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Springboard for Growth

Midwest company expands all-King Air fleet











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Credit: Bridget Johnson

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Three of Spring City Aviation's King Airs which they use for charter. One reason they decided on an all-King Air fleet is its good platform for their mostly Midwest-based missions among the Great Lakes region, the Great Plains and Canada. (Photo credit: Bridget Johnson)

Fleet Feat Spring City Aviation adds a 360 to its all-King Air charter lineup

by MeLinda Schnyder



W

hat started as a one-aircraft, father-andson operated flight school in Waukesha, Wisconsin, 25 years ago is now a full service aviation company with 50 employees across three southeastern Wisconsin locations.

Beyond flight training, Spring City Aviation offers maintenance on all types of general aviation airplanes, FBO services, aircraft sales, aircraft management and an all-King Air charter operation.

The Behrens family had steadily grown their business over the years, then in December 2016 they nearly doubled the number of employees with the acquisition of a regional competitor. Taking over the operations of Milwaukee-based Gran-Aire Inc. was the jump-start to moving Spring City Aviation's charter operation to an exclusively Beechcraft King Air fleet.

Despite nearly three months of little activity during the early part of the pandemic, the remainder of the year more than made up for that lost business. Spring City Aviation has added employees, purchased a 2020 King Ranch special edition King Air 360 and soon will add a 2006 King Air 350. The aircraft's ramp presence is appealing to charter customers - another reason Spring



"We've seen increased activity in response to the COVID situation in every aspect of the business, from the flight school to owners using their aircraft more and thereby requiring more maintenance, as well as more managed aircraft and more charters being booked," said Spring City Aviation founder and president Brian Behrens. "From everything we're experiencing, I think general aviation is going to be strong over the next few years."

Humble beginnings

Brian and his father Lonny Behrens started their flight school in 1996 at Waukesha Airport/Crites Airfield (KUES). They named it Spring City Aviation based on a historical reference to Waukesha,

a city whose clean spring water earned the nicknames Spa City and Spring City.

Brian grew up flying with his dad, who was a corporate pilot and designated pilot examiner, and the pair rebuilt a 1968 American Champion Citabria when Brian was a teenager working at the nearby American Champion factory. Brian earned a four-year degree in aerospace studies from Embry-Riddle Aeronautical University and soon after graduating in 1995, they started the business using that Citabria.

In 2001, Lonnie was ready to retire so Brian bought his half of the company to become president and sole owner of Spring City Aviation. By then, Brian was a pilot

with Midwest Express Airlines, a local airline flying Beechcraft 1900 twin-engine turboprop aircraft out of Milwaukee Mitchell International Airport.

He continued flying for Midwest while operating the flight school until 2008, when the economic crisis hit the airline industry. At that point he turned his attention fulltime to growing Spring City Aviation. He added a charter certificate offering piston aircraft and acquired more hangars at KUES to provide FBO services.

In May 2016, they expanded the same services to Burlington Municipal Airport (KBUU), where they cover customers in the southern Wisconsin and northern Illinois areas. Then in December 2016, they moved into >

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View the VMCa protection demonstration video the Milwaukee area by acquiring the employees and operations of Gran-Aire, which had operated at Timmerman Airport (KMWC) since 1946. They offer the same services at Timmerman plus fuel sales.

In January 2020, Spring City Aviation moved into a new hangar at KUES and continues to operate its corporate headquarters from Waukesha. In 25 years they've grown from two to 50 employees and from 6,400 square feet in one hangar to about 236,000 square feet of hangar space at three airports. Behrens said all segments contribute to the business equally.

King Air fits the bill

Spring City Aviation's Milwaukee Timmerman location has been maintaining, repairing and upgrading King Airs for more than 20 years. Mechanics are factorytrained and take care of outside and based customers from Model 90s through 350s, operating under FAR Part 135 and Part 91.

The company also is managing one King Air, in addition to operating four King Air models for charter.

"Our charter certificate over the years has had everything from Beechcraft Dukes to Cessna 414s, Cessna 421s and Piper Navajos," Behrens said. "We made the decision to do away with all the piston equipment and to focus on turbine, specifically the King Airs, after we acquired Gran-Aire's King Air B200 and their charter customers."

