King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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John Linson's F90

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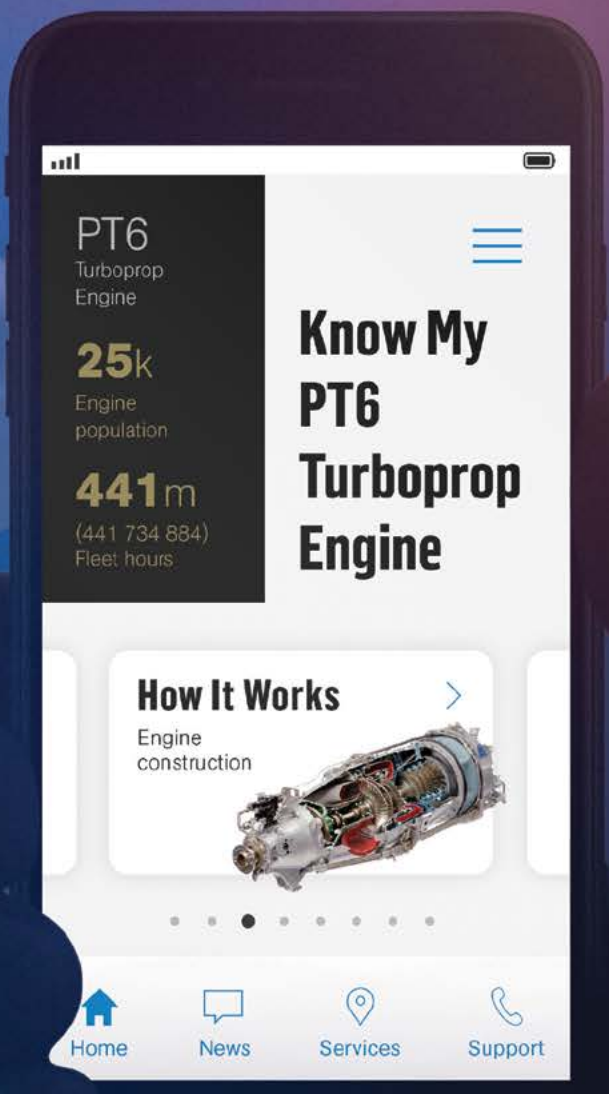

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COVER PHOTO
Courtesy of Amy Smyth
John Linson with son, Sky, and their 1980 King Air F90

FROM THE EDITOR

With this issue of *King Air*, a new name appears in the masthead under editor for the first time since the magazine started in 2007. Kim Blonigen is stepping away from the month-to-month duties of bringing this magazine to your mailboxes. Fortunately, she continues to work for Village Press, the magazine's publisher, and will be an invaluable adviser for *King Air* going forward.

I am moving into the editor role after writing for the magazine for the past dozen years—mostly profiles highlighting how individuals and companies use the King Air but also inside looks at suppliers and service companies, travel features and more.

I first met Kim in the late 1990s while we both worked in Wichita, Kansas, for what was at the time Raytheon Aircraft (previously known as Beech Aircraft Corporation and later named Hawker Beechcraft Corporation). She was in marketing and I had a hand in external and internal communications as part of the corporate communications team. She became editor when *King Air* began publication, and I eventually went on to work for Cessna Aircraft Company before turning to a freelance writing career that first included this magazine in 2013.

I earned a journalism degree from the University of Missouri in my hometown of Columbia, and I've spent most of my 30-year career in Wichita with some connection to the Air Capital of the World's general aviation industry.

Kim and I share an admiration for the Beechcraft legacy: the people, the products and the brand's influence on the aviation community. I consider myself fortunate to have been neighbors to and worked with so many passionate Beechcrafters over the years in east Wichita. I feel that same passion come through when I'm listening to King Air owners, operators and enthusiasts.

Enough about me—I want to hear from you! Let me know what you'd like to see more of on these pages devoted to your favorite turboprop, if you have a story idea related to flying a King Air or any feedback on what you read here. Reach out to me anytime at *melinda@kingairmagazine.com.*

Happy flying,

MeLinda Schnyder

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John Linson and his son, Sky, who is wearing one of aviator Bob Hoover's infamous straw hats, at their home hangar at Camarillo Airport (KCMA). Also pictured is their 1980 Beechcraft King Air F90 (LA-20), 1936 Harley-Davidson VLH and 1966 Chevrolet Corvette, which Linson has had since he was 19 years old.

PHOTO CREDIT: AMY SMYTH

Enamored

John Linson falls for aviation, LA-20

by MeLinda Schnyder

If we trace John Linson's inspiration when creating epic television programs, we might expect to see a blockbuster series set in the world of aviation on the small screen sometime soon.

Linson, 55, is a co-founder of Linson Entertainment with his partner and father, Art. Most recently, he is responsible for co-creating hit shows based on his interest in motorcycles ("Sons of Anarchy") and his experience living in a ranching community ("Yellowstone").

His latest obsession and cultural study is general aviation, specifically becoming a pilot

John Linson said the utility of flying privately became doubly important with the birth of his son, Sky, now 7 years old.

