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A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT







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Mike Schroeder's King Air B100. Credit: Mike Schroeder

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Flying for Good

Long-time pilot returns to aviation, takes up causes

by Kim Blonigen



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Schroeder is semiretired in Sedona, Arizona, and found his way back to the left seat after a decade-long absence. While flying 2,850 hours during his career, which helped grow his business, now his flight hours are devoted to recreation, attending board meetings in Denver and helping nonprofits.

Finding His Own Way

Schroeder wasn't a fan of school so he knew attending college wasn't for him. After graduating from high school, he attended an electronics trade school. About the same time, he registered for the draft wanting to fly helicopters. He completed his electronics training in 1968 (he said much that he learned is now very obsolete!) and got a job immediately with Texas Instruments (TI) at the company's environmental testing facilities in Richardson, Texas. Schroeder said he didn't get drafted because of the projects he was working on at TI, which included a pioneering terrain-following radar to map the ground directly in front of the General Dynamics F-111 Aardvark, a high-tech night bomber first used in Vietnam and the IRIS Project for Mars atmosphere exploration.

Although he enjoyed the work he was doing at TI, he left to find higher pay in various sales positions and direct marketing. He eventually ended up working in electronics again, in retail and wholesale distribution. He explains, "In 1979-1980 when big satellite dishes were introduced, I started Consumer Satellite Systems (CSS)." The business, headquartered in Indianapolis, Indiana, grew into branch sales offices, dealers and warehouses in Wisconsin, Michigan, Ohio, Kentucky, Pennsylvania, Florida and Tennessee. By 1998, the company had grown to 10 distribution facilities all located east of the Mississippi River, serving the estimated 2.2 million households of the satellite dish market. "As technology



improved and the satellite antennas became smaller, our business had to adjust and change, so we became a Direct TV distributor with about 5,000 dealers and 400,000 retail customers in the United States, Canada and Mexico. In 1998 we merged with another company that had 12 facilities west of the Mississippi at which time I retired from the business," Schroeder stated.

Using Aviation as a Business Tool

Having always been a fan of aviation, Schroeder saw the need to learn how to fly in 1986, as his satellite dish business was expanding into other states. "We needed to visit our branch offices and it was taking lot of time out of our schedules," he said. "For instance, driving from Indianapolis to Grand Rapids, Michigan, was a five-hour drive and about that much time flying commercially."

Schroeder received his private pilot's certificate that year in a Cessna 152 and took advantage of the diverse inventory of rental aircraft available to fly at the Indianapolis Metropolitan Airport (KUMP). "I flew every kind of Piper, Beechcraft piston and Cessna owned and before taking a break, he flew a Citation Jet.

aircraft available and got my twin rating in the Piper Seminole," he explained. "I know it sounds cliché but flying became a useful business tool. I could leave early morning, fly to three of the branches for meetings and be home that night; there's no way I could have done that without aviation."

He went on to get his instrument and commercial rating and in 1993, the airport approached him about purchasing a Beechcraft King Air. They wanted to add the aircraft to their charter fleet and thought the King Air would meet Schroeder's transportation needs. He purchased a 1974 E90 model and leased it back to the airport for charter. In 1998, he had a friend working for Cessna Aircraft who convinced him to buy a new CitationJet (CJ), so he sold the E90. After putting about 1,000 hours on the CJ, he sold it in 2005 and wouldn't fly again until 2015.

A Renewed Interest

During those 10 years of not flying, in 2006 Schroeder lost his wife of 26 years to cancer and moved permanently to a house they owned in Sedona, Arizona. He remarried



in 2008 and says the reason he got back into aviation was that he had a hangar that was only storing a motor home and he wanted to visit his grown children and grandchildren who were living in different areas of the country.

Schroeder went back to a King Air and bought the 1982 B100 model. The biggest difference for him was the updated avionics – the CJ he flew last had dual BendixKing KLN 90s – and he struggled with the Garmin 430/530s. He ended up replacing the Garmins with dual 750s and upgraded the transponders with ADS-B and a new audio panel. He says he uses the 750s with his iPad[®] for the extras.

Flying for personal use now, Schroeder flies his B100 on various trips with friends, for board member meetings at EchoStar (whose sister company is Dish Network) and he also donates his time, aircraft and piloting to charity, which he finds rewarding. Schroeder currently flies for LightHawk and Veterans Airlift Command (VAC), two charities he feels a connection with.

He got acquainted with LightHawk when the organization had a function in Sedona. He learned that it focuses on conservation efforts throughout North America and focuses especially on landscapes and wildlife. "If there are opportunities to get two parties with different opinions on the environment or a piece

About LightHawk:

ightHawk is a non-partisan conservation organization that uses aviation to make a significant difference in important conservation initiatives. It partners with leading conservation groups to tackle the environment's most critical issues, landscapes and wildlife.

The organization was founded by bush pilot Michael Stewart in 1979 and began with a single mission to assist activists in stopping the proposed building of a coal-fired power plant on the edge of the Grand Canyon which they felt would ruin the views of the national park. Today, it has more than 280 volunteer pilots whose flights "foster dialogue and build consensus, promote informed decision-making, and increase the efficiency and effectiveness" of the organization's conservation partners' work.