Besides moving to turbine reliability, Behrens chose to rebuild the charter operation around the King Air line because he knew his customers would appreciate the ramp appeal, airstair door and roomy cabins. From an operational standpoint, he could rely on good product support and parts availability, as well as the benefit of familiarity among Spring City Aviation's mechanics and pilots. "The simplest way to put it, is that the King Air fits the bill for the types of trips we're flying," he said. "The King Air is a good platform for our mostly Midwest-based missions. From flights in the Great Lakes region out to the Great Plains for hunting or up to Canada for fishing trips. There's plenty of room and they carry a good load, plus they are good for when we need to go into gravel strips."

Spring City Aviation flew its charter fleet of King Air aircraft about 2,000 hours in 2020, up from 1,250 in 2019.

That fleet includes two 1979 King Air 200 models with PT6A-41 engines, N477JM and N335TA, and a 1978 King Air C90 with PT6A-21 engines, N549BR.

N335TA is equipped with a Garmin 430W and Sperry autopilot system. They've recently added frakes exhaust for both performance and looks, as well as new swept-blade propellers.



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"We've always focused on a personalized approach to this business where we like to have customers that we work with over years and years ..."

- Brian Behrens, founder & president Spring City Aviation

(



Spring City values itself on building longlasting customer relationships. (Photo credit: Bridget Johnson)

N477JM has a Garmin 530W and Collins autopilot, dual aft strakes and wing lockers. It can also be equipped with aft jump seats.

N549BR is a mostly stock C90 with a Garmin 530W and Century IV autopilot system.

"All three aircraft have onboard radar and satellite weather, and have proven very reliable for us in service," said Gavin Leake, chief pilot for Spring City Aviation's charter and acquisition segments. "We're looking forward to adding N260TT, a new King Air 360, and hope to have it available to customers very soon."

A strong outlook

Behrens is counting on the King Air 360 – and the 2006 King Air 350 they are currently negotiating to add to the charter certificate – allowing them to expand their relationship with repeat charter customers who occasionally need an aircraft bigger than the 200.

"We've always focused on a personalized approach to this business where we like to have customers that we work with over years and years, versus just one trip to the East Coast and we never talk to them again," he said. "Maybe that's the Midwestern in us, but we take pride in the fact that our customers keep coming back." Spring City's brand-new King Ranch King Air 360 at its delivery in Wichita, Kansas, which they are adding to their charter lineup along with a King Air 350 to meet their customers expanded needs. (Photo credit: Gavin Leake)



A

Charter customers appreciate the roomy and comfortable interior of the King Air, highlighted here by one of Spring City's King Air 200 models (N477JM). (Photo credit: Bridget Johnson)





Behrens didn't choose the faster, roomier and more modern King Air 360, he chose the King Ranch King Air, a co-branding effort between Textron Aviation and the famous 825,000-acre King Ranch in South Texas. The special edition has a themed paint scheme paired with details such as pewter trim accents and other distinctive elements and accessories in the cabin.

Besides adding the newest Beechcraft King Air model to the fleet and boosting employment in 2020, the company also placed a King Air in Naples, Florida, in the middle of the year. They were able to use a customer's hangar that was unoccupied to test the charter waters in Florida and Behrens said based on demand so far, it will likely be a permanent option.

"I think general aviation is going to stay strong for the next three to five years," he said. "Our growth plans are to continue to focus on safety and to service all of our existing customers. Probably our biggest growth opportunity is to expand our charter fleet to include a jet so we can meet that need for our existing customers and tap into a new segment, too."



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Registration is Open King Air Gathering Sept. 23-26, 2021

by Kim Blonigen



egistration opened May 1 for the 2021 King Air Gathering (KAG) being held Sept. 23-26 at the Beechcraft Heritage Museum, located adjacent to the Tullahoma, Tennessee, Regional Airport (THA).

If you arrive early enough Thursday, Sept. 23, there will be guided museum tours from "special" (a once in a lifetime opportunity) tour guides. That evening join everyone at a Welcome Cocktail Reception sponsored by Blackhawk Aerospace. Friday and Saturday will be filled with educational seminars and time to meet with King Air-specific vendors that will have exhibits located in the conference area. Friday night, hosted by Stevens Aerospace & Defense Systems, will commence with the inaugural "King Air Hall of Fame" awards followed by cocktails and hors d'oeuvres with local Nashville entertainment which is guaranteed to be a good time!

