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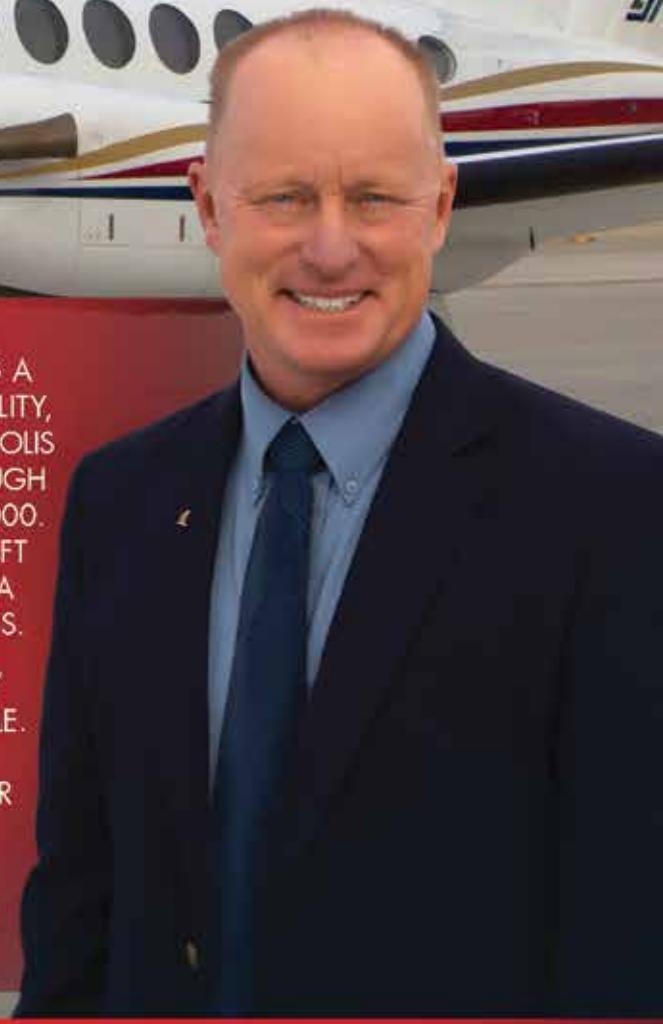
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## Correspondence



**Editor's Note:** There has been a lot of discussion and questions that have surfaced from Mike Stanko's article "Pratt & Whitney PT6 TBO Recommendations and FAR Part 91 Operators" in the December issue of King Air magazine.

These issues will be researched, addressed and discussed in a future issue of the magazine. Thank you for sharing your points of view and questions. It is our hope that all issues will be resolved with this next article.

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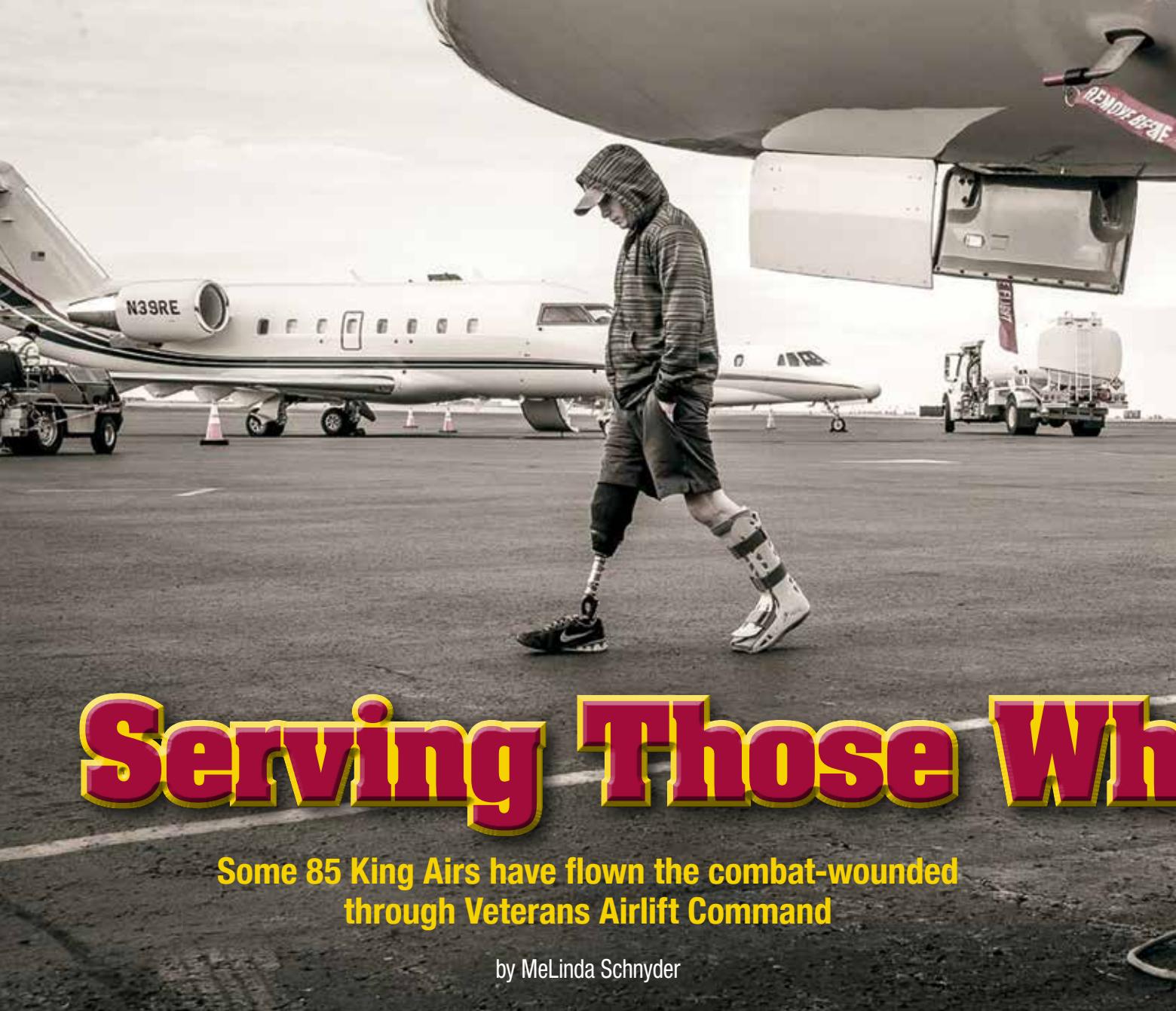


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# Serving Those Wh

**Some 85 King Airs have flown the combat-wounded through Veterans Airlift Command**

by MeLinda Schnyder

**T**he request from Veterans Airlift Command (VAC) was the kind that Jim Harris loves to say yes to. The organization needed him to fly the first leg of a trip that would take the wife of a wounded warrior from her home in Buffalo, New York, to be by his side at a military hospital burn center in San Antonio, Texas. As he does with all VAC missions, Harris immediately contacted the passenger to discuss timing. She requested they leave in four days and asked if she could bring her 15-month-old son and her parents. The Beechcraft King Air 200C had plenty of room for her family, he told her.

"So I picked her up in Buffalo and when she came out to the airplane she had her 15-month-old and a one-week-old newborn," Harris said. "The doctors

had told her there was no way she could fly with the newborn, but when they realized she was flying on a private aircraft instead of going through the terminals they gave her the go-ahead."

Breg Hughes, a commander in the U.S. Army Special Forces, also known as the Green Berets, suffered burns over 50 percent of his body when his Humvee ignited a roadside bomb in

Afghanistan just days before he was scheduled to go on leave to be at his wife's side for the birth of their second son. He'd been back in the States and in intensive



*Amy Sgt. Eric Hunter after a VAC flight. (PHOTO CREDIT: MAX HAYNES)*

care for a month but his wife, Allison, a retired Army captain and Blackhawk pilot, hadn't yet visited him due to the pregnancy.