PHOTO CREDIT: AMY SMYTH

and coordinating the complete refurbishment of LA-20, a 1980 Beechcraft King Air F90 he's owned for two years.

Taking Flight

Linson began his career producing music videos in the 1990s for bands Nirvana and Guns N' Roses and producing films including "Great Expectations" (1998), "Lords of Dogtown" (2005) and "The Runaways" (2010) before earning co-creator and executive producer credits with "Sons of Anarchy" and "Yellowstone."

Even if you're a fan of any of the above, you still may not have heard of him. Born in Los Angeles, he's a self-described behind-the-scenes kind of guy who you won't see on the red carpet or giving interviews. He made an exception for *King Air* magazine because he's "obsessed with flying" and is enamored with the aviation community.

"I got into flying because I lived two hours from LA in the Santa Ynez Valley," he said. "I was driving two hours each way between work in LA and another home in Santa Monica for about 15 years."

He'd thought about learning to fly for several years, though what finally convinced him was a hunting trip to Texas a little over a decade ago where his hosts transported guests via helicopter.

"The utility of it was so incredible," Linson said. "I thought, 'I'm gonna do this.' I called my assistant while still on that trip, and he found a flight instructor for me in Santa Ynez. The minute I got home, I started flying and flew for a straight year. I dig helicopters but if I was going to do this, I wanted to fly something that could go a little farther."

Linson bought a 1981 Beechcraft Bonanza F33A in 2014 before he'd earned his private pilot

certificate. He managed a complete refurbishment of that aircraft and flew it for about eight years. Most of his trips were in the western U.S., ranging from meeting with writers and other industry folks to setting up filming locations in Montana and Utah for "Yellowstone." His son, Sky, was born during this time, and the advantage of flying himself became even more valuable.

"I had a new son so being able to fly myself back and forth from set location started to matter a lot to me," he said. "The utility and the ease of being able to fly into these little airports was amazing, and everyone at the FBOs was so polite. It brought flying back into a good space for me after flying commercial for so many years was unpleasant."

Moving Up to LA-20

Eventually, Linson wanted more room for passengers, pressurization, two engines and the ability to fly higher among the mountainous terrain he often encounters. He purchased the 1980 King Air F90 in 2022 from Mike Fell, a friend and former Delta Air Lines captain who was operating the airplane in Alaska while also running a helicopter business. It was a low-time airplane (6,100 hours), came with a good lineage and satisfied Linson's penchant for uniqueness.

"An interesting thing about this airplane is that it's serial number LA-20, and when you look at the King Air manuals you'll see 'except LA-20' in several places," Linson said. "I believe this was a test airplane of some kind for the F90-1 [introduced in 1983] so it's a special airplane."

He added: "I think the F90 is the most beautiful King Air they make. I love the look of the shorter wing and that T-tail."

Linson wanted to make LA-20 his own, modernizing the aircraft's technology and its look inside and

"An interesting thing about this airplane is that it's serial number LA-20, and when you look at the King Air manuals you'll see 'except LA-20' in several places. I believe this was a test airplane of some kind for the F90-1 so it's a special airplane."

LA-20 features a Beech shield on the T-tail and gold leaf lettering on the N number. "That's an ode to my old motorcycle days," said John Linson, who has a sizable collection of vintage bikes and is credited as co-creator of the outlaw biker world TV series "Sons of Anarchy."

Cabin upgrades to the 1981 aircraft included new tables, carpet, sidewalls and B300-style passenger seats.

PHOTO CREDITS: AMY SMYTH

The final piece of John Linson's full refurbishment of LA-20 was adding this all-glass Garmin flight suite.

out. The day he acquired the aircraft, he and Fell flew it from Alaska to Wichita, Kansas, where Jay Prideaux painted it to match the custom paint scheme Linson had done on his Bonanza. It features a Beech shield on the tail and gold leaf lettering on the N number. "That's an ode to my old motorcycle days," said Linson, who has a sizable collection of vintage bikes.

Interiors were also done in Wichita, including new tables, carpet, sidewalls, B300-style seats in the cabin and B200 pilot seats. "I got it back and flew it for six to eight months, getting my multi-engine and instrument ratings and taking my IFR exam in the plane," Linson said. "Then, I sent it off for an avionics upgrade including the first Garmin GFC 600 digital autopilot in an F90."

Once Don Dominguez of San Luis Avionics in San Luis Obispo, California, finished installing the all-glass Garmin flight suite in May 2024, Linson took some time to get comfortable with the aircraft close to home. He flew daily flights with his flight instructor, Jeff Millard, who is also a charter pilot and has become a friend of Linson's.

Once the refurbishment of his F90 was complete, John Linson (front) embarked on a 5,636 nautical mile trip with friend Mike Fell, a former commercial airline pilot who owned LA-20 before selling it to Linson and today operates a remote Alaska helicopter operation.

John Linson credits a group of aviation veterans he met while learning to fly at San Ynez Airport (KIZA) for initiating him into pilot culture and inspiring his purchase of a King Air.