Some of the speakers featured at this year's KAG are:

BRUCE LANDSBERG – Currently, vice chairman of the National Transportation Safety Board (NTSB). Before joining the NTSB, Bruce was the Executive Director of the Air Safety Foundation until 2010, then became president of the AOPA Foundation and Air Safety Institute until he retired in 2014. He served in the U.S. Air Force as a missile launch officer and many government committees promoting aviation safety, including NASA's Aviation Safety Reporting System.

BILL CRUTCHFIELD – A current King Air C90B owner, Bill has been flying since 1962. He was the Opening Session keynote speaker at the 2012 NBAA convention, as well as the keynote speaker for the Single Pilot Safety Standdown at the 2018 NBAA convention. Bill is also a recipient of the FAA's Wright Brothers Master Pilot Award. In 1974, he founded Crutchfield in his mother's basement with only \$1,000 in savings. The company has grown into one of the largest and most respected consumer electronics online retailers in North America. As a result, Bill was inducted into the Consumer Technology Association's Hall of Fame in 2007.

TOM CLEMENTS – Flying and instructing in King Airs for over 38 years, Tom was first employed at Beech Aircraft Company and since 1979, had his own company, Flight Review, Inc. Tom has over 22,000 hours with more than 14,500 in King Airs and is type-rated in the BE-300, BE-1900 and Learjet DC-3. He is a Gold Seal CFI



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The view when visitors enter the Beechcraft Heritage Museum and the beginning of the memorabilia, artifacts and airplanes found throughout the campus. In the forefront is an old mailbox with the Beech's Wichita address. (Photo credit: MeLinda Schnyder)

and the author of *The King Air Book* and *The King Air Book*, *Volume II* as well as a regular contributor in *King Air* magazine.

PETER BASILE – As a senior Air Safety Investigator at Textron Aviation, Peter is responsible for assisting the National Transportation Safety Board (NTSB) during their on-site investigations and providing technical support to answer any questions concerning Textron's products. He has participated as an NTSB party member on over 200 investigations ranging from Cessna 140s and Beechcraft Musketeers to current production King Airs and



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> Mike Marceau, Chief Pilot CanWest Air Edmonton, Canada

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Citation jets. Peter began his career with Cessna in 2001 as a manufacturing engineer. In 2005, he began investigating aircraft accidents. In 2015, Peter served on the General Aviation Joint Steering Committee for System Component Failures of Powerplants to develop safety enhancements and intervention strategies. He instructs at the NTSB academy and the DOT Transportation Safety Institute.

DEAN BENEDICT – Beech hired Dean in 1975, straight out of A&P school. He cut his teeth on the earliest King Air model 90s and "grew up" with the 200, the B200 and subsequent models. He went from line mechanic to facility manager, and in 1985 as Director of Maintenance for a corporate flight department, where he maintained King Airs and a variety of other aircraft models. In 18 years, no flights were missed for maintenance reasons. When Dean opened his own maintenance facility, word spread quickly and Honest Air Inc. became the place to take your King Air for maintenance. In his new venture, BeechMedic LLC, Dean consults with owners, pilots, managers, and mechanics on all their King Air concerns.

PAUL SNEDEN – Involved in general aviation since 1972, including serving as copilot and maintenance manager for a King Air E90, Paul has a diverse background of line maintenance, avionics, project management and quality assurance. He has been instructing in King Airs, Aircraft Wiring and Maintenance FARs since 2006.

His current Business, KingAirDOM LLC, guides King Air owners and operators through the maze of prepurchase, required inspections, maintenance, tracking, and vendors while controlling maintenance costs.

ROBERT WINCHCOMB – With Pratt & Whitney (P&WC) for over 25 years, Robert began his career as an aircraft maintenance technician and has worked with the PT6A since 1985. He joined P&WC in 1994 as a field support representative in Brisbane, Australia and moved within P&WC in various customer support departments and now serves as a manager with PT6A customer service. Robert's specialties include P&WC engine diagnostics and PT6A engine control rigging.

EDWARD H. PHILLIPS – An aviation history enthusiast, Ed has researched, written and published nine books and more than 100 magazine articles on the airplanes, people and companies that made Wichita, Kansas, the "Air Capital of the World" – a title it retains to this day. Ed is a graduate of the University of North Dakota's aviation and journalism program and served as business flying editor at *Aviation Week & Space Technology* magazine for 20 years before retiring in 2007. He holds a commercial pilot license with instrument, multiengine and flight instructor certificates, as well as an Airframe & Powerplant license. A long-running series of Ed's history articles have been published in *King Air* magazine since 2008.