Breg wasn't recovering well and needed the support of his wife. Harris flew the family to Fayetteville, North Carolina, where they boarded a second VAC-coordinated aircraft that would take them to San Antonio. The Veterans Airlift Command, a national network of volunteer aircraft owners and pilots, provides free air transportation for medical and other compassionate purposes to post-9/11 combat-wounded soldiers and their families.

Breg would go on to spend four months in the hospital and endure more than 20 surgeries. Now a retired major, he is working toward his Master of Business Administration at the University of Chicago and a career as a financial adviser.

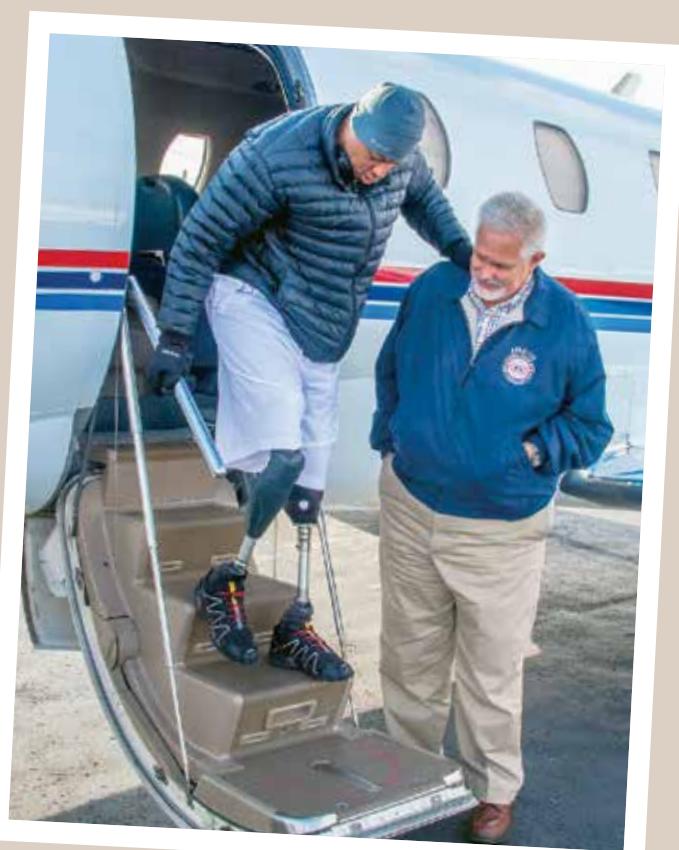
This is exactly the type of support Walter Fricke envisioned when he started Veterans Airlift Command. The wounded have a better chance to heal when their spirits are lifted by family, a lesson he learned the hard way: he spent most of six months in the hospital with 700 miles separating him from family after he was injured in 1968 while serving in the Vietnam War.

### A Vietnam vet giving back

Fricke is a decorated former Army aviator, having flown hundreds of combat missions as an Army helicopter pilot with the 68th Assault Helicopter Company in Vietnam. He received the Vietnamese Cross of Gallantry with the Silver Star and palm, two Bronze Stars, 21 air medals and a Purple Heart.

An instrument-rated commercial airplane and helicopter pilot with multi-engine land and sea ratings, Fricke flies at airshows around the United States in support of VAC as part of a T-28 warbird aerobatic formation demonstration team called the Trojan Horsemen. He collects and flies vintage and warbird aircraft including a Great Lakes, Waco, Staggerwing and Grumman Widgeon.

Fricke started VAC in 2006 after retiring from a career as an executive with GMAC-Residential Funding Corporation and then as founding president and executive director of the Homeownership Preservation Foundation. He serves as the chairman and CEO, and



*Veterans Airlift Command Founder Walt Fricke assisting Army Ranger MSG Cedric King after a flight. (PHOTO CREDIT: MAX HAYNES)*

he regularly flies for VAC. His daughter, Jen Salvati, runs the day-to-day operations as VAC's executive director.

According to Salvati, the organization has coordinated flights for 9,000 passengers covering more than five million miles with the generosity of more than 2,400 pilots and owners who have donated their time, aircraft and operating expenses. Those figures include 85 King Air pilots who have signed up for the VAC network and volunteered for missions.

King Airs are some of the most popular aircraft for VAC missions because they offer passengers comfortable flights – non-stop routes, flying above weather and plenty of cabin room for family members, service dogs or medical equipment. Here are the experiences of two King Air pilots who have flown wounded warriors as part of the VAC network.



Judy Harris, left, and Jim Harris, right, flew Travis Mills and his family to Walter Reed National Military Medical Center shortly after he received his artificial legs. Travis lost portions of both legs and arms in 2012 as a U.S. Army Staff Sgt. on his third tour of duty in Afghanistan. He is one of only five quadruple amputees from the wars in Iraq and Afghanistan to survive his injuries.

## CHI Aviation's King Air 200C

Jim Harris, who helped get Allison Hughes to her Green Beret husband's side, has flown 34 missions for Veterans Airlift Command, including four in December 2014.

"Four in one month is somewhat unusual for us, but we attempted to help the VAC in getting wounded veterans from Walter Reed National Military Medical Center, in the Washington, D.C. area, home to spend the holidays

with their families," said Harris, the facility manager and security coordinator for CHI Aviation headquartered in Howell, Michigan.

Harris points out that he is merely the pilot; it is CHI Aviation President Chris Turner who donates the company's 1981 King Air 200C and pays all the expenses to fly these missions. CHI Aviation, which started business in 1980 as Construction Helicopters, Inc., operates 20 aircraft from CH-47D Chinook rotorcraft to the King Air 200C. The company provides search and rescue and passenger transport services to oil and gas customers in Alaska and the Gulf of Mexico, as well as aerial crane services throughout North America and the Caribbean. CHI is also a U.S. Department of Defense contractor.

"About 75 percent of CHI Aviation's employees are veterans, many with combat experience," said Harris, who served in the Army during the 1960s. "Each mission we have flown for the VAC has given more back to us than what we have ever given to these veterans. All of our employees are happy that our company is able to provide these wounded veterans a comfortable mode of transportation aboard our airplane in recognition of their services and sacrifices to our nation."

The company's King Air features the Blackhawk PT6A-52 engine upgrade and the Raisbeck EPIC PLATINUM performance package minus the swept turbofan propellers. It flies about 150 hours a year performing executive transport, crew swaps and other logistics support for the company's facilities in Galliano, Louisiana; Boise, Idaho; and Sacramento, California. The airplane's factory-installed large cargo door is ideal for hauling a helicopter engine on a rack.

The cargo door and spaciousness of CHI Aviation's King Air 200C means Harris often gets special requests, for example, when a wounded warrior is confined to a 700-pound motorized rolling bed.

"To get someone home to see their mom for the first time in months or even years, and with all they are going



Nicholas Vogt with his parents before boarding a VAC flight with King Air pilot Jim Harris. In 2011, a year after graduating from West Point, Vogt was two months into service in Afghanistan when he stepped on a buried makeshift bomb that tore off his legs. His severe injuries required 400 units of blood before he left the war zone and another 100 units later.

through, it's just a very humbling experience. We are happy to assist the VAC on these special opportunities to reunite veterans with their families," Harris said.

"Ninety percent of the veterans I have flown have lost at least one limb," he said. "We are talking about 19, 20, 21-year-old kids. If they have a break between medical procedures and want to visit friends and family back home, some don't have the money, and for many, traveling commercially is nearly impossible."

