper Mirage with the JetPROP conversion (hereafter referred to as JetPROP) and the TBM 7XX/850. Both are equipped with a PT6 engine and both have a prop lever to feather the prop. Some other single-engine airplanes (Meridian, M500, M600, M700) lack a prop lever, meaning the prop can only be feathered by shutting down the engine. However, in the JetPROP and TBM, the prop can be feathered by pulling the prop lever all the way aft, making it a useful feature in a training environment.

If you fly a JetPROP to a safe altitude (VMC conditions), you can bring the power lever to idle and feather the prop. If the pilot then pitches for 110 KIAS (an ideal gliding speed in this airplane) in a no-wind scenario, the rate of descent will be about 700 feet per minute, and the descent angle (observed with the flight path marker) will be 3.5 degrees down. This demonstrates that the JetPROP is a phenomenal glider with remarkable gliding characteristics in the event of an engine failure.

In a training event, I'll then advance the prop lever back to full forward and adjust the power lever to achieve 700 fpm and a 3.5 descent angle. Usually, this torque setting is 160 feet/lbs, equating to zero thrust (equitable drag as an airplane with a feathered prop). This is important because it is possible to know zero-thrust with the prop spinning at 2,200 rpm.

If the pilot pulls the power lever back to idle, the descent rate will increase dramatically to nearly 2,000 fpm, and the descent angle will plummet to over 10 degrees down. For just a 160 feet/lbs change in torque, there will be a 1,300+ fpm increase in descent rate, causing the airplane to dive another 7 degrees downward. That is HUGE.

The change occurs because the prop is now windmilling. In normal flight, the engine drives the propeller, but with a windmilling prop, the wind drives the prop and drag increases dramatically. In a JetPROP with a windmilling prop, the drag makes the airplane nearly impossible to land. Simply put, if the airplane were to approach the ground at 2,000+ fpm and 10+ degrees of downward movement, depending on airspeed there's not enough energy to arrest the rate of descent, and the airplane will crash.

In the PA46 community, the accident history in the last 15 months has been horrific. I've personally **counted 29 deaths in this time, with 11 fatal accidents.** Of those fatal accidents, at least four were from a probable/potential power rollback when the pilot did not feather the prop and did not advance the MOR to control the engine (NTSB reports not final). The impact forces with the excessive descent rate and descent angles rendered the crash

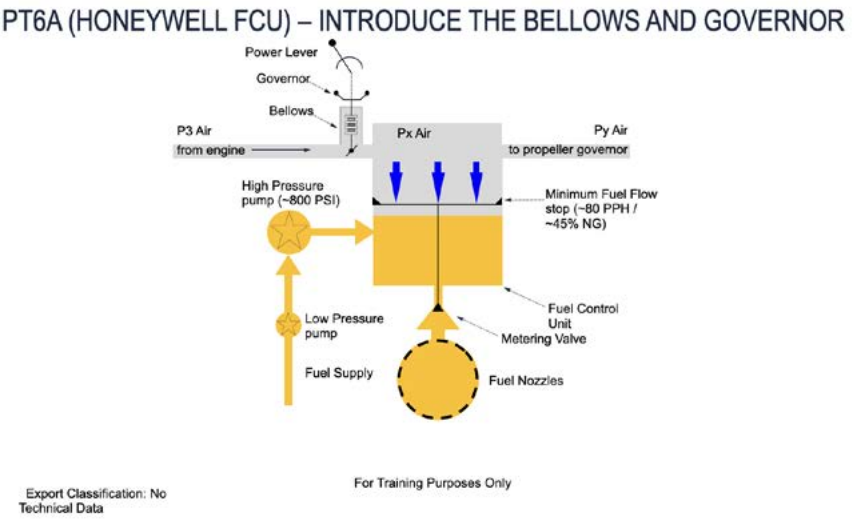
unsurvivable or nearly unsurvivable. But those accidents did not need to happen. Had the pilot engaged the MOR, the engine could have been easily managed.

There is a gap in understanding of a power rollback in the PA46 and TBM communities. Sadly, I have had pilots come to me for recurrent training in their turbine airplanes who have never touched the MOR. How anyone could get through an initial or recurrent training event and NOT have flown their turbine with the MOR is unfathomable to me. Yet it happens.