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Attendees at the 2019 King Air Gathering listening to Tom Clements. The exhibits are around the perimeter of the room so you can visit with them throughout the day. (Photo credit: David Frank)

DON CARY – Hired in 1966 by Beech Aircraft Company as a King Air training specialist on the new King Air A90, he taught ground training and checked out customer pilots for over two years, transitioning to the manager of the customer training program. Don eventually moved on to director of customer support, which involved Beech's training program, parts support, technical support and technical publications department. His responsibilities included visiting Beechcraft's worldwide network of dealers and its many customers. Next, he became the vice president of product marketing, then headed up all of marketing and eventually served as vice president of customer relations. The Gathering this year is held at a special place for any aircraft enthusiast but especially Beechcraft owners, so take some time to enjoy its offerings as well. The Beech Heritage Museum traces the lineage of the Beechcraft legacy including the very first Beechcraft, the 1929 Travel Air Mystery Ship, original collections from the Beech family and aircraft including the Staggerwing, Beech 18, Bonanza, Baron, Starship, Duke and others.

Space for the KAG is limited, so make sure you register early by going to *www.kingairgathering.com*.







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Understanding the Fuel Topping Governor

by Tom Clements

ast month's article described the King Air's reversing propellers and made the statement: A pilot cannot *force* the propeller to reverse; he can only *allow* it to do so. Reversing is accomplished by repositioning the propeller's Low Pitch Stop (LPS). Therefore, unless the propeller's blade angle is being determined by the LPS, then the blades will not follow the LPS to smaller and even negative angles.

Only when a combination of low power and low airspeed (less windmilling air blast) force the propeller governor to flatten the propeller's bite of air enough that the LPS is finally reached, does the LPS play its role of preventing further flattening. Now the RPM of this temporarily fixed-pitch propeller will follow the airspeed: Speed up and the RPM increases; slow down and, of course, it decreases. The conclusion is that our "finding" the LPS occurs sooner – at a higher airspeed – when we ask for the maximum propeller speed that the governor can provide. That explains why King Airs contain an annunciator light – RVS NOT RDY – that will not extinguish when the landing gear handle is down until we push both propeller levers fully forward to set the propeller governor to its maximum speed.

The Fuel Topping Governor plays an important role here.

In the early King Air 90-series, powered with PT6A-6 or PT6A-20 engines, the three propeller governors – Primary, Overspeed (often called Secondary) and Fuel Topping (sometimes called the Power Turbine Governor) - were separate devices mounted on the three pads on the Reduction Gearbox housing at the 12, 9 and 3 o'clock positions respectively, as viewed from the rear of the engine. With the advent of the PT6A-28 and after (literally all PT6 King air engines except for the -6 and -20), a major simplification and improvement of the propeller reversing linkage occurred and a part of this saw the Primary and Fuel Topping governors being combined into one device, sitting on the 12 o'clock pad, which correctly – although rarely – is called the Constant Speed Unit (CSU).

If this unit falls off the engine because, say, no one remembered to install nuts on the mounting studs, you would lose both Primary and Fuel Topping Governor functions. However, it would not be significant because this unit also includes the pump that boosts engine oil pressure up to the approximately 300-400 psi level needed for the propeller pitch change mechanism to operate. Without that oil pressure, the counterweights and feathering springs would drive the blades to the feathered position immediately. Of course, were that to happen, it would be impossible to overspeed the propeller due to its huge bite of air, so no governors would be required!

Even though the Primary and Fuel Topping Governors now share the same housing, the same speeder spring, and the same spinning flyweights, the PPG (Primary Prop Governor) portion gets the job done by controlling oil flow into and out of the propeller shaft whereas the FTG (Fuel Topping Governor) portion gets the job done by venting or not venting P_y air from the Fuel Control Unit (FCU). When that air is vented and the FCU loses air pressure, fuel flow gets reduced, usually going all the way back to Minimum Fuel Flow, typically 80-100 pph, a bit less than the Low Idle fuel flow at Sea Level. Thus, I have always taught my students that although a single failure *could* wipe out both governors, there is no guarantee that it will affect both since one involves oil and the other involves air.

In my 49 years of King Air flying and instructing I have yet to hear of a PPG failing such that either the OSG nor the FTG have ever had to react. Don't lose any sleep worrying about this "what if."