Harris has flown wounded warriors and their families to medical treatments, homecomings, funerals, weddings, and he even transported to a reenactment – a then 88-year-old World War II veteran who had received the Medal of Honor for his combat service in the Battle of Iwo Jima.

"War is truly hell," Harris said. "This is our way to help our vets through some difficult times, and CHI Aviation is absolutely honored to do it."

### CEMCO Inc.'s King Air C90SE

From his first VAC flight in 2008, Neil Hise knew these missions would have an impact on the lives of the veterans as well as his own.

"It was an eye-opening experience to be close to people who need help and have issues they are dealing



Jennifer Hise, Army Sgt. Matthew Melancon and Neil Hise at Albuquerque International Sunport Airport. Melancon lost both his feet when an improvised explosive device hit his vehicle in 2011 in Afghanistan. Neil volunteers his time and his 1996 King Air C90SE with Veterans Airlift Command; his daughter Jennifer sometimes flies with him.

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*Left to right: Breg Hughes with son Brogan, VAC Pilot Neil Hise, Allison Hughes with son Gavin, and Neil's wife Ty Juana G. and daughter Jennifer at Montgomery Field Airport in San Diego. Breg was burned over 50 percent of his body by a roadside bomb while serving as a commander in the U.S. Army Special Forces in Afghanistan in 2012. Both Hise and King Air pilot Jim Harris have flown the Hughes family.*

with, whether it's the loss of a leg or the real desire to get back to military service," said Hise, a Vietnam veteran. "They've got their whole lives to deal with this and we help them for a couple of hours. It's such an honor to fly these guys."

Hise is president of CEMCO Inc., a New Mexico-based family business that makes vertical shaft impact crushers to crush materials for recycling and energy production among other uses. Many of his VAC flights involve the military hospital in San Antonio or the western part of the country. In addition to signing up for missions posted on veteransairlift.org, he will let VAC know when he's on a business trip with room for passengers.

**The wounded have a better chance to heal when their spirits are lifted by family, a lesson Fricke learned the hard way: he spent most of six months in the hospital 700 miles away from family after he was injured in 1968 while serving in the Vietnam War.**

This is Hise's first King Air; he purchased the 1996 King Air C90SE new from the factory and has accumulated 2,900 hours in it. "I consider myself to be one of

the luckiest guys in the world to own a King Air," he said. "It's been a wonderful business tool; it's very professional; it's a great airplane to fly; it's just a sweet airplane."

Much of CEMCO's work is in the mining industry, and the C90SE gets Hise to aggregate mines and processing plants in remote locations. "My King Air is a magic carpet; it gets me into small fields," Hise said.

That means Hise can get VAC passengers pretty close to their hometowns no matter the size. He has flown 22 missions for VAC, including three last year, and has a photo with most of the soldiers he's transported. The photos hang on the main office wall, inviting visitors to learn more about the costs of war and what can be done to help.



*Amy Ranger MSG Cedric King thanking Founder Walt Fricke after a VAC flight. (PHOTO CREDIT: MAX HAYNES)*



"I'm compelled to do this," said Hise, who's been flying since 1968 and has 5,820 hours total flight time. "It's something that I give back and it gives back to me. It gives me some closure from my experiences returning from Vietnam."

VAC pilot Neil Hise with his King Air C90SE which he purchased new from the factory. He has a photo of most of the soldiers he's transported through VAC and displays them on the main wall at his office as a way to invite visitors to learn more about the costs of war and what can be done to help.



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Andrew Smith, front right, was an Army Specialist on his first tour in Afghanistan in 2012 when he stepped on an IED, losing both legs and suffering severe abdominal injuries. He spent 20 months in the hospital recovering from his injuries. In this photo he's with his family and his service dog on CHI Aviation's King Air 200C during a Veterans Airlift Command flight.

"Some of these veterans' stories have really affected my life, I mean absolutely changed my life and still bring tears to my eyes. And keep in mind, I'm a crotchety old Vietnam vet, business owner and grandpa."

One of those passengers was Army Sgt. Matthew Melancon, who lost both his feet when an improvised explosive device hit his vehicle in Afghanistan. During a flight from Texas to New Mexico, Melancon told Hise that the injury was the best thing that ever happened to him because he now appreciated the good things in life.

"When someone with grievous injuries like Matt is able to have that outlook, it's really special," Hise said. "You meet some of the most wonderful people when you're doing this – from the veterans and their families to the people running VAC. And the FBOs almost always step up, offering a fuel discount, waving ramp fees and bending over backward to help."

### More pilots needed

"The war might be winding down but the need for flights has not stopped. Veterans Airlift Command is here for the long haul," Salvati said from VAC headquarters in Minnesota.

Some who request transportation are no longer in hospital settings but they require travel for medical care, and some wounded warriors are still seeking treatment for injuries sustained as many as 10 years ago.

"I've got a triple amputee in Denver right now who needs to go to San Diego for a consult on a hand transplant," she said. "Many of our soldiers need specialized treatment, and it's not something they can find at their local VA hospital."

Visit [veteransairlift.org](http://veteransairlift.org) to find out more on being a volunteer pilot, donating money or to request transportation for a wounded warrior. KA



VAC Founder Walter Fricke is a decorated former Army aviator, having flown hundreds of combat missions as an Army helicopter pilot with the 68th Assault Helicopter Company in Vietnam. He received the Vietnamese Cross of Gallantry with the Silver Star and palm, two Bronze Stars, 21 air medals and a Purple Heart. (PHOTO CREDIT: MAX HAYNES)

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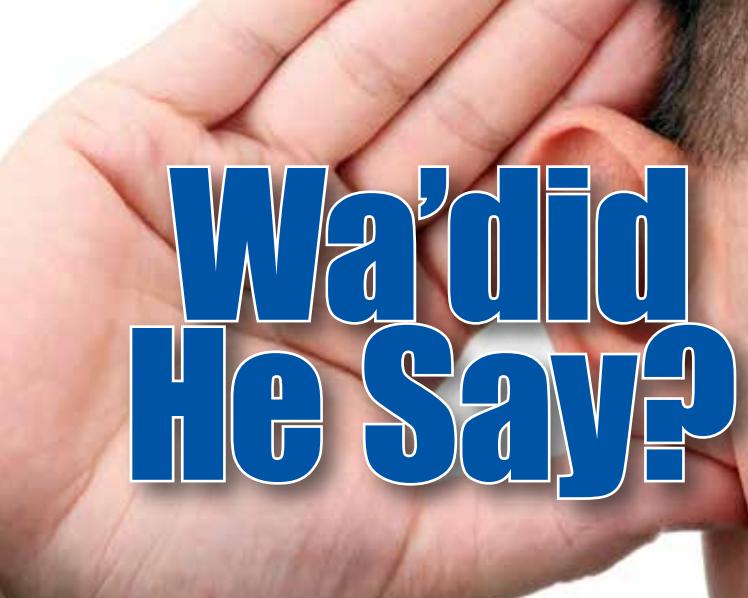


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# Wa'did He Say?

by Dr. Jerrold Seckler

**O**f all our sense organs, it could be argued that the ear is the most complex. It consists of three distinct parts, the outer, middle and inner ear.

The outer ear, also called the pinna, is the part of the ear we see sticking out from the sides of our head. It collects sound waves and channels them into a tube, the ear canal, that ends at the boundary of the outer and middle ear called the tympanic membrane, or eardrum. Sounds cause the eardrum to vibrate, and these vibrations are amplified and passed through the middle ear by three small bones that transmit the vibrations to the actual hearing organ, the cochlea, in the inner ear. This organ contains fluid and many cells that have fine "hairs" sticking up from the cell surface. The vibrations transmitted from the middle to the inner ear cause movement of the fluid, which in turn stimulates the tiny hairs on the cochlea cells to generate an electrical current that travels from the inner ear to the hearing center in the brain.