A Need for King Airs

LightHawk said it would love to have more King Airs for their missions in conservation, as well as transporting endangered species. On conservation flights, the aircraft "would be helpful when flying decision makers (senators, cabinet members, investors) over proposed conservation projects or developments. The view from the air really paints a full picture of how the landscape will be impacted and can better shape their decisions."

A volunteer pilot willing to fly their King Air for transporting endangered species would allow more animals to be moved in one airplane and streamline the transportation process. Oftentimes, there is only room for one animal erate in aircraft, due to its size. LightHawk has transported endangered Mexican Wolves and California Condors, and ferried river otters, red pandas and cougar cubs.

LightHawk requires that volunteer pilots have 1,000 or more PIC (pilot in command) hours. Those interested can fill out a pilot application at www.lighthawk.org/getinvolved/volunteer.



An endangered Mexican Wolf from California being transported to Missouri, where there was a wolf with a good genetic match for mating that helps increase the genetic diversity of the population. A direct flight reduces travel time and stress. (Photo courtesy of the Endangered Wolf Center/Aerial support by LightHawk)

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of land up in an airplane to see it from a different view, maybe they can start a conversation and find items both sides can agree on," Schroeder commented. The volunteer pilots also help transport wildlife that may be in danger or need relocated. A recent LightHawk flight moved California Condors from Idaho to California.

"LightHawk sends out the regional flights needed about 3-4 weeks ahead of time with complete detail on who is requesting the flight and the purpose, as well as a predetermined flight plan with optional dates that would work, which gives some flexibility to fit the pilot's schedule," he said.

Schroeder explained that VAC is usually datespecific because there is a need from a veteran to get to a doctor's appointment or rehabilitation, or bringing family members together, which is very important. These flights allow them the freedom of not having to take a commercial flight and all the hassles that come with it.

"Many times, the flights will include more than one pilot and airplane," Schroeder explained. "Recently there was a vet and his family who were going to visit his parents. The flight originated in Oklahoma City, Oklahoma, with a destination to Glendale, Arizona. One pilot flew the family from Oklahoma City to Santa Rosa,



The avionics was the biggest change for Schroeder after he started flying again. He replaced the Garmin 430/530s with dual 750s and uses his iPad for the extra information. He also upgraded the transponders with ADS-B and added a new audio panel.

New Mexico, and I flew to Santa Rosa to transfer them to my airplane and flew them to Glendale."

Schroeder estimates that 15 percent of his current flight time is dedicated to helping the nonprofits. "I would encourage any pilot to find an organization they could help; it's another reason to get up in the air and do what we love ... and you're making a difference in the meantime."

Whether using his King Air as a business tool or helping others, Schroeder says that either way flying is a very rewarding experience.

About VAC:

he Veterans Airlift Command (VAC) is a national network of volunteer aircraft owners and pilots, which provides free air transportation for medical and other compassionate purposes to post-9/11 combat-wounded soldiers and their families.

Decorated Veteran Fricke started VAC, a long-envisioned dream, in 2006 after retiring. 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.

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.

VAC envisions a need for flights to be ongoing. Some are no longer in hospital settings but require travel for medical care, and some are still seeking treatment for injuries sustained as long as 10 years ago. Many of the soldiers need specialized treatment that can't be found at their local VA hospital.

Visit *veteransairlift.org* to find out more on being a volunteer pilot, donating money or to request transportation for a wounded warrior.

Note: Information used for VAC was taken from an earlier article featured in this magazine.



VAC Founder Walt Fricke assisting Army Ranger MSG Cedric King after a flight. (Photo credit: Max Haynes)





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NASA Reports: File Early and Often

by Scott Williams, Esq.

any pilots have heard of the Aviation Safety Reporting System – ASRS for short. More affectionately known as the "NASA Report." Even for those who have filed one, the procedures and scope of protection for this report are often unclear.

What is a NASA Report?

In the early 1970s, there was no way for a pilot to report an unsafe event to the FAA without fear that the submission could be used against him/her. As a result, NASA was designated as an independent third-party to collect safety data and protect the confidentiality of the submission.

What are the benefits of filing?

As specified in *Advisory Circular 00-46E*, the FAA considers the filing of an ASRS Report "to be indicative



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of a constructive attitude ... which will tend to prevent further violations." As such, if the Report is filed and meets certain criteria (specified below), the FAA will not normally seek to enforce the penalty for most violations. The penalty itself doesn't go away, but the enforcement action (i.e., a 30-day suspension) won't be imposed.

Timing is Everything

To have any protection at all, an ASRS Report must be filed in a timely manner. The filer has a 10-day period to file from the date he/she knew (or should have known) about the event. The first part is simple – if ATC says, "Possible pilot deviation ... when you land, call



this number," the clock starts ticking *that* day. On the other hand, let's say instead that you taxied across a runway hold line without a clearance, ATC never told you and the first you learn about this is a *Letter of Investigation* in the mail from your local FSDO. In this case, the date you received the letter starts your 10-day clock. While you could fill out a form and mail it to NASA, the most reliable submission method is online. At the end of the process you will receive an electronic confirmation to store as proof of submission.

When does an ASRS Report not help?

There are many restrictions on using an ASRS Report to avoid a penalty.