Realize that the FTG's operating speed changes from about 6% above the PPG's setting to about 5% below when the power lever is moved to the Maximum Reverse position. This means that, in the case of a B200 with the propeller levers fully forward (setting the PPG at 2,000 RPM) that the FTG would be "waiting" at 2,120 RPM (2,000 x 1.06) but that it would move down to 1,900 RPM (2000 x 0.95) when Max Reverse is selected. What is the propeller speed limitation in Reverse from the POH? Yes, 1,900 RPM! Hmmm, do we see a tie-in? Yes indeed.

Has it been explained to you what would happen if propeller speed could ever reach the PPG's setting while the blade angle was in Reverse? Think this through: Whenever the PPG senses an overspeed condition, it vents oil from the propeller dome back into the engine's nose case, allowing the springs and counterweights to make the blade angle increase, adding rotational resistance and bringing the speed back to where it should be. But if the blade angle starts out on the wrong side of flat pitch - at, say, minus 10 degrees - when the governor activates, the release of oil will again send the propeller to a bigger angle but (here it comes!) this bigger angle will be a lesser bite, less rotational resistance as the propeller moves toward flat pitch, so it would not stabilize its speed but instead overspeed even more in an unstable manner until finally a positive bite of the correct amount were established!





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Three things should prevent the propeller speed from ever reaching the PPG's speed setting when Max Reverse is selected: (1) The pilot remembers to push the propeller levers fully forward, setting the PPG at its highest setting of 2,000 RPM. It is obviously harder to reach 2,000 RPM than anything lower. The "Reverse Not Ready" annunciator mentioned above exists to remind us to push the propeller levers forward. (2) The mechanic - the engine and propeller installer – has done his job correctly and adjusted things so that the Ng reached in Max Reverse is only 82-88%, not the normal 100%+ when the same power levers go fully forward. And lastly, (3) The "icing on the cake," as it were, is that even if the pilot makes a mistake and leaves the PPG set for too low of a speed and even if the mechanic had the Ng juiced up to, say, 95% in Max Reverse, the good old FTG should step in when the RPM gets within about 5% of "all hell breaking loose," and come to the rescue by preventing fuel flow from continuing to go any higher. You would not get much reverse action, but that would surely be better than one prop instantaneously slamming from reverse thrust to positive thrust on the after-landing rollout, eh?

Let me tell you of an experience I personally had in which indeed "all hell broke loose" while using Maximum Reverse. I was asked to conduct a pre-purchase flight evaluation on an F90-1 model that was being considered by a potential buyer. I was told that this one-owner airplane had been both flown and maintained by only one pilot/mechanic from when it left the Beechcraft factory until now. "Isn't that great?!" the prospective buyer asked. My reply? "Well, it may be. But also recall the adage 'familiarity breeds contempt.' There can be advantages of having a second or third set of eyes and hands involved at some point."

Overall, the airplane checked out well. The paperwork was thorough and the systems worked correctly. The engines met power specifications and the pressurization worked as it should. While doing a flight evaluation, I always use maximum reverse on the landing to see if both engines come up to proper specifications. As I rapidly moved both power levers to the max reverse position after touchdown, my first thought was "Wow! This is really putting out the stopping power!" But then, the force that had been pushing me against the shoulder straps suddenly turned into a massive push and I was now slammed against the seatback. I have never flown an airplane with JATO - Jet Assisted Takeoff - but I imagine it would have felt similar. All of that reverse thrust instantaneously became forward thrust. I thank my lucky stars that both engines did the same thing. Had one remained in reverse and this had happened on only the other side, I am quite certain we would have experienced an excursion onto the grass.

Somehow this pilot/mechanic had misadjusted the Beta/Reverse rigging such that not only was too much increase in Ng being experienced but also the Fuel Topping Governor was not being reset enough to prevent the propeller speed from indeed reaching the primary governor's maximum RPM setting ... 1,900 in the case of the F90-1. Thus, we experienced the phenomenon discussed above: The unstable jump from a negative to a positive blade angle as the primary governor reacted to the momentary overspeed situation by releasing oil from the prop back into the engine. The springs and counterweights sent the blade angle to a higher value. But remember, starting from a negative angle, this action causes less, not more, resistance to rotation! The governor cannot work properly until the blade angle jumps forward through flat pitch and finds itself with a positive, not negative, value.

As stated above, I am lucky that both sides were misrigged the same. Otherwise, I am sure I would have left the runway.