PHOTO CREDIT: AMY SMYTH

"Unfortunately, when I put my hobbies into shows I'm creating, it usually makes the hobby a little less interesting to me. I don't want to kill the joy of flying airplanes."

"I'd never flown on a glass panel before so it was daunting for a minute," he said. "I was wondering if maybe I had made a mistake, but now I feel like I could never go back. It's been amazing."

By July, Linson felt ready to set out on a long trip in the King Air. With Fell alongside, he used the time to scout locations and environments for possible production projects.

They covered 5,636 nautical miles in eight days from his home hangar at Camarillo Airport (KCMA) with stops in Cabo San Lucas, Mexico; El Paso, Texas; New Orleans, Louisiana; Fort Lauderdale and St. Petersburg, Florida; Turks & Caicos; Eleuthera, Bahamas; and Hobbs, New Mexico. They skirted behind a hurricane one day and another day finished a 1,200 nautical mile stretch from St. Petersburg to Hobbs with an hour of fuel remaining.

"The plane flew incredibly well with no issues," Linson reported.

Studying the Culture

We had to ask Linson if there's a chance we'll see a show with an aviation storyline, given that two hit TV franchises emerged from his interests.

"I definitely think about it," he said. "Unfortunately, when I put my hobbies into shows I'm creating, it usually makes the hobby a little less interesting to me. I don't want to kill the joy of flying airplanes."

He acknowledges that it will be hard to fight those instincts, though. While learning to fly at San Ynez Airport (KIZA), he felt pulled deeper into the aviation community, often joining a group of about 10 octogenarian pilots who would gather at the hangar for morning coffee. None of the group knew Linson's name so they gave him the nickname Bro because he has a habit of referring to everyone as Bro.

"I would go and have coffee with this group nearly every day," he said. "They were World War II and Vietnam vets, mechanics and guys who were super into aviation. There was Jim Kunkle, Sr., a pilot whose P-38 was shot down in WWII, and Charlie Plumb, whose F-4 was shot down in Vietnam where he spent six years as a prisoner of war in the Hanoi Hilton."

From bikers to ranchers to pilots, he's drawn to study the people and the environments that make up these subcultures.

"Sitting with these guys every day at that airport and learning about the aviation industry from them made me realize it's a dying culture," he said. "It was a cool entry into being a pilot for me. Sadly, most of those guys are gone now. I loved the

camaraderie of hanging with them, and it was inspiring. They were the guys who led me to get the King Air."

Linson admits there's truth behind the saying about not turning your hobby or passion into work. Sometimes, it's a risk he's willing to take, though.

"I don't want to ruin something that is very special to me. The good news is it takes a few years of being on the air before it gets completely ruined," he said with a laugh.

John Linson met legendary aviator Bob Hoover when a friend was making a documentary about him. After Hoover's death, Linson had the chance to acquire some of his personal artifacts, including one of his familiar wide-brimmed straw hats.

Tax Planning:

Consider Audit Risk for Business Aircraft

by Daniel Cheung, CPA

"If you write off a business aircraft, that's a huge red flag and you will be audited."

This is a very common sentiment I hear when speaking to prospective aircraft owners as well as tax advisers across the country. IRS audit risk is a very important planning consideration as we design an ownership structure for our clients. The art of aviation tax planning is to devise an ownership structure that satisfies the myriad of competing enforcement agencies: IRS compliance and audit risk, Federal Aviation Administration regulations compliance, state sales and use tax strategy, financing and banking requirements, etc.

With proper planning, getting audited by the IRS is still an extremely rare occurrence. Certain reporting scenarios are indeed high risk, which will draw attention from IRS auditors. Staying away from these high-risk reporting scenarios will be the key to stay under the IRS audit radar. For example, if you report your business aircraft on a Schedule C sole proprietorship tax form—without other business activities—your audit risk augments significantly.

Defending an IRS Audit

Even though it is a rare occurrence, we advise our clients as if they will be audited. Keeping extremely detailed records to support the business use of their aircraft is of utmost importance. If you are audited, the key to success is to establish that the aircraft is ordinary and necessary to support your business activities and support this claim with contemporaneous documentation. The burden of proof rests with the taxpayer.

Handling of Personal Use

The regulations on how personal use is handled have changed over the years. Personal use of a business aircraft is the focus for the IRS due to the perceived abuse by corporate executives. Reimbursing your company for personal use is problematic in many aspects. Having dry leases with principals for their personal use is cumbersome. Understanding the current fringe benefit rules and applying the correct classification of flights can streamline the compliance process and avoid costly mistakes.

State Sales Tax Audit Risk

Unlike IRS income tax audits, state sales and use tax audits occur on a regular basis. In some states, it is a certainty that an aircraft owner will receive a sales or use tax inquiry from the state Department of Revenue after the purchase of an aircraft. Therefore, if you are claiming a sales tax exemption on the purchase of an aircraft, you should be prepared to present documentation and flight logs to support the exemption claimed.