They include:

- The violation must not be a criminal offense;
- The event must not be an "accident", but can be an "incident";
- The violation must not be an action related to pilot qualifications, such as the lack of a BFR (biennial flight review) or valid medical;
- The violation must have been "inadvertent and not deliberate";
- The filer must not have any violations within the preceding five years.

Is an ASRS Report confidential?

So long as there is no criminal or accident investigation, then yes, the contents of the report are not released to the FAA. Criminal matters are referred to the Department of Justice, and accidents are referred to the NTSB, and in those cases the full contents of the report may be disclosed.

What exactly do "inadvertent" and "not deliberate" mean?

It is rare for the FAA to allege that a violation of a FAR was "deliberate." An example of deliberate would be knowing full well that your airplane was out of annual but you kept flying it anyway. For years, the FAA asserted the position that most violations were not "inadvertent" because the pilot knew or should have known that what they were doing was wrong. This standard was (thankfully) changed in the pilot's favor in a recent landmark case. It centered on whether an aircraft did or did not have the appropriate certification to fly RVSM authorization, and more importantly, whether the pilot was supposed to know better. An NTSB Administrative Law Judge found a violation and issued a 60-day suspension, which was upheld by the full NTSB. In reversing, the Boeta case held that while the violation still occurred, the NTSB had been "arbitrary and capricious" in denying the pilot the sanctions protection of a timely filed ASRS Report.

Does this mean I can only file every five years?

Absolutely not. This is a common misconception about ASRS Reports. You can file a report after each and every flight you wish; so long as you are not filing about criminal offenses or accidents. What may be causing the confusion is that the immunity benefit of filing the ASRS is only granted once every 5 years.

File early and often.

Notes:

- ¹ https://asrs.arc.nasa.gov/report/caveat.html?formType=general
- ² See NTSB form 6120.1 for the distinction between an "accident" and merely an "incident"
- ³ Ferguson v. NTSB, 678 F. 2d 821 (9th Cir. 1982).
- ⁴ Boeta v FAA, 831 F.3d 636 (5th Cir. 2016)
- ⁵ Reduced Vertical Separation Minimum, which allows aircraft to fly above FL280 in U.S. airspace.

Scott Williams, Esg. represents buyers and sellers in aircraft transactions, and provides FAA certificate enforcement defense to all pilots. He is a pilot and panel attorney for AOPA's Pilot Protection Services. Scott is a member of the Cirrus Owners and Pilots Organization's Board of Directors and currently serves as its vice president. He can be reached at swilliams@ smallbusinesslaw.org or (805) 778-0206.

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AIR COND M.LC

Looking at Pressurization

by Dean Benedict, A&P, AI

True story: I traveled to Texas to check out a King Air at the tail end of its pre-buy inspection. Phases I-IV had been done and the squawks had been addressed. My job was to put my eyeballs on the airplane, do the final ground runs and go on the acceptance flight. When I asked the pilot to check the cabin leak rate, the Cabin Vertical Speed Indicator (VSI) pegged at 6,000 feet/minute (ft/min). It was a deflating moment (pun intended). Here we were at the eleventh hour of the deal, everyone was anxious to close, and suddenly we had a major snag.

This year alone I've encountered several pressurization problems in King Airs at the end stages of the pre-buy. Is this a problem with the shops? With the pilots? I can't point a finger in one direction. I think it's a little of both, coupled with a lack of understanding of the pressurization system.

Gradual Deterioration

Typically, a pilot pulls the engines back to 85 percent and sees a little uptick in the Cabin VSI, say 200-300 ft/min; he may not think much of it. A year or two later the Cabin VSI reads 500-600 ft/min – not a glaring change. The trend continues but the pilot keeps forgetting to squawk it at the next Phase.

Shops, on the other hand, don't always do full-blown ground runs to check every system, and oftentimes they can't test fly the aircraft to check the cabin leak rate or see if it makes max differential. Thus, pressurization sometimes escapes close scrutiny.

Pressurization becomes anemic when the input from the flow packs is too low. Flow pack performance weakens over time. Occasionally you'll get a sudden fail in a flow pack accompanied with a noticeable drop in the ITT on that side. More usual is a gradual decrease of inflow from one or both packs over several years.

On the other side of the equation, you have leaks that develop over time in the pressure vessel. It has a lot of seals and they don't last forever. Again, the change is gradual. Low inflow or high outflow? In many King Airs there are problems on both sides.

The Flow Pack and the Pneumostat

Near the end of another pre-buy inspection, I found a weak flow pack on a King Air and had the same situation – everyone was itching to close the deal and move on. The seller protested vigorously. He said that pack had been changed earlier that year. So, I asked if the pneumostat was changed at the same time and the answer was no. Hmmm.

The flow pack and the pneumostat work together. The pack provides the flow and the pneumostat adjusts the flow rate according to temperature and pressure. The flow pack has orifices that become clogged over time and the pneumostat has bellows that get dirty, decreasing effectiveness. There is no way to test the pneumostat separately unless you have a pneumatic diagnostic bench lying around. In this example, the flow pack was changed and the problem seemed to go away for a while, then it came back because the pneumostat wasn't up to par.

In all my days of working on King Airs, I learned early to exchange or repair the flow pack *and* pneumostat together, every time. What it saves in time and aggravation is well worth the few hundred bucks spent on an exchange pneumostat. This is a key point with pneumatic flow packs and I cannot stress this strongly enough. When I had my shop, I knew a pneumatic repair facility that did fantastic work. I sent flow packs with pneumostats to him all the time. He would repair or overhaul them as necessary. I could get exchange units from him if my customer was in a big hurry. He was able to "marry" the pack and the pneumostat, fine tuning them together – a great bonus.