Based on purely anecdotal evidence from my decades of training in the single-engine turbine market, I believe the chances of a power rollback as compared to an engine failure to be a 10-1 ratio (I don't have exact numbers, and I don't think anyone else has accurate numbers either). Said another way: I believe a power rollback is 10 times more likely to happen than an engine failure in PT6-powered airplanes. Why? Most successfully handled power rollback events are not reported, and in the worst of power rollback fatal crashes, the engine is so mangled that the NTSB cannot determine the cause of the event. Many of the worst crashes are simply reported, with "subsequent power loss" as a contributing cause to the accident. My point? Power rollbacks do occur and are probably/arguably the primary cause of "loss of engine thrust" in a PT6 engine.

We have a lot of work to do in the PA46 community in teaching the dangerous flight characteristics of an airplane with a windmilling prop and how to use a MOR if we are going to improve the safety record in the turbine PA46. I hope we can reverse the present trend.

Here's where this discussion applies to the King Air community. The King Air does not have a MOR, but it has the same PT6 engine that is susceptible to a power rollback. Beechcraft (and the FAA) decided that a multi-engine airplane does not need a MOR because the offending



Joe Casey uses this diagram in training the power rollback.

engine can simply be shut down and the airplane flown with the good engine to a safe landing. Yet, the dastardly effects of a windmilling prop are still present. If the offending windmilling prop is not feathered, the excessive drag of the windmilling prop can cause huge aerodynamic problems. It can even cause a King Air to lose control if improperly flown.

A Piper Meridian, M500 and M600 have the identical engine as many of the King Air 200s. The only difference between the two engines is the King Air has the PT6-42, and the Meridian has the PT6-42A. That "A" means the fuel control for the Meridian has provisions for the MOR. Otherwise, the two engines are identical. Both are susceptible to a power rollback.

A power rollback occurs when there is a loss of Py pressure. Py pressure is modified P3 air, and P3 air is bleed air tapped from the engine's compressor section. P3 air is bled (or ported) from the engine and used for all sorts of important in-flight functions. It is used to pressurize the cabin, "poof the boots," create vacuum for pressurization control, and P3 air also is sent to the fuel control unit.

In the FCU, this P3 air is downgraded slightly and called Px air, and then it is modified again slightly and called Py air. This air is used to control the fuel that goes into the engine.

Fuel flow in the FCU is ultimately controlled by the metering valve, which is like the valve that is on the hand wand of a water pressure sprayer you might use to clean your home's siding, deck or concrete. You control the valve with your hand in a pressure sprayer but not in your PT6-powered King Air. Beechcraft knew a pilot could not be trusted to control the metering valve directly. They knew that a pilot might cause a flameout or a compressor stall if the metering valve were mishandled.

A flameout could occur if the metering valve were allowed to close too quickly and not allow enough fuel to flow to keep the flame burning in the combustion section of the engine. A flameout results in an engine failure, a bad potential for any regime of flight.

A compressor stall occurs when the metering valve opens too quickly, allowing fuel to be dumped into the engine at a higher rate than the compressor can provide compressed air. If you want the engine to speed up, you must also make the compressor turn faster. If not, the compressor will stall and the excessive pressures can destroy an engine internally.

To prevent both a flameout and a compressor stall, Pratt & Whitney devised an ingenious system: They married the compressor's speed with the movement of the metering valve. The engine uses bleed air (Py air) from the compressor section to move the metering valve.

When you move the power lever on your King Air, you are not controlling fuel. You are controlling air (Py air) that subsequently controls fuel. When you push the power lever forward, you increase the Py pressure in the fuel control, which opens the metering valve and sends more fuel to the thirsty engine. Pulling back on the power lever means lessening Py air and decreasing fuel flow.

If you've ever noticed, there's a bit of a delay between power lever movement and engine response. Turbine pilots become accustomed to this delay in response. This delay is because it takes a while for the compressor to speed up and provide the air pressure that moves the metering valve.

The FCU on a PT6 is a mechanical device, and mechanical things can break. If there is a break (leak) in the air lines bringing the Py air to the fuel control (or forward to the prop control), then there will be no Py pressure to move the metering valve, and the engine will roll back to idle. The pilot can move the power lever as much as desired, but there will be no engine response. The engine will remain at idle.

This power rollback causes the engine to roll back to idle, creating the question, "Did the prop feather?" If you're like most pilots in training, there will be some confusion in the cockpit. The engine will still be running, so you should have otherwise normal engine indications. However, the torque will be near zero, and if your power lever is forward (arming the autofeather function with the power lever angle switch), the autofeather system should feather the prop.