With the advancement of flight tracking websites and the requirement of state aircraft registration, it is unlikely that you can avoid scrutiny of your aircraft from state taxing authorities by using a Delaware or Montana LLC. This state tax avoidance strategy is playing a game of hide and seek. If caught, you will owe the sales/use tax on the purchase plus penalty and interest.

State sales and use tax planning varies greatly from state to state. Some of the more common exemptions that may be available are:

- Interstate commerce exemption.
- Occasional or private party purchase exemption.
- Rental and leasing exemption.
- Commercial use exemption.

Due to the mobile nature of an aircraft, it is important to determine if your aircraft may be subject to the jurisdiction of multiple states and locales, such as the state of a second home or office location.

As the year-end nears, and considering heightened IRS audit interest in private aircraft, this may be the perfect time to conduct a thorough review and inspection of your aircraft recordkeeping practice, review flight logs and gather documentation to support business flights. KA

Daniel Cheung is a principal of Aviation Tax Consultants, LLC (aviationtaxconsultants.com). ATC's consulting services include the elimination or reduction of sales and use tax at the time of purchase, maximizing income tax savings, controlling the cost of personal use of the aircraft, complying with passive activity loss and related party leasing rules and Federal Aviation Regulations. Cooperation with the client's current tax and legal advisers is welcome and encouraged.

Senate Forms Sustainable Aviation Caucus

A bipartisan Senate Sustainable Aviation Caucus formed in late September 2024, bringing praise from business aviation leaders.

Senators founding the caucus include Jerry Moran (R-Kan.), Tammy Duckworth (D-Ill.), John Boozman (R-Ark.) and Amy Klobuchar (D-Minn.), with Moran and Duckworth serving as caucus chairs.

The House established a similar caucus in June, and industry leaders say the two caucuses underscore the value of government-industry partnerships and a shared commitment to sustainability. The formation of the new Senate caucus comes as the industry works to expand access to sustainable aviation fuel, promote innovation and certify emerging technologies to reduce emissions.

CLIMBING. FAST., an advocacy campaign focused on advancing business aviation's commitment to achieve net-zero carbon emissions by 2050, is an international initiative supported by 13 leading aviation organizations. It educates policymakers and opinion leaders about business aviation's many societal benefits, including its leadership role in sustainability.

CLIMBING. FAST. organization partners include the Aircraft Owners and Pilots Association, Aircraft Electronics Association, Alpha Eta Rho Aviation fraternity, European Business Aviation Association, Experimental Aircraft Association, General Aviation Manufacturers Association, International Aircraft Dealers Association, International Business Aviation Council, National Aircraft Finance Association, National Air Transportation Association, National Business Aviation Association, Vertical Aviation International and Women in Corporate Aviation. Visit *climbingfast.com* for more information.

Get to Know Darren Pleasance, Incoming AOPA President & CEO

The Aircraft Owners and Pilots Association recently announced that Darren Pleasance will become its new president and chief executive officer on Jan. 1, 2025, taking over for Mark Baker who announced plans to retire after 11 years in the top spot. AOPA is the world's largest community of pilots, aircraft owners and aviation enthusiasts.

"I'm confident that Darren is the right person to lead AOPA into its next chapter," Baker said in the announcement press release. "He is a pilot's pilot with a genuine passion for flying. He combines that excitement about aviation with leadership experience at some of this country's top consulting and tech firms, giving him the right balance of business skills and kinship with our members."

Darren Pleasance will become AOPA president & CEO on Jan. 1, 2025.

Pleasance added: "I'm honored with the opportunity I'm being given to help steward AOPA forward into the future, and I'm inspired by the role AOPA will continue to play in protecting our freedom to fly."

Pleasance's aviation journey began as a teenager, first through flying model aircraft and later exchanging chores around the airport for flying lessons. He earned a Bachelor of Science in Mechanical Engineering from the University of California, Santa Barbara, and an MBA from the UCLA Anderson School of Management.

He flew as a corporate pilot early in his career, working for John Travolta and other celebrities and then flying charters in the Alaskan bush. He left professional aviation to pursue a career in business, working for consulting firm McKinsey & Co., Google and, most recently, Cisco. Pleasance is also a published author, writing *True North: A Handbook for Inspired Living* to lead readers through a practical guide to finding fulfillment. He often cites aviation as a source of inspiration and joy for himself.

Pleasance never stopped flying, and he served for many years on the board of the Experimental Aircraft Association. He has accumulated more than 8,000 hours in more than 50 different types of aircraft, ranging from simple trainers to business jets to vintage warbirds. Today he owns and operates a Piper Meridian, a Vans RV-6 and a SeaRey floatplane while maintaining currency as a certificated flight instructor.

AOPA's board of trustees conducted an extensive search to find Baker's successor.

"We could not be more gratified about Darren taking the left seat at AOPA," said Bill Trimble, chairman of the board. "After completing an extensive national search, we met with many terrific candidates, but all agreed that Darren brings a wealth of experience coupled with a joy of flying that will be critical for leading AOPA's mission going forward. We are so grateful for Mark's hard work over the past 11 years and look forward to Darren's leadership at this important time for general aviation."