Electronic Flow Packs

Electronic flow packs offer peak performance over a much longer period of time than their pneumatic counterparts. The down side is they are very expensive to exchange and they are only available from Beechcraft (Textron Aviation).

Electronic flow packs have a thermistor instead of a pneumostat, and they have a controller (not the pressurization controller in the pedestal). If your King Air has electronic packs and you find a weak one, there are a couple things your shop can try before exchanging the pack. The thermistor can be ohm' d out to ensure it is working properly. To troubleshoot the controller, swap it to the other side. There is also a test box available that checks proper operation of the electronic flow pack system.

Pneumatic packs can be changed to electronic; Beech has a kit.







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Inflow (Packs) versus Outflow (Leaks)

If your flow packs are working as advertised, chances are you won't notice a leaky cabin unless you test for it. Electronic flow packs are especially good at masking cabin leaks. The question you should be asking is: Can each of my flow packs do the job by itself?

Imagine losing an engine at altitude. The flow pack on that side is no longer putting any air into the cabin, leaving the other flow pack to do the job alone. What if it's weak and you didn't notice? Worse yet, what if your leak rate is 6,000 ft/min? Current altitude plus 6,000 feet in one minute. Now you're scrambling for oxygen masks while descending to a lower altitude.

I once squawked pressurization during a pre-buy inspection and the broker for the seller insisted it was not an airworthiness item. He was adamant that his client was not responsible for fixing it. I gave him the above example and he eventually changed his tune.

Leaks – To Find and to Fix

All airplanes leak a little, some leak a lot. Seals go bad over time. Drill bits puncture lines by mistake. Gaps develop. The older the airframe, the leakier it becomes. But if your flow packs are working and the aircraft makes max differential on each flow pack, independently, then cabin leaks are less of a problem. Remember the Cabin VSI that was pegged? The actual leak rate was somewhere above 6,000 ft/min and those packs tested good. Clearly the aircraft was leaking like a sieve. What happened next, however, blew my mind. The shop brought out a vacuum cleaner to "pump up" the airplane and look for leaks. I'm not kidding; I wish I were!

The only way to address cabin leaks is with a huffer, and not just any huffer. You need one with at least 9 psi capability. Huffers that work off the shop's air compressor cannot pump the cabin up to max differential. To find and fix cabin leaks without a proper huffer is a waste of time and money. Control cable seals are common, but beyond those it's a total crapshoot.

I tried three different shops before I found one with a proper huffer for that leaky King Air. As soon as it was pumped up, we found a major leak at the emergency exit. The control cable seals were also bad. Then we found and fixed a number of other leaks that were not too hard to access. We got that leak rate down to 2,800 ft/min. A second acceptance flight was performed and the deal closed soon after. The new owner is thrilled with his King Air.

The factory puts out brand-new King Airs with a leak rate of 2,500 ft/min. On an older airplane I'm happy with 3,000-3,500 ft/min. You can't make an old airplane new again, but you can make



substantial improvement in the leak rate. Just use a huffer, not a Hoover[®].

Do's and Don'ts

Do check cabin leak rate and your flow packs. To test flow packs (on the ground or in the air) operate them one at a time while observing the Cabin VSI. Start with both packs going. To test the left side, turn the right pack off and watch the climb rate – it should go up briefly as the left pack adjusts to the change of flow, then it should come back down. Repeat on the other side. If the cabin VSI goes up to 500 ft/min that pack is getting weak; 1,000 ft/min indicates a dead pack.

Do check your leak rate too. An excessive cabin leak rate can throw off the results of your flow pack test. Inflow versus outflow – there are two sides to the equation and both must be examined.

Don't ignore a weak flow pack just because you can make max differential on both packs. A strong flow pack can, and should, handle the load by itself.

Do send the pneumostat with the flow pack whenever repairing or exchanging.

Don't assume that a pressurization problem is caused by the pressurization controller or the outflow valve. Many pilots point to these before testing their flow packs or checking their cabin leak rate. Yes, controllers and valves can fail, but in a King Air the packs and/or leaks are the primary suspects when pressurization presents a problem.

It's easy to take pressurization for granted as it doesn't present a glaring red flag very often. But the system does degrade over time and it merits attention and proper maintenance. Keep an eye on it.

I confess I get great satisfaction from seeing older King Airs with many thousands of hours on the airframe still performing well. I had the great honor of speaking at the King Air Gathering III at Fredericksburg, Texas, in September. Thirty-plus King Airs clustered on the ramp was a stirring sight to see. Chatting and comparing notes with the owners and operators was an even greater pleasure. I hope everyone enjoys the heck out of their King Air.

Dean Benedict is a certified A&P, AI with over 40 years' experience in King Air maintenance. He's the founder and former owner of Honest Air Inc., a "King Air maintenance boutique" (with some Dukes and Barons on the side). In his new venture, BeechMedic LLC, Dean consults with King Air owners and operators on all things King Air related: maintenance, troubleshooting, pre-buys, etc. He can be reached at *dr.dean@beechmedic.com* or (702) 773-1800.