But what if the power lever isn't set to forward arming autofeather? What if you pulled the power lever back in an attempt to diagnose the issue? What if your King Air doesn't have autofeather installed?

Your King Air emergency procedure checklist will direct you to try to add power, check the Ng speed (which will be at idle if you are experiencing a power rollback), feather the propeller and eventually shut down

the engine. The critical action is to feather the prop, as the windmilling prop is your adversary. You won't need to restart the offending engine in flight since you won't be able to regain control of the power lever until the Py air leak is repaired.

In the King Air market, I have noticed a lack of understanding regarding the impact of a power rollback when conducting recurrent training. Furthermore, I've had few discussions about a power rollback within the King Air community during my 22 years of flying King Airs, and those have only occurred with the best training providers. It is as if there's a dark gap in understanding of the power rollback in this community.

Another system within the King Air that I find consistently misunderstood is the autofeather system. King Air pilots truly need to understand these two systems to operate a King Air safely. If you have a windmilling prop, you won't be airborne for long. Ensuring the prop is feathered in a loss of thrust scenario is critical.

When I administer an airline transport pilot (ATP) multi-engine practical test, the airman certification standards (ACS) require the candidate to shut down the engine and restart it in flight. I've completed hundreds of in-flight engine shutdowns and restarts in every type of King Air, and I've witnessed the unfortunate consequences of a windmilling prop.

During the ATP-ME practical test, I can pull the power lever of one engine to idle, prompting a response from

> **"I believe a power rollback is 10 times more likely to happen than an engine failure in PT6-powered airplanes."**

the pilot candidate and providing an ideal moment to consider the effects of a windmilling prop. When the prop is feathered, the King Air will surge forward due to the reduction of drag. Depending on the model of the King Air, a windmilling prop can lead to a decrease of more than 35 knots in airspeed. That's HUGE! One of the most important considerations when dealing with an engine failure (or a power rollback) is to ensure the prop is feathered!

It is true. You may need to feather a prop even if the engine has not failed. A power rollback can indicate an engine issue that doesn't lead to a failure but does necessitate feathering the prop.

Knowledge is power. Understanding the power rollback and a windmilling prop can be the difference between a successful single-engine landing (and a subsequent minor engine repair after landing) and a fatal crash after the King Air flips over on its back. Directional control is everything; handling a power rollback is one skill that every King Air pilot should fully understand.

If you seek additional information about the nuances of the power rollback and how it occurs within the fuel control system, I have a tutorial video on my website at *flycasey.com/videos.* KA

Joe Casey is the owner of Casey Aviation, Inc. based at KJSO in eastern Texas. His company manages four King Air aircraft and provides flight training in many models of airplanes. He has 16,800 hours of total flight time, more than 4,000 of which are in King Air airframes. He is a certified ATP-ME commercial pilot with ASEL/ASES, rotorcraft-helicopter/instrument and glider ratings. Casey is also a designated pilot examiner (DPE) with BE-300 type rating issuing authority up to the ATP level, and he also holds CFI, CFII, MEI, CFI-H, CFI-IH, CFI-G certificates. He has flown more than 75 North Atlantic crossings in King Air aircraft.

Women's History Month

Explore These Museums Honoring Female Aviators

Article and photos by MeLinda Schnyder

Above: The Kansas Aviation Museum in Wichita, Kansas, is unveiling a revamped "Women of Aviation" exhibition this spring. Opposite: In the foreground, Amelia Earhart pictured standing in front of her Lockheed Electra Model 10, and in the background, the last known surviving Lockheed Electra 10-E on display at the Amelia Earhart Hangar Museum in Atchison, Kansas.

The National Women's History Alliance has established March as National Women's History Month, with the goal of ensuring that women's history remains visible, valued and celebrated for all generations. In honor of this year's theme – "Moving forward together! Women educating & inspiring generations" – here are 13 destinations to find inspirational tributes to famous female aviators.