Exploring the Reason T-tail Design

by Tom Clements

n for the

The T-tail on a King Air 200.

I received the following question and thought the answer would be of interest to King Air magazine readers.

I was wondering if you could elucidate a bit upon the thinking behind Beech going to a T-tail on the King Air 200. If I remember correctly, the 100 series had a conventional tail. So what were Beech's reasons for going to the T-tail on the BE200? What are the advantages and disadvantages of the T-tail?

I am glad this question was asked because not many pilots know the reason for the T-tail design.

The 100-series tail was the same tail first used on the Beech 99, the 15-seat, unpressurized, commuter airliner. When the cabin was stretched as much as it was—making a turbine-powered Queen Air into a 99—the prototype flew with much the same tail as on the 90 series, using fixed horizontal stabilizers and elevators with trim tabs. Alas, they could not achieve a long enough center of gravity (CG) range to suit the longer airplane with that system. So, the Beech engineers went back to the drawing boards to come up with a solution.

In the resulting design, the elevators have no trim tabs and, instead, the whole horizontal stabilizer pivots near the rear and an electrically-driven jackscrew moves the leading edge up and down. It is like a Piper Cub or Cessna 180, but without any manual system, only an electric Main and Standby system, with a clutch arrangement to allow either to work should the other jam.

When you next see a 100, A100 or B100 on a ramp, notice the huge span of the stabilizer—it is one massive tail! In fact, do you realize that the top of the 100's vertical stabilizer is a few inches higher than the top of a 200-, 300- or F90-series T-tail? Surprising but true.

Next came the 200, which had the same fuselage/cabin as the 100 but with 850 shp per side (versus 680 shp for the 100/A100) and the centerline of the engine moved 25 inches outboard. The appropriate propeller to handle the higher horsepower had enough additional diameter to hit the fuselage if the existing 90/100 center section was used and the tip clearance with the ground was too small. So, if Beech had to move the engine both outward and upward, the decision was made to really move it out—much more than the minimum requirement—to give extra clearance between the prop arc and the fuselage, making the cabin quieter.

They designed a new engine mount that holds the engine at four instead of three locations, lifts it 4 inches higher and has a new, more efficient ram air recovery design. The larger center section would provide more fuel capacity there to satisfy the bigger, thirstier PT6s used on the 200. Hmm, 170 more shp sitting 25 inches further outboard. Keeping Vmca down was going to be a challenge!

So off to the drawing boards and wind tunnel they go, experimenting with different tail configurations to find the one that would keep Vmca down where they wanted it. The conventional 100 tail wouldn't hack it, and it was found that at the high angles-of-attack (AOA) associated with Vmca, the position of the horizontal tail was blocking much of the airflow up to the bottom portion of the rudder.

At that time, Beech had an agreement with Hawker that involved flying "green" airplanes from England to Wichita (with a portable avionics package, but no paint, options or interior) and Beech had the exclusive rights to finish them and handle all sales and marketing in North America. Based on their Hawker familiarity, they considered a cruciform tail, in which the horizontal stabilizer is about halfway up the vertical stabilizer. The only T-tailed civilian airplanes at that time were the Boeing 727 and the Learjet (long before the Learjet was "tamed" with Delta Fins and wing improvements), and both had horrible stall characteristics. It was with reluctance that Beech considered the T-tail, fearing that the dreaded deep stall would follow.

Nevertheless, the computer/slide rule studies, as well as the wind tunnel tests, showed that the T-tail was best in maximizing rudder force. Not only did the new position of the horizontal surface not block the airflow to the rudder at high AOAs, but it also provided an endplate effect that captured the air and prevented it from spilling off the top of the rudder, thereby making the rudder even more effective. In one sentence, the T-tail design was chosen because it maximized rudder effectiveness and kept Vmca at a reasonable value.

The prototype 200, BB-1, first flew in October 1972 and onboard were a stick shaker/pusher and a rudder boost system. It also had no "bullet" on the T-tail and the ailerons and wing tips were identical to the B90/C90/E90. An airflow interference problem showed up at the vertical/horizontal tail junction and was solved with the bullet. Aileron effectiveness at slow speeds was found to be waning, and hence the wing tip was cut so that the aileron could extend to the very end of the wing. This involved a third hinge point as well as the infamous trailing edge lump. Why the lump? To provide more self-centering tendency when this bigger, balanced aileron was fully deflected.

A side-by-side view of the T-tail on a King Air 300 and the conventional tail on a King Air 100.

With great trepidation, the stall tests were initiated. Fearing what might be found, the test airplane had the standard tail cone replaced with one that housed an explosively deployed drag chute. As the stall series progressed, moving from forward to aft CG, lead test pilot Bud Francis found that everything was quite conventional. Although the burble from the wing missed hitting the high horizontal tail such that there was very little pre-stall buffet—making the stall horn a requirement—every time the stall break occurred, the nose dropped at its own accord. But as the CG finally reached the aft limit, Bud related that not only did the nose not automatically drop at the stall break but it pitched up about 10 degrees higher! "Thank goodness for the chute!" he said silently.