ADS-B Deadline, New PBN Routes, FAA Reauthorization Bill, and Canada's TSB Watchlist

by Kim Blonigen

FAA Data Reveals Half of U.S. Aircraft Will Miss ADS-B Deadline

According to information from the Federal Aviation Administration (FAA), as of Nov. 1, 2018 just over 46 percent of U.S. aircraft were projected to meet the ADS-B equipment mandate deadline of Jan.1, 2020. Digging deeper and breaking out the numbers revealed that close to 30 percent of turboprops are currently compliant.

As has been communicated throughout this year, part of the problem of getting compliant will be finding a shop that has an opening to install the equipment, as well as having the product available, as shortages are already starting to occur. Both of these issues will no doubt increase the price to get compliant and continue moving upward the closer it gets to the deadline.

Bottom line: Non-equipped aircraft will be grounded until they meet the requirements, and it will cost you more the longer you wait.

New PBN Routes Implemented in Florida and Caribbean

As part of NextGen and the ongoing transformation of air traffic control technology and procedures, the Federal Aviation Administration (FAA) recently implemented 55 new performance-based navigation (PBN) routes between the southern East Coast and major international airports in Florida and the Caribbean. The flights are said to be more direct, efficient and safer. The FAA also updated 11 existing PBN routes. The new routes bring the total number of PBN routes over the United States to 316.

As part of the South-Central Florida Metroplex Initiative, the agency is also designing high-altitude PBN routes from the Northeast to join these new routes. When completed, equipped aircraft will be able to "seamlessly fly on satellite-based routes along the East Coast to South Florida and the Caribbean."

Items of Interest within Five-year FAA Reauthorization Bill

By now it is well known that an FAA Reauthorization Bill was approved for five years which allows long-term funding for the FAA – \$96.7 billion through 2023. The bill also addresses certification and regulation, the future of supersonic travel, Part 135 flight issues – duty time, flight-sharing regulations, etc.

Aircraft registry issues were addressed including that the FAA's Oklahoma City aircraft registry offices are to become fully digitized within three years. The bill also prevents a government shutdown from affecting the registry and directs the FAA to create rules by February 2019 that would extend the duration of general aviation aircraft registrations to seven years from its current period of three years.

Canada TSB Releases Watchlist

The Transportation Safety Board of Canada (TSB) recently released its fifth annual "Watchlist," similar to the United States NTSB's Top Ten list, identifying key issues requiring attention to make Canada's transportation system safer. Two of the items on the Watchlist were specific to aviation – runway overruns and risk of collisions on runways. Fatigue was also cited as a concern for all transportation modes.

Runway overruns and the risk of collisions from runway incursions are repeats from last year's watchlist. According to the TSB, an average of nine overrun accidents and incidents happen annually. The board asked operators of airports with runways exceeding 5,906 feet to conduct overrun risk assessments, as well as for Transport Canada to adopt ICAO standards for runwayend safety areas.

From 2013 to 2017, an average of 445 runway incursions each year have been reported, with 21 highseverity events recorded in each of the past two years. The TSB responded by recommending solutions that include: improvements in air traffic control procedures, surveillance and warning systems, runway and taxiway designs, holding position visual aids and flight crew training and procedures. Also recommended was modern technical solutions, such as in-cockpit electronic situational awareness aids, and direct-to-pilot warnings, such as runway status lights.

When addressing fatigue, the TSB commented that it is prevalent in a 24/7 industry where crews can work long and irregular schedules across multiple time zones, and it has been found to be a risk or contributing factor in more than 90 TSB investigations since 1992. To combat this issue, the Watchlist called for "adequate duty-time regulations based on fatigue science, fatigue management plans that are tailored to company operations, and awareness training for employees and managers."



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Ask the Expert

Just Because You Can, Doesn't Mean You Should ...

Start a Descent to a Lower Assigned Altitude

by Tom Clements

t the completion of my instrument instructor checkride back in ancient times, I recall that I asked the experienced FAA Inspector an important question as he was typing up the completion paperwork: "What's the most important thing I should teach my instrument students?"

"Situational awareness," (SA) was his answer. I have concluded that he nailed it! If a pilot always knew exactly where he was and could pinpoint himself on any chart or instrument approach plate, then the rest of the instrument flying skills would come together more quickly, safely and correctly. Good old "SA" is the key! That answer was given to me in the late 1960s. Most instrument training airplanes at that time had two Navcoms (one with a glideslope) and a transponder ... and the transponder only provided Mode A. It was quite rare to see DME. An autopilot? You've got to be kidding! An RMI? What's that? With such rudimentary equipment, the challenge to be situationally aware was a mammoth undertaking for all but the most gifted students.

When I started as a ground and flight instructor with Beech Aircraft Corporation in 1972, I was exposed to RMIs (Radio Magnetic Indicators). "What a wonderful aid to situational awareness!" I marveled. Now, without



spinning any OBS knob, I could see exactly what radial I was on ... and usually I could see the radial from both VOR 1 and VOR 2. Wow! How cool is that?! Plus, the Beechcrafts in which I was instructing all had DMEs. With DME, even one radial was plenty to exactly position oneself with distance information.