There are other parts of the ear as well, such as the Eustachian tube, which is necessary to balance the pressure between the outer and middle ear (that's what gets blocked during rapid descents), as well as the semi-circular canals which play an important role in balance. For now, let's just concentrate on hearing as it relates to FAA certification.

There are two main types of hearing loss – conductive and sensorineural. Conductive loss results from any condition that impairs the transmission of the sound wave from the pinna to the cochlea. Common causes include plugging of the ear canal by wax, otosclerosis (stiffening of the bones of the middle ear) and infectious processes in the middle ear. Sensorineural hearing loss is due to a problem in the inner ear, most usually deterioration of the hair cells that convert the vibrations of sound into electrical signals that travel to the brain. As we age, all of us experience some degree of hearing

loss. This is exacerbated by prolonged or very sudden loud noise exposure, ear infections, and genetics, as well as multiple other factors. Pilots have been especially prone to decreased hearing because of the high noise environment of the cockpit. Hopefully, the emergence of high quality ANR headsets over the last 15-20 years will minimize this risk for the new generation of pilots.

Most pilots intuitively understand that good vision is necessary, but what about hearing? What are the FAA standards, and, if a pilot does not meet them, can one still get a medical certificate?

Interestingly, hearing loss is not a disqualifying condition for any category of medical as long as the amount of loss is not to a degree that makes normal communication impossible. Even then, pilots who are totally deaf may still qualify for a medical certificate.

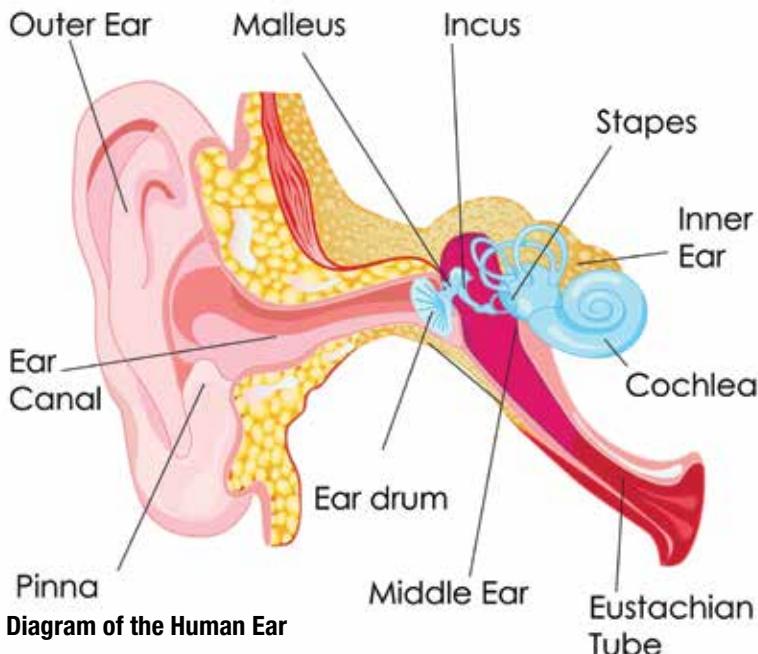
Unlike visual testing, which is fairly thorough, the test for hearing is quite simple and straightforward. For all classes of medical, all the applicant needs to do is demonstrate the ability to hear a normal spoken voice with his/her back to the examiner from a distance of six feet. What that means is simply that during the exam, the examiner should have you turn your back, and, from a distance of six feet say a few things and then ask you what was said. Unlike with the eyes, the ears are not tested separately. You do this test using both ears. Even if you are totally deaf in one ear, you may pass without difficulty.

If you cannot pass that test, there are other options. For example, you may choose to have audiometric testing. If you do, you must demonstrate the following thresholds:

Condition	500 Hz	1,000 Hz	2,000 Hz	3,000 Hz
Better Ear	35 dB	30 dB	30 dB	40 dB
Worst Ear	35 dB	50 dB	50 dB	60 dB

What this test measures is the softest sound you can reliably hear at different frequencies. A whisper is about 20 dB, and a jet engine is roughly 180 dB. The frequencies, measured in Hertz (Hz), correspond to pitch, with higher pitched sounds having a higher frequency. In this test, both ears are measured and you have to be able to hear a 35 decibel (dB) tone at 500 Hz, a 50 dB tone at 1,000 and 2,000 Hz and a 60 dB tone at 3,000 Hz in your worst ear, and 35, 30 or 40 dB tones at those frequencies in your better ear in order to pass.

If you can't pass the standard hearing tests, you may be able to meet the standards using a hearing aid. If so, there will be a limitation on your certificate stating it is "Valid only with use of hearing amplification." Note that it does not require you to use your hearing aid in the cockpit. Any form of amplification, including a headset, will meet the requirement.



**Diagram of the Human Ear**

Persons who are deaf and cannot meet the hearing standards are still eligible for a medical certificate. They must be able to demonstrate to the FAA their ability to 1) detect an engine failure by a change in vibration or instrument scan, 2) stall recognition by aerodynamic buffet and visual cues, and 3) recognize retractable gear emergencies by visual means, if applicable. Such a certificate will contain the limitation "Not valid for flying where radio use is required."

As long as no radio communication is required, such persons can get second class certificates and fly commercially in such jobs as banner towing and agricultural application. Currently there are several hundred deaf pilots in the United States.

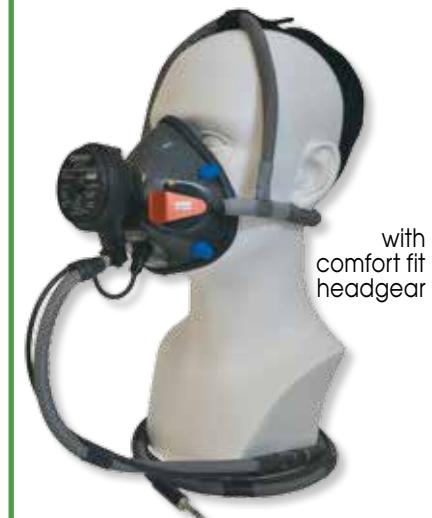
**About the Author:** Dr. Jerrold Seckler has recently retired after practicing medicine (urology) for over 40 years and as an active AME for 25 years. He has almost 6,000 total hours, 1,700 of those in his 2001 Cirrus SR22. He is a CFII, former COPA Board Member and a ground instructor at CPPPs.

The items discussed in this column are related to experiences by Dr. Seckler in his many years as an AME, and made hypothetical for the article. Any information given

is general in nature and does not constitute medical advice.

If you have a medical question, it can be asked with anonymity on the COPA website ([www.cirruspilots.org](http://www.cirruspilots.org)) under the medical forum.

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# FLAPS – A Cold Weather Catch

by Dean Benedict

**J**ust last month, a customer called me with an AOG situation – his flaps were stuck in the down position after landing. He flies an E90 with the old style flap switches. There are plenty of 90s and 200s still flying today with these switches, which run on ramps instead of the cam type.

This owner-operator is still a little new to the King Air but learning every day. He's logging a good amount of time in the aircraft, having put almost 160 hours in it between the last two phase inspections.

## Acting Up in the Down Position

In this particular situation, it was a normal landing, and up to this point his flaps had been working perfectly. He had checked his circuit breakers and had moved the flap handle up and down to no avail. They would not retract.