The Ninety-Nines, the international organization of women pilots for which Amelia Earhart served as the first president in 1931, moved its headquarters from New York City to Oklahoma City in 1955. The group opened **The Ninety-Nines Museum of Women Pilots** at Will Rogers World Airport (KOKC) in 1999 to display its large collection of artifacts and information on women pilots. Exhibitions cover the earliest flights to today, ranging from Ninety-Nines history to Women Airforce Service Pilots, or WASPs, to space exploration. They also have dedicated exhibits on famous aviators, including Amelia; participants of the first all-female air race in 1929; Marion P. Jayne, best known for racing her airplane twice around the world in 1992 and 1994; among others. *museumofwomenpilots.org*

While it's not technically a museum, you'll get a lesson in aviation history and a great meal at **LOUISE**, a modern cafe honoring Louise McPhetridge Thaden, who was born in Bentonville, Arkansas, in 1905 and raised there. The restaurant is open 8 a.m.-3 p.m. daily inside the Fieldhouse at Bentonville Municipal Airport (KVBT). Displays throughout the building delve into the life of the airfield and eatery's namesake. Louise set speed and endurance records as a pilot, earning her a spot in the National Aviation Hall of Fame. In 1936, she and co-pilot Blanche Noyes became the first women to win the Bendix Transcontinental Air Race. *louise.cafe*

The **Kansas Aviation Museum** in Wichita, Kansas, displays Louise's Wichita-built Travel Air that she flew to win the heavy class in the 1929 Women's Air Derby, the first women-only air race in the U.S. It is on loan from The Ninety-Nines. This month, the museum plans to open a remodeled "Women of Aviation" exhibition that ranges from early pioneers to modern-day trailblazers. It will also include a new section dedicated to Latinas in aviation. Also, among about

Louise Thaden won the heavy class of the 1929 Women's Air Derby in this Travel Air, on loan from The Ninety-Nines and on display in the Vintage Aircraft Room inside the Kansas Aviation Museum in Wichita.

This Beechcraft Model E18S-9700 (top) in the collection of the Vintage Flying Museum in Fort Worth, Texas, was the last aircraft owned by famed aviatrix Jackie Cochran (bottom).

15 indoor exhibits is one dedicated to Beechcraft. *kansasaviationmuseum.org*

The last known surviving Lockheed Electra 10-E, the same model Amelia was flying in 1937 when she vanished over the Pacific Ocean, is the centerpiece of the **Amelia Earhart Hangar Museum** that opened in 2023 in Atchison, Kansas, the aviator's hometown. One of just 14 produced, this aircraft was rescued from destruction and restored by an aviation enthusiast who named the airplane Muriel (in honor of Amelia's younger sister). The newly constructed art deco style hangar at Amelia Earhart Memorial Airport (K59) also houses a full-scale replica of Muriel's cockpit allowing visitors to climb inside. There are 14 immersive exhibit areas combining interactive STEM and historical storytelling. Atchison has other Earhart's attractions, including the **Amelia Earhart Birthplace Museum**. *ameliaearharthangarmuseum.org* and *ameliaearhartmuseum.org*

In Tucson, Arizona, the **Pima Air & Space Museum** examines women's contributions in military, commercial and civil aviation in the main hangar's Joyce M. Corrigan Women in Flight Gallery. The gallery's centerpiece is a Beech Bonanza and Lear 23, both formerly owned and flown by women. *pimaair.org*

The **EAA Aviation Museum** in Oshkosh, Wisconsin, houses a collection of more than 200 historic airplanes along with galleries and displays. One of the museum's current temporary exhibitions is "WASP: Women Flyers of WWII," highlighting how more than 1,000 volunteers served their country and overcame barriers to

Did we miss your favorite aviation museum that features an exhibit or artifact reflecting the role of women in aviation? Let us know at *melinda@kingairmagazine.com.*

become the first American women to fly combat aircraft. *eaa.org/eaa-museum*

The **National Museum of the United States Air Force** in Dayton, Ohio, debuted a series of displays titled "Women in the Air Force: From Yesterday into Tomorrow" in 2020. The multi-part exhibit has displays in each of the museum's buildings that contain one-of-a-kind artifacts used by women in the Air Force from many different eras. The content covers historical issues, changes in laws and attitudes and women's contributions to the Air Force mission. *nationalmuseum.af.mil*

One of the 30 exhibits of vintage aircraft and warbirds on display at the **Vintage Flying Museum** at Meacham International Airport (KFTW) in Fort Worth, Texas, is a 1954 Beech Super 18 that was the last aircraft owned by famed pilot Jacqueline "Jackie" Cochran. Beechcraft Model E18S-9700, serial number BA-31 N13JC, is being restored and visitors to the museum can see the progress inside the former WWII B-29 hangar. There are displays detailing Jackie's accolades as a pilot and her role in the formation of the WASPs, where she oversaw training of the women tasked with flying experimental Air Force planes. Follow the volunteer-led project online (*youtube.com/@HangaRatz*) or donate to the effort to get the airplane airworthy in time to attend EAA AirVenture Oshkosh 2025. Restorers have dubbed the airplane the Hollywood Bomber because it was owned by entertainer Merv Griffin in the 1970s. *vintageflyingmuseum.org/hollywood-bomber-twin-beech/*