It is my belief that the primary reason for having the Fuel Topping Governor is the necessary protection that it stands by to provide whenever Maximum Reverse is selected. We could probably fly thousands and thousands of King Air hours without an FTG and never notice the difference ... if the rigging is halfway correct. However, it is surely comforting to know that we have our little FTG friend standing by to save us from harm in Max Reverse if we and/or the mechanic did not do our jobs correctly. That the FTG can provide one more overspeed protection device in normal operation? I personally think that's just where we "store" it until we select Maximum Reverse the next time!

As you have perhaps been taught, something that prevents blade angle from being able to change will render *both* the primary and overspeed propeller governors inoperative since they both accomplish their jobs by varying blade angle. Yes, that's true. That is where the FTG would be helpful in flight. But you know what? In my 49 years being around King Airs I have yet to hear of that "unable to change blade angle" scenario ever happening. Comforting, eh?

King Air expert Tom Clements has been flying and instructing in King Airs for over 46 years and is the author of "The King Air Book" 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. For information on ordering his books, contact Tom direct at *twcaz@msn.com*. Tom is actively mentoring the instructors at King Air Academy in Phoenix.

If you have a question you'd like Tom to answer, please send it to Editor Kim Blonigen at *editor@blonigen.net*.



IN HISTORY

Introduction of the Model A90 for the 1967 model year provided King Air customers with both fully reversing propellers and a more robust cabin pressurization system not found on the Model 90. The new propellers reduced landing rollout and the higher maximum pressure differential kept the cabin altitude at 8,000 feet at a cruising altitude of 21,000 feet. (Special Collections and University Archives, Wichita State University Libraries)



The King Matures

Never content to rest on its laurels, in 1966 the Beech Aircraft Corporation launched a series of upgrades to the new King Air that drew increased sales from business aviation and military customers.

by Edward H. Phillips

y 1965, Beechcraft dealers and distributors were selling the Model 90 at an accelerated pace. Not only was the turboproppowered airplane proving to be an enormous success in the marketplace, but its growing popularity also resulted in a steady stream of orders that flowed into the factory in Wichita, delighting both dealers, distributors and most importantly, Olive Ann Beech.

Salesmen across the United States and in Europe were kept busy as both longtime and new customers lined up to plunk down their cash deposits for the new King Air. It was becoming clear that the great gamble taken by the company's board of directors a few years before was paying off handsomely. Had he lived to see the Model 90, there is little doubt that Walter Beech would have thrown his full support into the program, proving once again that at times risks must be taken to advance aviation.

Mr. Beech had proven that attitude time and again, first with the Travel Air Type "R" racing monoplane of 1929. Painted a brilliant scarlet red, the sleek, single-seat ship easily won the Thompson Cup at the National Air Races that year, soundly defeating the best the U.S. Army and Navy, as well as worthy commercial adversaries, could muster.

Then in 1932, amid a devastating economic depression that had crippled commercial aviation in America, he and Olive Ann dared to risk everything they had gained in aviation to co-found the Beech Aircraft Company and locate it (of all places!) in a leased building of the defunct Cessna Aircraft Company. Sales of the company's radical Model 17R cabin biplane, designed and engineered by associate Ted Wells, totaled zero for the first two years of the Beechcraft organization. Cash and operating capital were nearly exhausted, but Walter hung on and never gave up. By 1934 the infant

company was slowly gaining a solid financial footing and the future looked promising.

From a historical and technical viewpoint, it is reasonable to conclude that the Model 17 Staggerwing resembled the Model 90 King Air in that both airplanes represented a break with the past. In its own unique way, each airplane had advanced that state-of-the-art in commercial aviation and pointed toward the future.

Such was the determination of Walter H. Beech – a determination to succeed despite tremendous odds that made him a legend in his own time. The King Air carried on that tradition.

Following the Model 90's formal introduction in 1964, the company had built 112 airplanes and had implemented a global product support program designed to keep the new Beechcraft flying. As with any new Beechcraft airplane, owners and pilots were encouraged to share their opinions of the aircraft and offer suggestions regarding how the Model 90 could be improved. In parallel with customer input, company pilots and engineers were continually evaluating every aspect of the King Air's "personality."

They eventually created a list of changes that, combined with those from owners and operators, were aimed at taking the Model 90 to the next level in terms of overall value for the dollar. Although corporate pilots were enthusiastic about the ease of operating the airplane's Pratt & Whitney PT6A-6 turboprop engines, these powerplants lacked reversing propellers that would significantly decrease landing distances – an important consideration since many



Model 90s were being operated from small airports with relatively short runways.