Weather-wise, winter had begun and the western United States was in a pretty deep cold snap. The OAT was around 42 degrees Fahrenheit on the ground when he departed that morning, but was below freezing at his final destination of Reno, Nev. Since I know from experience that the older, ramp-style switch arrangement in the flap system is susceptible to freezing, I had a couple questions for him.

First I asked if he encountered rain at any point en route to Reno. He said he hadn't. My next question, "Did you have the aircraft washed before this trip?" and got a "yes." We had already discussed the specifics of the OAT on the ground and at altitude, so I suspected the culprit was a frozen up limit switch. When this switch sticks in the actuated position, it prevents the flaps from retracting.

## Low-Tech Solution

I told him to go out to the aircraft, turn the battery on and put the flap handle in the "up" position; then I instructed him to stand at the trailing edge of the R/H inboard flap and wiggle it up and down. He did as directed, and lo and behold, the flaps came up!

Needless to say, he was ecstatic. He was able to get his passengers back to home base as originally planned, with the flaps operating normally. They have not acted up (or down) since that time.

I am sure that he had a frozen switch and what I told him to do simply knocked it loose. The ramps for these old-style switches are riveted to the leading edge of the R/H inboard flap. It doesn't take much moisture for this to happen in freezing temperatures, and a good rattling may be all that is needed to jog it loose.

By the way, the design of the newer cam-type switches makes them much less susceptible to freezing, and they are further protected by a plastic cover.

## Flap Motor – A Similar Snafu

I have seen similar behavior in flap motors, where there can be a dead winding in it. If the motor happens to come to rest on that exact spot, the flaps will not come up. But by giving the flaps a good rattling, the actuator moves just enough to jerk the gear box and nudge the motor off the dead winding. The flaps will suddenly spring back to life. Note that this temporary fix will only work if the flaps are stuck in the full down position.

Obviously, with the flap motor, the problem has nothing to do with moisture and freezing temperatures. This can happen in any kind of weather. The thing is,

all King Airs have the same flap motor and gearbox. If the flaps are stuck in the down position, this remedy just might get them to go up.

For some reason, rattling the flaps in the up position will not affect the actuator enough to move the flap motor off a dead segment. So this low-tech advice won't be helpful if the flaps are stuck in the up position. But that is not as much of a problem because you can still take off and do a no-flap landing.

Although it goes without saying, I have to say it anyway: This course of action would only be taken as a last resort, after exhausting all other options as laid out in your POH. And by all means, if you ever have to do this to get your flaps to come up, then your very next stop had better be with a good mechanic that can troubleshoot, identify and remedy the problem(s) in your flaps system.

**About the Author:** Dean Benedict is a certified A&P, AI, and has almost 40 years of experience in King Air maintenance. He is president of Honest Air, Inc., which specializes in Beechcraft King Air maintenance and repair.

*If there is a particular maintenance issue you would like Dean to address in a future issue, please email Editor Kim Blonigen at [kblonigen@cox.net](mailto:kblonigen@cox.net). KA*

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# A Good Start to the New Year

by Kim Blonigen



## Strong Supporters of Aviation Leading Prominent Committees in Congress

**A**s the 114th Congress got underway in January, two veteran aviation policymakers, Rep. Bill Shuster (R-PA) and Rep. Peter DeFazio (D-OR), are the chairman and ranking member, respectively, of the House Committee on Transportation & Infrastructure (T&I). The T&I Committee, which has jurisdiction over all modes of transportation and provides legislative oversight of the U.S. Department of Transportation

and FAA, will be instrumental in crafting legislation to reauthorize the FAA.

DeFazio and Shuster have both been members of the T&I Committee since they entered Congress – DeFazio in 1987 and Shuster in 2001. Both have also been loyal supporters of business aviation. The two legislators were members of the House GA Caucus in the 113th Congress, and were among the majority of representatives who signed a letter in 2013 opposing President Obama's plan to institute aviation user fees.

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Shuster was a keynote speaker for the Opening General Session of the NBAA Business Aviation Convention & Exhibition last year, where he told attendees that his priority was an FAA reauthorization bill that promotes American jobs and competitiveness.

Two other strong supporters of general aviation, Sens. John Thune (R-SD) and Bill Nelson (D-FL), now hold the top positions in the Commerce, Science and Transportation Committee, which among other things, will take up reauthorization of the FAA.

Thune, who takes over as Commerce Committee chairman, also sat on Commerce's Aviation Operations, Safety and Security subcommittee, and is a member of the General Aviation Caucus, which was first formed in the U.S. House of Representatives and Senate in 2009.

Nelson takes over as the ranking Democrat on the Commerce Committee. He also sits on the Aviation Operations, Safety and Security subcommittee. Among the numerous legislative efforts in support of general aviation, last year Nelson authored an amendment during the last FAA reauthorization debate that blocked aviation user fees.

General Aviation (GA) Caucuses were formed in the U.S. House of Representatives and the Senate in 2009 to inform members and staff about the importance of GA to the nation's economy and transportation system. Today, the House GA Caucus has nearly 250 members, making it among the largest caucuses in the House of Representatives.

NBAA President and CEO Ed Bolen said, "The continued growth of these caucuses underscores the recognition by Congress that general aviation creates jobs, provides a transportation lifeline to communities across the country, helps businesses succeed and supports people and communities in times of crisis."

## NTSB Releases 2015 "Most Wanted" Safety List

In mid-January, the National Transportation Safety Board (NTSB) released its "Most Wanted" Safety List of top transportation safety improvements for 2015. The list represents the NTSB's advocacy priorities; and is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives.

The 2015 Safety List included six items that were included last year and four new points. Two of the items are directly related to business and general aviation:

- **Strengthen Procedural Compliance** – The NTSB says it has investigated more than a dozen airline or commercial charter accidents involving procedural, training or compliance issues.
- **Prevent Loss-of-Control in General Aviation** – The Board said that general aviation accidents can be reduced "through ongoing pilot education, flight currency, self-assessment, and vigilant situational awareness in the cockpit." **KA**

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# The Ground Fine Power Lever Stop ... Why Some King Airs Have It and Others Do Not

by Tom Clements

All King Airs currently being produced share a common power quadrant, the part of the cockpit that includes the power, propeller, and condition levers, which also includes the elevator trim wheel, the flap handle, and the friction control knobs. Inside the power quadrant, a pin protrudes from the side of the power levers and rides in a slot in a metal plate. The shape of this slot requires a lift to move the lever aft of Idle into the Beta range. Another lift is required to leave the Beta range and to enter the Reverse range. This second stop is at the position labeled "Ground Fine," where the propeller's low pitch stop (LPS) should be "flat," yielding neither positive nor negative thrust when stopped on the tarmac.

Up until the appearance of the King Air model 300 in 1984, no King Air power quadrant contained the Ground Fine stop. Instead, the separation of the Beta and Reverse ranges was indicated merely by the inclusion of red and white stripes painted on the latter half of the range behind Idle. From 1984 until 1990, the model 300 was the only King Air to have the new style of quadrant with the Ground Fine stop. In 1990 the 350 replaced the 300, in 1992 the C90B replaced the C90A, and in 1993, the B200 underwent a major upgrade. All of these later models included the new quadrant with the Ground Fine stop.

Let's do a quick review of what Beta and Reverse are all about. In Beta, movement of the power lever should cause the LPS to flatten from its largest bite of air to where it is acting as a flat disc with no bite being taken. Compressor speed,  $N_g$  or  $N_1$ , should remain constant throughout Beta, maintaining whatever speed existed when the power levers were at Idle.

The Reverse range, conversely, sees the LPS going from flat to its maximum negative bite of air while  $N_1$  simultaneously increases in proportion to aft power



lever movement, reaching a maximum speed of about 85 percent in Maximum Reverse, when the power lever is back and down as far as it can travel.