And yet, many of the pilots I instructed still struggled to remain correct in their situational awareness. It is a depressing realization that about one in five students - most of whom were professional pilots getting paid to fly King Airs – would place themselves on the wrong side of the VOR station when I asked them to point to their location on the approach plate. They would confuse radials - which always go *from* the station, remember? - with bearings that usually go to the station.

If I gave this little sermon once, I gave it hundreds of times. It goes like this: "You can search all you want, but you will never find a little symbol of *your* airplane on that Jepp plate. But you will find VORs and NDBs, so start from those known locations and then follow the proper radial outward. Do the same with another VOR or NDB; where the two radials cross is where you are. Easy! Emphasize the tail of the RMI pointer, not the head." This sermon seemed to turn on the lightbulb of understanding for a lot of my students.

But then – hallelujah! – moving maps made their appearance. What a wonderful addition! Now the pilot did indeed see his *own* airplane symbol on the map. I still love RMI needles – bearing pointers – since I am so familiar with them, but their usefulness is a tiny fraction of what they were in the pre-moving map days. To fly IFR without at least one moving map ... does anyone do that now?! Why, even a smartphone can do a rather good job of giving a moving map display. And Foreflight on an iPad? Amazing!

So far in this article, all I have addressed is twodimensional awareness. The title, you may recall, had the word "descent" in it. Before you give yourself a pat on the back and think your SA is a done deal due to your excellent knowledge and skill – aided a little by the moving map(s) you are using – ask yourself how situationally aware you are in the height department. Do you always know when you are likely to get a "slam dunk" arrival? Do you always start down to the newly assigned altitude ATC just gave you, even though the clearance was a "PD" (Pilot's Discretion) one? Do you fly most legs of an RNAV/GPS approach outside of the Final Approach Fix (FAF) at the published minimum altitudes? My hope is that when you finish reading this article, you will have increased understanding about SA in the vertical, not just horizontal, plane. Done correctly, this addition to your SA will provide increased safety and lower fuel consumption, as well as a better ride and, sometimes, less icing worries.

Increased safety? That's a no-brainer. We cannot suffer a CFIT (Controlled Flight Into Terrain) accident without hitting the earth, so altitude is our friend here. The requirement to have TAWS (Terrain Awareness Warning System) in King Airs has and will have a positive effect on decreasing these horrible, almost always fatal, CFIT cases. Here is a classic, well-known CFIT accident that probably would not have happened had TAWS existed at the time.

On New Year's Day in 1985, Eastern Airlines Flight 980, a Boeing 727 on a flight from Asuncion, Paraguay, to Miami, Florida, slammed into a peak in the Andes as it descended in the clouds for an IFR approach at La Paz, Bolivia, an intermediate stop. The wreckage was not found for a long time, being in a horribly unforgiving location above 19,000 feet. Amazingly enough, some





Figure 1: The RNAV (GPS) Z Rwy 17 at Montrose Regional Airport (KMTJ) in Colorado.



adventurers recently made their way to the site and actually found what was thought to be the cockpit voice recorder. However, no usable data has yet been retrieved. Officially, no cause has been found for the premature descent, so what I am about to write has no basis except hearsay from a King Air pilot I trained in the late '80s.

This fellow was a rather senior pilot at Eastern while it was still in operation. He had personally flown this route often. Notice the date of the accident - New Year's Day. He told me that the senior crews had bid that time off because of the holidays. According to him, the crew on this fateful day were new to South American flying. It was standard practice, he said, in this non-radar environment, to be cleared to 16,000 feet by the La Paz controllers when radio contact was first established. Yes, there was no conflicting traffic and ATC was indeed permitting you to descend to this lower altitude. But - and it is a huge "but!" - you cannot go down to that altitude now! The en route IFR chart clearly showed that you were still on a segment with an MEA of 21,000 feet! It was only after that segment had been passed that the MEA did permit continued descent to the assigned 16,000 feet MSL.

Just because you can, doesn't mean you should! Here is a case where ATC gave permission for the descent yet there was another, overriding, constraint that would

> correctly force the descent to be delayed, to be in compliance with the MEAs. According to the fellow who told me his theory as to the accident's cause, receiving clearance to this unsafe-at-the-time altitude was almost universal practice by La Paz ATC.

> Take a moment to examine the Instrument Approach Procedure in Figure 1, the RNAV (GPS) Z Rwy 17 at KMTJ, Montrose Regional Airport in Colorado. Imagine that you are approaching from the east, proceeding direct to the GEJYU IAF, 60 miles out, currently maintaining FL220, in radar contact. Denver Center: "King Air XXXX, descend at pilot's discretion so as to cross GEJYU at or above 10,000 feet, cleared for the RNAV (GPS) Zulu Runway 17 approach to Montrose."

At what distance from GEJYU would you begin your descent?

If your King Air has an autopilot system that supports VNAV, many pilots would dial in 10,000 feet for the altitude at the fix, use the default three-degree descent angle, and watch the magic happen. Without a VNAV computer, it might go something like this: "OK, I have 12,000 feet to lose from 22,000 down to 10,000, so I will need about 40 miles [(3 X 12) + 10%]. Since I am 60 miles out now, I'll start down in about 20 miles."

For this to work, the rate of descent must be about five times the ground speed (GS). In a C90A, for example, if our GS will be about 240 knots in the descent, I would initially target for a 1,200-fpm descent rate. (Most people prefer to take half of the GS and add an extra zero on the end ... which is the same as multiplying by five.)