Another concern was the airplane's pressurization system. Although a distinct improvement over the days when nonpressurized cabins required passengers and crew to use supplemental oxygen at higher altitudes, the pressurization systems was limited to 3.4 pounds per square differential (psid). Customers wanted that number increased to take advantage of the Model 90's ability to climb to and cruise at altitudes above 20,000 feet.

During 1965, Beechcraft engineers addressed these as well as other technical, performance and systems issues to create the Model A90. Although the airplane was essentially identical to the Model 90 externally, the majority of upgrades were transparent to the owners/operators and resided entirely within the airframe and engines.

More powerful Pratt & Whitney PT6A-20 engines, each rated at 550 shaft horsepower (shp) for takeoff, 538 shp for climb and 495 shp for the cruise phase flight, replaced the PT6A-6 powerplants of the A90's predecessor. To address the concern about runway landing distance, the A90 was the first of the King Air series to receive fully reversing propellers. These units proved highly effective at reducing landing rollout, particularly when operating on rough, unimproved landing strips.

As for the aircraft's pressurization system, maximum differential was increased to 4.6 psid that provided passengers and crew with a sea level cabin at 10,000 feet altitude and an 8,000-foot cabin at a cruising altitude of 21,000 feet. The upgraded system finally matched the cabin to the airplane's performance capabilities and provided a welcome increase in comfort.

First flight of the A90 occurred Nov. 5, 1965, and following Federal Aviation Administration (FAA)



The U.S. Army began acquiring military versions of the versatile A90 King Air as early as 1967. Designated as U-21 or RU-21 "Guardrail," these airplanes served as effective airborne platforms for special mission operations that included, among other roles, battlefield communications, surveillance and electronic countermeasures. (Special Collections and University Archives, Wichita State University Libraries)



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certification, production commenced for the 1966 model year. Priced at about \$400,000, the Model A90 offered a lot of performance and utility and 206 airplanes were built before the A90 was superseded on the production line by the Model B90 King Air.

The B90 took to the air for the first time April 13, 1967. It possessed only minor upgrades to airframe systems but retained the A90's PT6A-20 engines and reversing propellers. The B90 entered production in 1968, and 184 airplanes were manufactured before the Model C90 appeared for the 1971 model year.

In addition to being popular with commercial operators, the Model A90/B90 was soon pressed into service with the U.S. Army. Designated U-21A (Beechcraft designation was A90-1), the Army bought 110 airplanes from 1966-1968 and the majority were assigned to units serving in Southeast Asia during the Vietnam War, chiefly performing liaison, transport, surveillance and utility missions which they accomplished in admirable fashion.

Unlike the commercial A90 and B90, however, the Army's airplanes were unpressurized and featured square windows reminiscent of the Model 65 Queen Air series. To facilitate handling of large cargo, such as spare engines, propellers and other war material, the U-21A fleet was equipped with a cargo door on the left side of the fuselage that incorporated an airstair door.

A small number of airplanes were built by the factory specifically to meet Army specifications for special missions such as intelligence gathering and battlefield



and receive 10% off of your training! w.nationalflightsimulator.com • train@nationalflightsimulator.com • 603-880-00 communications. Officially dubbed "Guardrail" by the Army, four of these unique aircraft were designated RU-21A and another 10 served under the designation RU-21D with special antenna arrays installed vertically on the wings and empennage surfaces.

To conduct special missions operations of a more clandestine nature, the Army ordered and equipped 17 U-21Gs. All were built and delivered in 1971. These airplanes were designed specifically to accommodate sophisticated electronic countermeasures and communications equipment in the cabin and in pods at each wingtip.

The aircraft were not the first built as the Army's new special missions' platform. In 1967, the factory built three RU-21B (A90-2) and two RU-21C (A90-3) aircraft. In 1971, Beech Aircraft built and delivered 16 "Guardrail" platforms designated RU-21E and RU-21H (A90-4) that served the Army in the role of electronic surveillance and other related missions. These airplanes were powered by Pratt & Whitney PT6A-28 engines each rated at 620 shp to accommodate a higher maximum gross weight of 10,900 pounds. KA

Ed Phillips, now retired and living in the South, has researched and written eight books on the unique and rich aviation history that belongs to Wichita, Kan. His writings have focused on the evolution of the airplanes, companies and people that have made Wichita the "Air Capital of the World" for more than 80 years.