Among the displays on aviation innovation in Northern California and beyond at **Hiller Aviation Museum** in San Carlos, California, is the "Women in Aviation" exhibition recounting the stories of 29 women from different countries and ethnic backgrounds who achieved their dreams of flight. Told through words and photographs, the women's stories span a century, from Bessie Coleman, the first African American male or female to receive a pilot license in

1921, to Martha McSally, the first American woman to fly in combat. *hiller.org*

Among the many attractions at the **Kalamazoo Air Zoo** in Portage, Michigan, is the "Women in Air & Space" exhibition displayed throughout the museum's Flight Innovation and Flight Discovery centers. There is an updated interactive timeline noting more than 100 years of contributions made by more than 50 women in the fields of aviation and space exploration, plus displays featuring pioneering females. There is also a temporary exhibit "Daughters of the Sky: The Women Airforce Service Pilots of WWII." *airzoo.org*

The **Smithsonian National Air and Space Museum** includes female pilots in nearly every gallery at its Washington, D.C., and Chantilly, Virginia, locations. If you're not able to visit in person – or if you miss a few as you're exploring the thousands of artifacts and displays – the Smithsonian has an excellent, though not comprehensive, online resource. See its online exhibit "Women in Aviation and Space History" at *airandspace.si.edu/exhibitions/women-aviation-and-space-history.* Take note that the museum's D.C. space is amid a multi-year renovation, with staggered gallery reopening dates between now and mid-2026. *airandspace.si.edu*

The **International Women's Air & Space Museum** at Burke Lakefront Airport (KBKL)

In Kansas, explore the Amelia Earhart Birthplace Museum (top) and other Amelia attractions in Atchison and visit the Kansas Aviation Museum in Wichita, which includes this Beechcraft display (bottom).

Bessie Coleman is among the featured pioneers at The Ninety-Nines Museum of Women Pilots in Oklahoma City.

in Cleveland, Ohio, collects and displays artifacts, photographs, articles, textiles, art and paper items relating to the history of women in aviation and space. Displays highlight Amelia Earhart, Ruth Nichols, Bessie Coleman, Harriet Quimby, Katharine Wright, The Whirly Girls helicopter pilots and more. There's also an online exhibition, "Defying the Odds: Exploring the Impact of Women and Aviation in the First Half of the Twentieth Century." *iwasm.org/wp-blog*