But now consider another method, and a better one.

WIDRU, the FAF, is where our ducks need to be in their neat little row: 8,100 feet, Approach Flaps, Gear Down and 120 KIAS. Notice the GP angle of 3.00 degrees lurking on the right side of the profile view. Let's extend that three-degree angle out to our IAF: 6.1 nm from WIDRU to BRUUK and another 10 nm from BRUUK to GEJYU, so about 16 miles total. I can comfortably lose 4,000 or even 5,000 feet in that distance: [(5 X 3) + 10%] = 16.5 nm. Therefore, I could be at 12,000 or even 13,000 feet at the IAF and make a very comfortable, normal descent so as to be all set at the FAF. If you want to get down to 8,100 feet a few miles outside of the FAF to have time to slow and configure, fine. One of the beautiful things about King Airs, however, is their ability to slow while descending on a three-degree angle. If you'd rather use that technique, join the crowd that includes me.

Using this last method, targeting the IAF at 12,000 feet instead of the allowable 10,000, I could delay my TOD (Top Of Descent) for six more miles. Fuel savings? A little. Staying high longer and thereby avoiding the lower altitude turbulence a bit longer? Probably. Going though icy clouds at a higher airspeed while descending with a low angle-of-attack rather than slogging along lower in level flight ... yes, I'd prefer that.

Take a look now at Figure 2, an approach to Runway 22 at Cody, Wyoming. You are coming in from the south in your G1000NXi-equipped 350, direct to NICQE, at FL310. You have told Center that you will be asking for this approach with the transition route from NICQE to HOZZR and Center has said to expect that.

If we add this procedure into our flight plan, we will see that 7,500 feet is already populated in the altitude field associated with the FAF, ELYPS – 7,500 will be in blue or cyan, designating a "true," necessary, constraint. ("Blue is True; White sheds Light" ... thanks to *FlyingLikeThePros* on YouTube for that memory-jogger.) The VNAV computer, using the default three-degree angle – same as this approach, by the way – will now extend the glidepath all the way out to NICQE. Using our "three times the altitude to lose plus a cushion" rule of thumb, let's predict what altitudes will be shown on the flight plan for the fixes outside of the FAF: 6.2 nm to DUSCA equates to about 2,000 feet. Thus, I would



Figure 2: An approach to Runway 22 at Yellowstone Regional airport (COD) in Cody, Wyoming.

expect to see a white altitude number close to 9,500 in the flight plan at DUSCA.

Another 7 nm back to HOZZR ... again a little over 2,000 feet, so let's guess 11,700 feet there. Now continuing back to NICQE, 16.1 nm, means about 5,400 feet, so the reference altitude there would be about 17,000 feet.

What will be my flight plan's TOD position then? Since I am currently at FL310 and want to cross NICQE at $17,000 (31,000 - 17,000 = 14,000 \text{ feet}; 14 \ge 3 = 42 + 10\%$ is about 46). So, I reckon the TOD will be not quite 50 nm away from NICQE.

It will be no surprise then to receive this clearance from Salt Lake City Center when about 15 miles or so from TOD: "King Air XXXX, descend at pilot's discretion so as to cross NICQE at or above 11,000 feet. You are cleared for the RNAV (GPS) Runway 22 approach to the Yellowstone Regional Airport." Ain't technology great?! Monitor carefully, adjust power as needed, be configured no later than ELYPS, enjoy the magic.

Suppose you're in a King Air without the VNAV capability and had not taken the time to "do the math"



Figure 3: The RNAV (GPS) RWY 36 approach to Polson airport (8S1) in Montana.



while reviewing this approach. Receiving that same clearance, the tendency would be to actually cross NICQE *at* the 11,000 feet altitude the controller stated, rather than taking advantage of the "at or above" clause (31,000 down to 11,000; 20K to lose, $20 \times 3 = 60 + 10\%$ = about 70 miles). So, we would have been premature in our ideal descent profile by 20 miles. Dangerous? No. Big mistake? No. But not the most efficient or comfortable method, in my opinion.

Figure 3 is the RNAV (GPS) RWY 36 approach to Polson Airport in Montana. To be ready at 6,400 feet at or before DODSE, the FAF: (A) at what altitude would you like to cross ARLEE on your way to the CABLI IAF? (B) Would a standard three-degree descent angle keep you at or above the appropriate MEAs for the various legs of the transition?

The answer to (A) should be near 15,000 feet; and (B) is "yes."

Lastly, take a look at Figure 4, the RNAV (GPS)-B approach to Sandpoint, Idaho. Same questions: (A) At what altitude would you like at the CESIG IAF? (B) Will your three-degree glidepath to 4,900 feet at FINTA, the FAF, keep you above the various MEAs?

The answer to (A) should be near 12,000 feet; and (B) is "yes."

Do you grasp the point that I am trying to make? Be situationally aware in three dimensions and optimize your descent profiles when ATC permits. Just because you *can* descend to a lower altitude when ATC provides the clearance, doesn't mean that you *should* start down immediately. Yes, of course, if there is no "at pilot's discretion" included in the descent clearance, then you must start down without delay. However, I rarely use a three-degree descent angle in this case. If I aim for 1,000 fpm, ATC rarely complains.