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West Star Aviation Makes Improvements with Customers in Mind

West Star Aviation has recently introduced some changes that will be beneficial to aircraft owners. The company will be expanding second shifts at their four full-service locations at the St. Louis Regional Airport (ALN), Grand Junction Regional Airport (GJT), Perryville Regional Airport (PCD) and Chattanooga Metropolitan Airport (CHA) to improve overall efficiency and reduce turn times. The second shift efforts implemented to date have reduced turn times by as much as 25-30% in certain instances.

West Star also announced they are remodeling and expanding their Aircraft Interior Design Center at their Grand Junction, Colorado, facility. The newly updated and larger Design Center will include extensive material and sample storage displays to provide customers an expanded, well-lit space for viewing design renderings and detailed materials for discussing upgrade options for their aircraft's interior environment. The expansion will be four times the previous size. The space will be completed and ready for customers soon.

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D Left: Chris Crisman/TNC/LightHawk; Right: Lincoln Athas/WCC/LightHawk

West Star Aviation specializes in the repair and maintenance of airframes, engines and APUs, avionics installations and repair, major modifications, interior refurbishment, exterior paint, accessory services and parts.

In addition to its primary facilities in East Alton, Illinois (ALN); Grand Junction, Colorado; Chattanooga, Tennessee; and Perryville, Missouri (PCD); West Star Aviation also maintains satellite facilities at Aspen-Pitkin County Airport (ASE) in Aspen, Colorado; Chicago Executive Airport (PWK) in Chicago, Illinois; Centennial Airport (APA) in Denver, Colorado; Conroe-North Houston Regional Airport (CXO) in Houston, Texas; and Minneapolis/St. Paul International Airport (MSP) in Minneapolis, Minnesota. The company also provides complete FBO services for transient aircraft at its East Alton and Grand Junction facilities.

For more information visit www.weststaraviation. com or call (800) 922-2421.

Garmin Announces New Models of Compact USB Charger Designed for Aircraft

Garmin[®] International, Inc. recently introduced new models of its GSB[™] 15, a powerful USB charger designed for a wide range of aircraft, now available with 27W USB Type-C charging ports. While maintaining the same compact and lightweight design, the new GSB 15 models include two USB ports that support up to 27W of power output per port simultaneously, allowing pilots and passengers to charge most mobile devices while they are using them. Other enhancements include new dimmable halo lighting around each port, new USB Power Delivery (PD) technology and much more.

The new models are offered with either dual USB Type-C ports or an option that includes a combination of USB Type-A and USB Type-C ports. Both include two powerful 27W USB charging ports that can provide enough power to charge most later generation mobile devices during use in the cockpit and throughout the cabin. The GSB 15 is available with a rear or side power input connector, allowing for installation in spaceconstrained areas such as near cabin sidewalls or armrests. Another exciting feature is the new USB PD technology that enables the GSB 15 to provide optimized power output for a specific device. In addition, new dimmable halo lighting located around the exterior of the USB ports allows pilots and passengers to connect to the GSB 15 easily during nighttime conditions and utilize the lighting bus to control brightness for optimal viewing. It also provides owners and operators with short circuit and overtemperature protection.



The new models continue to offer pilots the option to transfer databases to the GI 275 electronic flight instrument using a USB flash drive. In addition, owners and operators with a GI 275 and GSB 15 installation can record flight data, including valuable Engine Indication System (EIS) data, and upload this information to a USB flash drive for an in-depth analysis.

The GSB 15 is compact enough to fit a 1-inch cutout and uses a slim design to make it suitable for installation in any cockpit. For aircraft owners and operators looking to install a GSB 15, installation is simplified as it can take the place of an existing aircraft instrument hole with an optional adapter plate. Those who have an existing GSB 15 will be pleased to learn that upgrading to a new model is easy for their installer by utilizing the same connector as well as a compatibility with original wiring for the new dimmable halo lighting feature¹. Optional accessories include GSB 15 mounting kits and decorative covers.

The GSB 15 can be purchased through a Garmin Authorized Dealer with a list price of \$399 for the dual USB Type-C variant, and a list price of \$399 for the combination USB Type-C and USB Type-A variant (installation not included).

For additional information, visit www.garmin.com/ aviation.

May require wiring or breaker change in 14v aircraft. See installation manual for details.



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