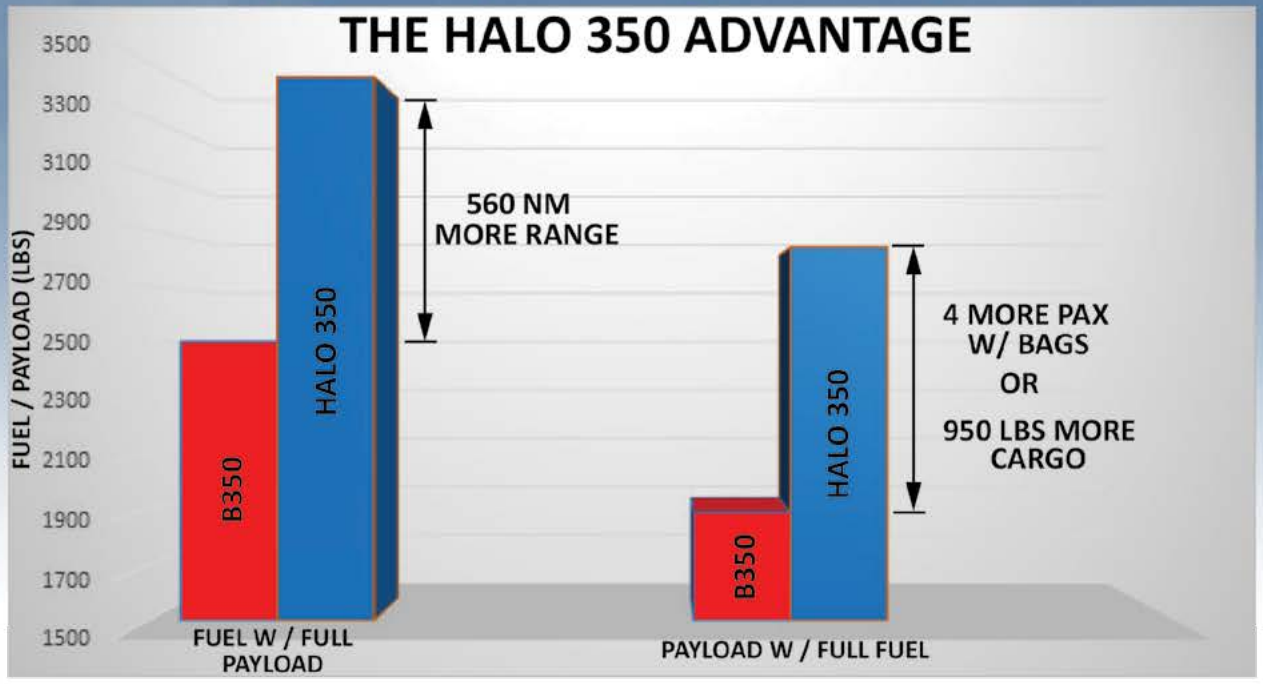
Texas Woman's University in Denton has several aviation collections, including Women Military Aviators, Air Race Classic, Whirly-Girls International, International Society of Women Airline Pilots, Association for Women in Aviation Maintenance and Ninety-Nines, Inc. One of the largest is the 1 million wartime and postwar items in the Women Airforce Service Pilots Official Archive. According to the university, "The Woman's Collection is a premiere destination on the history of women in aviation. We collect and preserve the stories of women in aviation organizations as well as individual female aviators. We tell not only the story of the WASP, but how their legacy lives on today through current organizations and pilots." Visit in person, or some of the collections are viewable online. *twu.edu/library/womans-collection/collections* KA

HALO 350

15,950 POUNDS

MAX TAKEOFF WEIGHT

Upgrade your King Air 350 / 360



HALO 350 Information Chart

Increase Max Ramp Weight	15,000 to **16,050**
Increase Max Takeoff Weight	15,000 to **15,950**
Max Landing Weight	No Change **15,000**
Max Zero Fuel Weight	No Change **12,500**
Payload Increase	**950**

Weight and payload shown in pounds.

HALO 350 STC Kit:

The Halo 350 STC kit includes the STC, installation drawings and instructions, AFM Supplement, instructions for continued airworthiness documents, and the required parts and components (except common hardware items) for converting and operating a King Air 350 series airplane at a maximum takeoff weight of 15,950 pounds.

New safety systems installed are takeoff trim warning & ice mode stall warning.

Estimated installation labor hours: 20 hours

CenTex Aerospace, Inc. • 7925 Karl May Drive, Waco,TX 76708 • 254-752-4290 • www.centex.aero

ADVERTISING INDEX

Unlock Advanced Flight Performance with the G1000 NXi

THIS UPGRADE IS A MUST-HAVE FOR ANY KING AIR OPERATOR LOOKING TO ENHANCE PERFORMANCE, SAFETY, AND EFFICIENCY.

GUARANTEED INSTALLATION IN 15-DAYS

BILL FORBES
SENIOR VICE PRESIDENT OF AVIONICS
AVIONICS_SALES@ELLIOTTAVIATION.COM
480-221-5347

ELLIOTT® AVIATION

Celebrating 75 Years of Excellence in King Air Maintenance

For 75 years, Stevens Aerospace has set the standard in King Air maintenance, upgrades, and refurbishment. From precision inspections to complete paint and interior transformations, we provide everything your aircraft needs to perform and look its best.

As an authorized installation center for Garmin, Blackhawk, BLR Aerospace, Raisbeck Engineering, and Gogo, we bring the latest advancements in avionics, engine and airframe performance, and connectivity to your aircraft. Our legacy of expertise, paired with a personal touch, ensures that your King Air receives the highest level of care and attention—because when it comes to your aircraft, only the best will do.

Discover how Stevens can elevate your King Air experience. Talk to one of our experts and see why aircraft owners and operators have trusted us for 75 years.

75 STEVENS AEROSPACE AND DEFENSE SYSTEMS
ESTABLISHED 1950

Greenville, SC | Nashville, TN| Denver, CO
STEVENSAEROSPACE.COM | 800-513-9164 | 24/7 AOG 833-426-4435