But, voila! When he pushed the wheel forward, the nose came down and recovery was easy. This led to a statement made in the "Associated Conditions" portion of the Stall Speed chart that carries more significance than most readers realize. It goes something like this: "A normal stall recovery technique may be used. The best procedure is a brisk forward motion of the control wheel to a full nose down position. Recovery should be initiated when airspeed has increased approximately 20 knots above stall speed." So the shaker and pusher went away, found not to be required.

It was thought that this new big rudder might well require more than 150 pounds—the FAA maximum allowable—to fully deflect, and hence the installation of the rudder boost system on the prototypes. The final tests showed the actual worst-case force to be 147 pounds, so the rudder boost also could be eliminated. However, it was retained as standard equipment since Beechcraft airplanes are supposed to be the "Cadillacs of the Air" and who wanted to apply that much force anyway? However, the MMEL (master minimum equipment list) allows operation without a rudder boost in the 200 series. (Not in the 300 series, where the maximum force can reach about 180 pounds.)

A few other benefits were found to follow the T-tail. First, there was much less pitch trim involved when the flap position was altered since the changed airflow from the wing mostly missed the tail. Second, the airplane was smoother in flight and during ground run-ups since the prop wash wasn't hitting the tail. Lastly, and perhaps most beneficial, by moving the horizontal stabilizer up it was also being moved aft due to the sweep of the vertical tail, which led to a longer moment arm to the elevators. Now, with a much smaller horizontal surface than on the 100, they could revert to simple conventional trim tabs on the elevators and achieve a 4-inch greater CG range for the same cabin dimensions! Amazing!

“In one sentence, the T-tail design was chosen because it maximized rudder effectiveness and kept Vmca at a reasonable value.”

That pitch up at the stall break is something I have never experienced since all flight training is usually with a fairly forward CG since we’re not carrying a lot of passengers during the training. It is exceedingly easy for that tail to create so much downforce even near stall that getting a secondary stall during recovery is quite common.

That explains the wording about “...when 20 knots above...” in that Stall Chart paragraph I quoted earlier. When I received my first instruction in BB-1 from Bud, he had me trim for 1.3 times clean stall speed, then ease into a non-accelerated stall and note at what speed the break occurred (about 100 KIAS). Then, we dropped the nose to pick up speed until we hit 120, then 130, then 140, all the way up to 160. At each of those speeds, with only my little fingers wrapped around the control wheel as Bud instructed, we were able to easily induce stall rumble in all cases by pulling back aggressively! That airplane has some powerful elevators!

Beech was so enamored with the success of the 200’s T-tail that the initial thinking was, “Well, heck, let’s do this across the board!” They put a T-tail on an experimental flight test version of the A36 Bonanza and didn’t like it at all! It must have been a little like the short-lived T-tailed Piper Lance that not many pilots enjoyed. So with the exception of the long out-of-production F90, the only Beechcraft airplanes with T-tails are the direct descendants of the Super King Air 200. KA

Editor’s note: *King Air* first published this column in 2011.

King Air expert Tom Clements has been flying and instructing in King Airs for more than 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 23,000 total hours with more than 15,000 in King Airs. To order his books, contact Tom at twcaz@msn.com. Tom is actively mentoring the instructors at King Air Academy in Phoenix.

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The external appearance of the E90 King Air was essentially identical to the C90, but the E90 cruised at a higher airspeed and could climb to more than 27,000 feet. (Special Collections and University Archives, Wichita State University Libraries)

The "Cookbook" King Airs

During the 1970s and 1980s, the Beech Aircraft Corporation served up the E90 and F90 King Air using special ingredients drawn from their "kitchen" library of recipes.

by Edward Phillips

As the decade of the 1970s arrived, the Beech Aircraft Corporation had built more than 1,300 King Air business and military airplanes since the introduction of the Model 90 in 1964. Of these, the 1,000th King Air had been delivered in 1972 and eight years later in 1980 the 2,000th King Air, a Model 200, took to the skies. Sales remained strong as did the company's bottom line thanks to guidance provided through the steady hand of CEO Olive Ann Beech, President Frank E. Hedrick and the board of directors.

In addition to celebrating the delivery of the 2,000th King Air, Beechcraft management and workers also welcomed the 25th anniversary of the Model 35 Bonanza. The Bonanza had served as the company's single-engine, piston-powered high-performance flagship since 1947. Beech marketing officials honored the Bonanza's achievement by building a special edition V35B and flying it around the nation on a tour. Registered appropriately as N25B, the airplane heralded the peak of the Model 35's popularity. Unfortunately, 10 years later, changes in the general aviation marketplace eventually led Beechcraft management to terminate production of the legendary V-tail Bonanza after more than 10,000 of the classic airplanes had been built.