A PT6 powerplant mechanic who can correctly make all of this happen as it should, while matching left and right power levers together, is worth his or her weight in gold and can be somewhat hard to find! This is what engine "rigging" is all about and it can be a frustrating and time-consuming experience when done by a less-experienced and less-knowledgeable person.

The need for accurate and correct rigging skills ratcheted up a great deal with the introduction of the Ground Fine stop. Before that stop existed, no one cared if the transition from Beta into Reverse occurred exactly as the aft edge of the power lever lined up with the start of the red and white stripes. A half-inch or even more off either way, forward or aft? It is not a big deal so long as both power levers operate the same and so long as Maximum Reverse power can still be obtained.

Add that Ground Fine hard stop, however, and the rigging task becomes much more difficult. Being even a half-inch off is now a problem. Either the airplane won't slow down enough taxiing at Ground Fine – the more common problem – or else  $N_1$  has already increased before reaching the Ground Fine position, leading to more propeller blade erosion.

Since the presence of the Ground Fine stop makes the rigging task more difficult and since we got along without that hard stop for twenty-some years, why was it introduced? There is a solid answer to this question that I can provide. Please read on.

As you undoubtedly know, the model 300 was the first King Air certificated under a different FAR than that which had applied previously, since its weight exceeded the "light twin" limit of 12,500 pounds. Although earlier King Air models, especially the 200, underwent rigorous flight testing and the POH contained the charts and/or graphs for things like Accelerate-Stop, Accelerate-Go, and Second-Segment single-engine climb, this

information was not required to be provided to “light twin” operators and Beech had a rather free hand in their testing since the FAA did not have to “bless” the results.

One specific example is how the Accelerate-Stop procedure was done. In the previous 90- and 100-series, the stopping procedure involved heavy brake usage only with the power levers remaining at Idle. For the model 200, on the other hand, Maximum Reverse on only one engine, along with heavy braking, was utilized in the testing and is so reflected in the chart’s “Associated Conditions.”

As a side note, we at the Beechcraft Training Center – back in 1974 when the first 200s began being delivered – decided that we had better teach and practice single-engine Maximum Reverse usage since it was now in the POH procedures. To our great pleasure, we found that directional control was not too difficult. That was the good news. The very bad news, however, is that we almost always returned from this portion of the training with the outboard tire on the “dead” engine’s side totally blown, with a hole the size of a silver dollar! The student, unintentionally, would apply a little brake at too high of a speed, lock up the wheel, and scuff the tire right down to its air!

A meeting of the Beech factory instructors came up with a modified procedure that brought the incidents of blown tires to a stop. The procedure involved three changes. First, we would emphasize to the student to keep his or her heels on the floor and to stay off the brakes. Second, without even telling the student we were doing so, we would immediately move the flap handle to the Up position right at touchdown. Third, we would ask the student to “steer” with the control wheel. That means, for example, that if the reverse thrust on the right engine is making the airplane tend to veer right, then in addition to pushing the left rudder pedal forward, we would also turn the control wheel fully counter-

clockwise, left-wing-down, just as if you wanted a car to go left.

Why were the second and third steps of the procedure effective? Retracting the flaps right away killed a lot of lift and anchored the plane more solidly to the runway. When one side’s powerplant went to Maximum Reverse, it blocked airflow back over a large portion of the wing, making that side have less lift, putting more weight on the tires on that side, and aggravating the pulling tendency to that side. By steering with the control wheel, the aileron deflection helped lift up on the heavier side and push down on the lighter side, better equalizing tire weight and helping the plane travel straighter.

As I said, using these three procedures for training eliminated the blown tire problem. (Even now, on a normal landing, I have the copilot raise flaps at touchdown. That puts more weight on the tires right away, makes it less likely to scuff a tire if heavy braking is ever used, and helps keep rock dings on the flaps to a minimum.)

But what does this have to do with why the Ground Fine stop appeared on the 300?

No longer a light twin, the model 300 was required to have certain tests done and the resultant charts included in its POH. One of these was Accelerate-Stop Distance. Although directional control during this maneuver was satisfactory in the model 200, such was not the case with the 300. Not only did the engines have more power – 1,050 SHP versus 850 SHP for the 200 – but also the propeller had a larger diameter and an extra blade. (B200s still came with three-blade propellers back then.) The bigger propeller and more power made control more difficult, for sure, but there was another factor no one had foreseen ... Rudder Boost working against the pilot. Let me explain.

In the 200, Rudder Boost uses a dedicated pneumatic servo that



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applies about 40 pounds of help on the “good foot” side. It activates in an all-or-nothing fashion when the differential between left and right side’s unregulated P3 Air gets large enough. Since N1 speed only reaches about 85 percent in Maximum Reverse – less than 50 percent power – the P3 differential was never great enough for rudder boost to kick in.

In the 300, Rudder Boost uses the autopilot’s electric rudder servo to provide the helping rudder push and instead of being an all-or-nothing device, it increases rudder force as the power (still sensed by P3 Air pressure) differential increases. (The model 350 operates the same except it uses torque sensors in place of P3 sensors.)

Low and behold, when the Beech test pilot experimented with single-engine reverse in the prototype 300, he found that at Maximum Reverse rudder boost was starting to operate. Now stay with me here, because it’s a little hard to grasp. Do you see why rudder boost was now working “backwards?” In flight, with the left engine dead and the right engine producing power, the airplane wants to yaw left, so we, of course, want help on the right rudder pedal. When that same engine is putting out reverse thrust after a single-engine landing or aborted takeoff, now the yaw is toward the good engine and we need to push the left rudder pedal to stay straight. Having rudder boost push the right one is definitely not a good idea!

“Okay,” Beech Test said, “we won’t use Reverse then; we’ll just stick with Beta, getting rid of the propeller thrust but not spooling up N1. We’ll just have the pilot stop pulling back when he gets to the red-and-white stripes.”

“What?!” says Mr. FAA guy. “You cannot expect a pilot to do this by feel alone or to direct his visual attention away from the runway and down to the power quadrant to see when he’s about to leave Beta and enter Reverse. Get real!”

And that, dear readers, is why the 300-series has the Ground Fine stop ... so that the pilots may easily and quickly select the bottom of Beta during aborted takeoffs or following single-engine landings, as necessary. As for why the C90B and after and the 1993 and after B200-series also have it? For commonality of parts. Personally, I would prefer that they still used the old style pedestal with the stripes, not the second lift, but it is what it is. **KA**

**About the Author:** King Air expert Tom Clements has been flying and instructing in King Airs for over 41 years, and is the author of “The King Air Book.” He is a Gold Seal CFI and has over 22,500 total hours, with more than 15,000 in King Airs. For information on ordering “The King Air Book,” go to [www.flighthreview.net](http://www.flighthreview.net).

*If you have a question you’d like Tom to answer, please send it to Editor Kim Blonigen at [kblonigen@cox.net](mailto:kblonigen@cox.net).*

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# Selling Walter's Airplanes

Employing lessons learned during his years at the Travel Air Company, Walter H. Beech forged a chain of dealers and distributors worldwide to sell Beechcraft airplanes in the midst of the worst economic collapse in America's history

by Edward H. Phillips

In April 1932 when Walter and Olive Ann Beech co-founded the Beech Aircraft Company, they were taking an enormous risk that many of their closest friends considered reckless. The couple, however, did have a number of advantages that would work in their favor. Among the more salient were five years of valuable manufacturing, sales and marketing experience at the Travel Air Company, a skeleton network of ex-Travel Air dealers and distributors that had not yet succumbed to the ravages of the Great Depression, and an excellent reputation both domestically and internationally, for building quality airplanes and supporting the product after the sale.

In the author's opinion, it cannot be overemphasized how important those years at Travel Air would prove to be for Walter and Olive Ann Beech when they launched their airplane company. It should be made clear, however, that from a purely historical standpoint Travel Air and the Beech Aircraft Company shared nothing in common. They were two independent organizations existing at two different times in history despite being linked together by the name Beech. As a result, Walter was armed with a considerable wealth of knowledge regarding how to create and implement a fledgling network of dealers and distributors designed to operate in a Depression-plagued marketplace.

It is important to remember that the last few years of the unforgettable "Roarin' Twenties" proved to be both a blessing and a curse for the aviation industry in Wichita, Kansas. Those raucous years were a blessing because demand for new aircraft swelled the order books, but it was a curse because when the debacle on Wall Street in October 1929 finally struck, it quickly crippled the city's three major manufacturers: the Travel Air Company, Cessna Aircraft Company and the Stearman Aircraft Company.

Of these, only Stearman would barely manage to survive through the ultra-lean mid-1930s without closing its doors. In fact, had it not become a subsidiary of William Boeing's famous company, it probably would have disappeared without a whisper. Travel Air had succumbed to the Great Depression by September 1932 and Clyde V. Cessna's once-busy factory had been locked up by the board of directors a year earlier. In addition, there were other, much smaller companies located in the city that had barely begun operating when the curtain of "Black Thursday" came crashing down on the airplane business.

Despite dire warnings of an impending catastrophe, the infamous stock market "crash" took many aviation industry executives by surprise. They, along with many other Americans, had become desensitized to

*Walter Beech learned the importance of sales and product support beginning with the Travel Air Model "A" biplane of 1925. It was the first and the most prolific product of the Travel Air Manufacturing Company with more than 600 delivered from 1925-1930. War-surplus Curtiss OX-5 and OXX-6 engines were plentiful and inexpensive but not always reliable. Trouble with these powerplants forced Beech to order additional flight tests before customers accepted their new airplanes.* (EDWARD H. PHILLIPS COLLECTION)

the increasingly dark danger that was closing in for the kill. For men such as Walter H. Beech, who had served as president of Travel Air since 1927, the collapse was both swift and devastating.

In the wake of the debacle on Wall Street, Mr. Beech may have sadly recalled that less than a year earlier the company had not only smashed all previous sales records up to that time, but was sitting on orders for new airplanes worth more than \$300,000 (and that was just one month's tally!). With customer demand far exceeding limited production capacity, delivery schedules soon became unmanageable. For example, in June 1929 the company was struggling to build 25 airplanes per week despite employing about 600 workers in three shifts, five and occasionally six days a week.

A great deal of credit for Travel Air's bountiful success during 1928 and well into 1929 was due to the sales and marketing talents of Ray W. Brown and Owen G. Harned. Brown was hired by Walter Beech in 1928 and was instrumental in building a strong sales force in the field, while Harned formulated sales policy and led efforts to construct a worldwide network of Travel Air distributors that would prove highly successful. In addition to these duties, Brown was in charge of sales in the region between Cleveland, Ohio, and Denver, Colo.; Harned was responsible for the entire East Coast region. Both men were competent aviators as well as savvy salesmen. Another important facet of their jobs was to fly new Travel Air aircraft and visit every dealer and distributor in the United States. By doing so they established new dealerships, implemented sales policies

and taught personnel sales techniques and methods, particularly how to "close the sale."

One distinct advantage of Travel Air's acquisition by Curtiss-Wright in August 1929 was the availability of up to \$10 million in financing for customers buying aircraft built by the corporation's subsidiaries. These included, in addition to Travel Air, Wright Aeronautical Corporation (static, air-cooled radial engines), Curtiss Flying Service (Cessna and Curtiss airplanes) and Keystone/Loening (land and amphibious aircraft), all of which had access to the massive fund to help finance sales. It made buying an airplane almost as easy as buying a house or an automobile.

The years at Travel Air not only taught Walter Beech the ups and downs of the capricious airplane business, but also impressed upon him the value of an effective marketing, sales and support infrastructure. He also realized the value of a repeat customer and their loyalty to Travel Air airplanes. If a customer was treated fairly and with respect, he would probably return when ready to make another purchase. Mr. Beech believed and practiced that philosophy and worked diligently to instill it in every employee from the front office to the factory shops and flight line.

To keep an accurate track of what was transpiring in the field, dealers were required to complete a monthly sales form that was evaluated by the appropriate distributor and sent to the factory in Wichita. Office manager Ms. Olive Ann Mellor and her office ladies kept a file on every dealer and distributor for perusal by Mr. Beech or other company officials. In today's electronic world of customer support, it may surprise King Air owners and operators to learn that Travel Air did not publish service manuals – maintenance was simply accomplished according to "acceptable practices and methods" of maintaining airworthiness. It was not until 1928 when the Type 6000 cabin monoplane was introduced that the first maintenance manual, albeit brief and simplistic, was provided to mechanics in the field.

*The Type 6000 cabin monoplane was not the first of its kind but can be considered the "great granddaddy" of the future Beechcraft King Air. Walter Beech took a major interest in the design and development program. During 1928, he expended a great deal of time and effort surveying potential customers nationwide about the airplane. The day of the open cockpit business biplane was coming to an end – the cabin monoplane was the way of the future. By the end of 1929, the Type 6000 series accounted for about 50 percent of Travel Air sales.* (EDWARD H. PHILLIPS COLLECTION)



*This aerial photograph taken during the autumn of 1929 shows the five main buildings of the Travel Air Company located on East Central Avenue in Wichita, Kan. Sales and marketing offices were housed in a separate area, along with the front office managed by Olive Ann Mellor. Tours of the factory were an effective sales tool used by Walter Beech to showcase the company's dedication to workmanship and quality control. By 1942, tremendous expansion required by World War II production contracts quickly enveloped the original factory campus.*

(EDWARD H. PHILLIPS COLLECTION)



That year also marked publication of the company's first parts catalog. It was deemed necessary because so many dealers and distributors ordered wrong parts because there was no guidance available from the airframe manufacturer, and part numbers were not easily obtained. By contrast, detailed maintenance and parts publications were available for radial engines built by Pratt & Whitney, Wright Aeronautical Corporation, Kinner, Continental, Lycoming and other manufacturers. King Air owners are familiar with the various types of factory service bulletins and other advisory information, but similar documents were rarely issued by Travel Air and then only when deemed appropriate. These publications were aimed chiefly at upgrades and improvements for the airframe that could be accomplished in the field, although others were issued for spare parts availability and changes in pricing.

One interesting factory mandate imposed on dealers and distributors was the requirement to have an airplane always "at the ready" for immediate dispatch of parts to customers in an AOG situation. The Wichita factory always had a ship (usually a Type 6000 monoplane) stocked with a variety of parts ready to fly where needed. Travel Air also would dispatch an airplane to transport technical help to dealers and distributors coast-to-coast.

One example of how far Walter Beech was prepared to go to ensure customer satisfaction occurred in the summer of 1929. One day an urgent meeting was called in Mr. Beech's office. Every pilot on the flight line was required to attend. Monty Barnes, one of the company's pilots, remembered

that being called into the boss's office meant something very serious was afoot. Once assembled and with the door closed, Mr. Beech announced that beginning immediately, every Type 2000 biplane powered by a Curtiss OX-5 or OXX-6 engine would be flown for a minimum of two hours before delivery to the customer, dealer or distributor.