By the early 1970s, the Model 90 series had become to the corporate world what the Bonanza had become to the private pilot—the best value for the money—and in 1972 Beechcraft engineers unveiled plans for yet another upgraded version of the venerable King Air. Designated as the Model E90, the airplane benefited from an increase in cruise speed to 285 mph at an altitude of 16,000 feet and a higher service ceiling of 27,620 feet.

First flown on Jan. 18, 1972, the E90 could fly up to 1,870 statute miles at its maximum range power setting. Although outwardly the E90 appeared to be a "clone" of the Model C90 upon which it was based, the new King Air sported Pratt & Whitney Canada PT6A-28 turboprop engines each developing 680 shaft horsepower. The engines, however, were each flat-rated at 550 shp. Cabin pressurization remained at 4.6 pounds per square inch providing passengers and cockpit crewmembers with a comfortable environment.

The Federal Aviation Administration (FAA) issued Beech Aircraft Corporation Type Certificate 3A20 for the E90 on April 13, 1972, and during that first year of E90 production, the Wichita factory built 22 airplanes. That number, however, swelled to more than 340 by 1981 when production shifted to the Model C90-1. The last E90 to roll off the assembly line was serial number LJ-347.

If Beechcraft management had learned one lesson since the company's inception in 1932, it was the realization that product development was essential to survival in a capricious marketplace that was rife with competition. During the past 50 years, Beechcraft engineers had become highly proficient at blending the advantages of one airplane with those of another to create a "new" product.

For example, the turbine-powered Model 65-90 was an outgrowth of the Queen Air series, just as the Model 50 Twin Bonanza had provided a basic platform for the development of the Model 65. Taking that practice one step further in the late 1960s, Beech Aircraft Corporation combined the lengthened fuselage and pressurized cabin of the Model 100 King Air with a new, wider wing center section and unleashed the Model 200 Super King Air into the business aviation marketplace. The airplane's spacious cabin and signature T-tail empennage configuration – the first for a Beechcraft airplane – pushed Beech Aircraft's pursuit of perfection to new heights.

Continuing the company's highly successful "cookbook" approach to creating new products, in 1978 engineers combined the T-tail design of the Super King Air with the fuselage and wings of the Model E90. The result was designated the F90 King Air and the pre-production prototype, serial number LA-1, made its first flight on Jan. 16, 1978, under the command of company test pilot Marv Pratt. The FAA issued Type Certificate A31CE to the F90 on May 18, 1979.

The F90's market niche would be as a step-up airplane from the E90, and the latest King Air was well equipped to induce corporate aviation to take

Beech Aircraft Corporation capitalized on the advantages of the Model 200 Super King Air's T-tail arrangement by applying it to the F90 and F90-1. (Special Collections and University Archives, Wichita State University Libraries)

"Beechcraft engineers had become highly proficient at blending the advantages of one airplane with those of another to create a 'new' product."

that step. Although its cabin, which could accommodate up to 10 passengers, was essentially the same as the E90, the F90 possessed major systems and performance improvements compared to its sibling. Chief among these were installation of Pratt & Whitney Canada PT6A-135 engines, each rated at 750 shp. To reduce noise levels in the cabin, the turboprop engines were mated to new four-blade, full-feathering and reversing propellers turning at a maximum 1,900 rpm or 1,500 rpm at cruise.

Maximum cruise speed increased to 307 mph from the E90's 285 mph, and the initial rate of climb was 2,380 feet per minute (fpm)—another significant advantage over the E90. In addition, maximum certified altitude increased to 31,000 feet. Also, the F90 was the first King Air to use the company's completely new, state-of-the-art, 28 VDC multi-bus electrical system. The circuitry featured five separate buses, automatic load shedding and solid-state current sensors that provided protection against ground faults (electrical shorts) and quickly isolated a faulty bus, thereby reducing pilot workload.

Initial customer demand for the F90 proved to be strong and 202 airplanes were built between 1979 and 1983. These included seven in 1979, serial numbers LA-2 through LA-8. Production peaked at 75 airplanes in 1981. It is interesting to note that the F90 prototype, serial

number LA-1, was later converted to the experimental G90 King Air and given serial number LE-0. The G90's chief modification compared to the F90 centered on a modified, steeply sloped windshield installation. The G90 was not placed into production.

For the 1983 model year, Beech Aircraft engineers incorporated technical improvements applied to the C90-1 into the F90-1. These included pitot-type engine cowlings with improved air intake characteristics, particularly at high altitudes, and the use of tapered exhaust stacks. The F90's PT6A-135 engines were replaced with PT6A-135A versions that each retained a rating of 750 shp. With a span of 45 feet 10.5 inches, the F90-1's wings contained main fuel cells that held 388 gallons of jet fuel with another 41 gallons available from auxiliary tanks installed in the wing center section.

First flight of the F90-1 prototype, serial number LA-91, occurred on Jan. 5, 1981, with Vaughn Gregg at the controls. That event was followed nearly a year later by the first flight of a type-conforming production airplane, serial number LA-202, on Dec. 7, 1982, flown by pilot Don Benes.