The reason, he explained between slow puffs on his ubiquitous pipe, was a sudden rash of engine failures that resulted in forced landings away from the factory. President Beech suspected the cause had something to do with the enormous pressure to deliver airplanes each week at a rapid rate that no one (including Beech) ever anticipated. Pushed by deadlines and impatient customers, supervisors and workers on the production lines were hurried and inspectors were missing mistakes made during installation of the engines. In an attempt to remedy the situation, Beech told every pilot to peruse every ship before flight and be certain sufficient fuel was aboard for more than two hours (this was in addition to the usual factory test flight of 30-60 minutes duration).



*Walter Beech hired talented people who knew how to develop sales and marketing strategies and manage dealerships and distributors spread out across the United States, South America, Asia and the Pacific region. To handle that responsibility, in 1928 Beech hired Owen G. Harned to accomplish that important task. Harned, who spent much of his time "on the road" visiting Travel Air agents as well as talking with customers about their airplanes, was a major contributor to the company's success.*

(TEXTRON AVIATION)

did have his share of trouble. He recalled one test flight when the OX-5 sputtered and stopped less than a minute after takeoff. There was no place to land except straight ahead in a small field surrounded by trees and hedgerows. Monty plunked the biplane down on the sod with a heavy thud and rolled to a stop. Not a scratch!

Fellow pilot Truman Wadlow, still in his late teens and with the ink still wet on his pilot's license, made a forced landing in a Type 2000 after the Curtiss engine quit cold. He managed to glide into a nearby field south of the factory without damaging the ship or injuring himself. Fortunately, another pilot saw his plight and after making a low pass to assess the situation, flew back to the airport and notified company employees. In such cases, a truck was usually dispatched with a mechanic and spare parts to repair the engine.

During the summer of 1929, Walter Beech was becoming increasingly concerned about the sluggish state of the new airplane market. Sales were decreasing

*World War I aviator Ray W. Brown had been in the aviation business for 10 years when Walter Beech hired him in 1928 to assist Owen G. Harned. The two men canvassed America from coast to coast flying new Travel Air airplanes to dealers and distributors, chiefly to ensure that agents were maintaining operations according to their agreements with the company. Brown resigned from Travel Air in November 1929. He was killed in action during World War II. (TEXTRON AVIATION)*



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and industry naysayers were warning that the aviation boom, ignited in large part by Charles A. Lindbergh's solo transatlantic flight in 1927, was finally over. By early autumn as sales continued to slide downward, orders for new ships shrank to a trickle. Beech and his staff had no choice but to begin furloughing employees; there was not enough work to keep them on the payroll any longer.

Discouraged, but yet doggedly optimistic that the marketplace would rebound by year's end, Walter Beech exhorted his troops in the field to sell, sell, sell! It was up to the salesmen at the dealerships to roll up their sleeves, work hard to close deals and send in production orders to keep the factory busy. More than ever before in the company's five-year history, President Beech was counting on the extensive network of Travel Air dealers and distributors to save the day. In an attempt to spur business, in the autumn of 1929, the company's domestic sales network was revised to include five sales zones and managers.

Zone One covered a majority of the New England region and many of the Mid-Atlantic States, and was headed by Owen G. Harned. In addition to being the company's first factory sales representative, he also was responsible for formulating sales policy and expanding the network of distributors worldwide. Zone Two was the responsibility of Douglas Davis and covered a majority of the southern states. Davis won national recognition for his record-breaking victory in the Free-for-All Race at the National Air Races in September 1929, flying a Travel Air Type R racing monoplane.

Zone Three was placed under the direction of Robertson Aircraft Corporation based in Anglum, Mo., and included many states in the Mid-West region. Zone Four included remaining states such as North Dakota, South Dakota, Oklahoma, north Texas and any remaining territory west to the Pacific Ocean. Last and the smallest of all, Zone Five was the domain of E.K. "Rusty" Campbell and covered Nebraska, Iowa and northwestern Illinois. Campbell was among the original agents for Travel Air, establishing his franchise in 1925.

Although the domestic market was key to the company's survival, by the late 1920s export sales had become an important market for many airframe and engine manufacturers. As the advantages of air transportation spread around the globe, demand for



*Truman Wadlow, along with his identical twin Newman, were treated like local celebrities by Wichitans who could rarely tell them apart. Both worked for Travel Air and in 1930 Walter Beech helped them establish their own charter service at the East Central flying field. Truman flew a Travel Air cabin monoplane in the 1930 Ford Tour and later became one of the first Beechcraft dealers, based in St. Louis, Mo. (TEXTRON AVIATION)*

airfields and airplanes accelerated. As early as 1926, Walter Beech recognized the potential of selling aircraft into foreign countries, and by 1929 Travel Air had assembled a cadre of more than 125 dealers and distributors worldwide. Directing and managing these domestic and international sales outlets, as well as working with dealers and distributors, provided Walter Beech with a foundation he would use in the 1930s to sell Beechcraft airplanes.

Among the most important regions for Travel Air sales outside the United States were Mexico, Central and South America and the West Indies. To handle these sales and the government paperwork necessary to export and import airplanes into those nations, Beech created the Aero Export Company with offices in the Orpheum Building in downtown Wichita. Dealers included K.K. Hoffman and E.L. Buckley, who established a dealership in Tampico, Mexico.

In Asia and the Pacific, the firm of Anderson, Meyer & Company handled sales for 18 provinces in China as well as Manchuria, Chinese

Turkestan, Tibet and Hong Kong. Continental Aero Corporation handled sales in Canada, while dealer W. Raymond Garrett was responsible for Australia and New Zealand. Travel Air ships were sold into South Africa through company agent Calvin Martin based in Cape Town, and Simmons Aircraft Export Division in Los Angeles, Calif., was responsible for sales in Siberia, India, Siam (Thailand), Netherlands, East Indies, Korea, Japan, Greece, Poland, Romania and Italy. The Hawaiian Islands were the territory of Western Pacific Air Transport in Honolulu, but the company also sold airplanes into the Philippine Islands.

Part Two of this series will examine how the lessons Beech learned at Travel Air, coupled with his well-earned reputation within the aviation industry, combined to pave the way for worldwide sales of Beechcraft airplanes. KA

**About the Author:** 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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Garmin is pleased to announce two new rebate programs for select King Air owners and operators who choose to upgrade their avionics to the G1000 Integrated Flight Deck. The popular G1000 retrofit suite for the King Air series continues to receive exceptional response and provides operators with enhanced capabilities that

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This rebate program is effective beginning January 20 through May 29, 2015, and is valid for the following aircraft pursuing a G1000 upgrade:

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- King Air 200, B200
- King Air 300
- King Air 350

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For additional information regarding these King Air rebate programs or for more details regarding the G1000 upgrade for the King Air series aircraft, contact Scott Frye at (913) 440-2412 or [Scott.Frye@garmin.com](mailto:Scott.Frye@garmin.com).

## Nextant Aerospace Completes Successful First Flight for New G90XT Turboprop G90XT

In mid-January, Nextant Aerospace announced the successful completion of the first test flight for the new G90XT. The company celebrated the event with a rollout celebration at their headquarters in Cleveland, Ohio.

The Nextant G90XT is a remanufactured King Air C90A that features the new H75 engine by GE. The company says the aircraft will benefit from several significant technology enhancements including a fully integrated Garmin G1000 cockpit, electronic engine control



with complete exceedance protection, single lever power control technology for simplified operations and reduced pilot workload, digital pressurization, all new dual-zone air conditioning for enhanced ground cooling in warm operating environments along with a significant interior upgrade for enhanced cabin comfort.

The company says it will spend the next several weeks running the aircraft through a full test flight envelope and expects the test program to last approximately six weeks. Certification for the aircraft is expected during the second quarter of this year. Once certified, Nextant will begin delivery of production aircraft immediately.

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