Beech Aircraft Corporation had built only 33 examples of the F90-1 when the decision was made in 1985 to stop production. That decision was based chiefly on the fact that demand for the F90 and F90-1 had declined steadily through the mid-to-late 1980s with only 11 airplanes built in 1983, 1984 and 1985. In 1986 only one airplane, serial number LA-237, was built.

Although the F90 series represented a major improvement over the E90, it was built in much smaller numbers than its stablemate but continued to serve its owners and operators as a unique version of the legendary Beechcraft King Air. KA

Editor's note: *King Air* first published this column in 2012.

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 who have made Wichita the "Air Capital of the World" for more than 80 years.

Blackhawk Performance Center Earns FAA Part 145 Repair Station Certification

The Blackhawk Performance Center in Broomfield, Colorado, has received FAA Part 145 Repair Station Certification, according to a company news release. The location at KBJC joins the Blackhawk Performance Center in Columbia, Missouri, (KCOU) as premier service locations for light turbine aircraft.

These centers focus on Beechcraft King Air, Cessna Citation and Pilatus PC-12 (BJC) aircraft. Services include comprehensive aircraft maintenance, engine upgrade installations, avionics upgrades, STC development and more.

"Receiving the FAA Part 145 Repair Station Certification is a testament to our unwavering commitment to safety, quality and excellence in the aerospace industry," said Beau Hawkins, sales director for Blackhawk Performance Centers. "With this certification in hand, we stand ready and excited to support the broad needs of turboprop and light jet aircraft owners and operators."

With this certification, Blackhawk Performance Centers offer a full suite of services, including:

- **Factory-new engine upgrades:** Expert installation of Blackhawk's XP Engine+ upgrades.
- **Full-service MRO capabilities:** Complete maintenance and support for King Air aircraft.
- **Avionics solutions:** Certified dealer for Garmin, Collins, Gogo and AirText, offering sales, installation and support for King Air and Citation aircraft.
- **Experienced team:** Blackhawk Performance Center's average technician has more than 15 years of experience on PT6-powered aircraft with a dedicated avionics team that has performed more than 30 Garmin G1000/G5000 installations.

"Our expertise with the PT6 engine spans decades to benefit our clients during overhaul, repair and hot sections," said Bob O'Connor, director of Engine Programs. "We leverage our technology to ensure every engine is

operating at peak performance through engine vibration technology, oil analysis and engine performance data."

Learn more at *blackhawk.aero/technologies-overview* or contact Beau Hawkins at (720) 341 6809.

Exclusive Factory-direct, Aftermarket Mod Packages Unveiled

Textron Aviation has launched EvoX, specialized aftermarket upgrade packages designed for Cessna Citation and Beechcraft King Air customers who are seeking the latest aircraft upgrades and modifications.

"Textron Aviation's new EvoX packages offer Cessna and Beechcraft customers complete aircraft revitalization options to maximize the value of their aircraft," Brian Rohloff, senior vice president, Customer Support, said in a press release. "We've meticulously curated the latest avionics, seamless connectivity options and exclusive bespoke interior and exterior designs to create an experience that feels like flying in an entirely new aircraft."

Among key features of the EvoX packages are special EvoX schemes with icon embossment options for interior refurbishments and custom exterior paint jobs and detailing including EvoX insignia.

EvoX upgrade packages are installed for select aircraft at North America Textron Aviation Service Centers. Find out more at *txtav.com/service/aftermarket-upgrades*.

FreeFlight Systems + Air Dallas Instruments Bring 5G-tolerant Radar Altimeter Technology to King Airs

FreeFlight Systems, a leader in next-generation avionics and radar altimeter technologies, and Air Dallas Instruments, a pioneer in aviation instrument solutions since 1977, are partnering to offer 5G tolerant radar altimeters for King Air aircraft.

The companies issued a joint news release announcing the RA-5500 as the only 5G-tolerant radar altimeter that provides operators with a comprehensive digital processing solution, serving as a self-contained retrofit for the direct replacement of legacy analog altimeters.

The release also explained that since radar altimeters are responsible for 55 essential functions within aircraft avionics, the increasing

concern regarding 5G interference is critical. Such signals can adversely affect pilots operating in various environments, not solely in proximity to urban areas or new cellular towers.

FreeFlight's Terrain Series radar altimeters incorporate a cutting-edge digital processing system, ensuring accurate altitude readings that effectively mitigate the risks associated with 5G interference.

"Our advanced radar altimeters represent a significant upgrade for King Air operators, providing peace of mind for safety and situational awareness," said Shane LaPlante, vice president of Sales and Marketing at FreeFlight.

FreeFlight Systems was founded in 2001 and is based in Texas. The company pioneered the first certified aviation WAAS/GSP receiver and now specializes in SBAS/GNSS sensors, 5G-tolerant radar altimeters, flight management systems and other NextGen aerospace avionics. Fellow Texas company Air Dallas Instruments is a family-owned aviation instrumentation service provider of high-quality testing, repairs, overhauls, exchanges, sales and avionics installs. Get additional details at *freeflightsystems.com* or *airdallas.com*.

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