All of the approach examples that I have used here came from approaches that we actually flew in the C90A that I manage and fly out of the Phoenix area. The owner organized a six-day trip to various great locations in the Northwest and I was honored to be one of the crew. We were on the road from Oct. 5-10, 2018. Take a look on FlightAware if you wish to see our tracks: N3190S. I realize that those of you based on the East Coast would be rather surprised to receive so many "at pilot's discretion" descent clearances.



Folks, those types of clearances are routine out here. I am finding that these wonderful GPS approaches provide a great deal of flexibility. Ask and you shall receive. Honestly, in every case we requested the approach and the IAF that we wanted and were given permission for those procedures without delay. I personally think ATC is quite happy to wash their hands of us when they turn us lose to conduct the approach procedure totally on our own. I find myself doing less and less ILS approaches when there is an LPV option to the same runway. Why worry again about the magenta needle to green needle transition? KA

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." 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 book, 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

Figure 4: The RNAV (GPS)-B approach to Sandpoint airport (SZT) in Idaho.



Breaking Point

By 1933 the Beech Aircraft Company was starved for cash and the future looked dim until a Texas oilman plunked down \$12,000 for a custom-built Beechcraft.

by Edward H. Phillips

A fter more than one year in business, Walter H. Beech had yet to sell an airplane bearing his name. He had flown many demonstration flights in the first Beechcraft, but despite widespread enthusiasm for the biplane, excellent press exposure and success at air races, sales remained elusive.

In February, however, the company's financial situation improved significantly when Walter received orders for not one, but two new airplanes. Thomas Loffland of the Loffland Brothers Company based in Tulsa, Oklahoma, agreed to buy the first Model 17R-1, and the famous clothier, Goodall-Worsted company of Sanford, Maine, sent a check for \$8,000 as a deposit on the more powerful Model A17F.

Loffland was no stranger to business aviation. In the late 1920s the brothers' oil company had operated at



least five Travel Air biplanes, and Thomas was a strong advocate of flying as a rapid mode of transportation between drilling sites. To his way of thinking, however, airplanes were a business tool, not a luxury. He knew about Walter's return to the airframe manufacturing business, and his demonstration flights in the Model 17R-1 had only whetted his appetite for speed and utility.

Instead of buying the Model 17R-1, which would have deprived Walter Beech of a demonstrator airplane, Loffland ordered a new Beechcraft built to his specifications - the Model 17R-2. It was almost identical to the first Beechcraft but featured a few notable changes. Chief among these was relocating the engine mount 3 inches farther forward to reduce cabin noise and improving longitudinal stability; the main landing gear structure was reinforced and a shock strut was installed on the tailwheel, which remained rigid as on the 17R-1. Other modifications included installation of a larger aft landing wire and an additional brace wire beneath the horizontal stabilizer, a new aileron spar and hinge were designed and a new drag truss member was installed at the interplane struts. The alterations increased empty weight of the 17R-2 to 2,767 pounds -90 more than its sister ship.

Beech Aircraft's chief engineer, Ted Wells, also made one other improvement that proved to be troublesome. Wells decided that the installation of a manually-operated "trimming flap" (trim tab) would replace the existing electric trim system that pivoted the entire empennage. Although the flap had its merits, it was but one of several problems that would plague government approval of the airplane and ultimately delay delivery to Loffland.

By the end of May 1933, construction of the Beechcraft Model 17R-2 was nearing completion. Both Walter and Ted were determined to meet the delivery date of June 16, and they knew Tom Loffland expected the ship to be ready for a cross-country flight he had planned in advance. Back in Washington, D.C., however, inspectors at the Aeronautics Branch of the Department of Commerce informed Ted about a number of problems with the stress analysis and technical drawings that he had dutifully submitted for approval.

In addition to concerns about the trimming flap installation, questions arose about the tailwheel tire and shock strut. A review of the stress analysis revealed that the tailwheel fitting supporting the shock strut were

The first Beechcraft, Model 17R-1, was photographed soon after completion in October 1932. Note the rigid, non-steerable tailwheel and single brace wire on the empennage. Landing lights were integrated into the lower wing leading edge. The bullish Beechcraft could fly faster than a majority of military fighters of the day. (Wichita State University Libraries, Special Collections and University Archives)

critical in the three-point landing condition, not the side load condition that Wells had calculated. To ensure that the shock strut installation met the latest requirements postulated by the Aeronautics Branch, a test had to be performed to ensure that the shock strut could absorb landing loads in the three-point condition. To make matters worse, inspectors rejected Wells' description of the tail brace wire, found fault with the engineering information provided for the trimming flap, and demanded load tests of the flap.

After sending a number of telegrams back and forth between Wichita and Washington, Ted and his assistant, Jack Wassall, quickly revised the technical drawings, recalculated loads on the tailwheel shock strut, conducted load tests on the empennage and trimming flap and resubmitted the paperwork as required. By early June, Walter Beech's temper was heating up. He wanted to know why flight testing of the Model 17R-2 was being delayed and insisted that the ship be ready for delivery on the promised date of June 16.





The first Beechcraft sold was Model 17R-2, registered NC58Y to the Loffland Brothers oil company based in Tulsa, Oklahoma. Four circles aft of the baggage door are aerial flares that could be deployed to illuminate the ground in case of an emergency landing at night. In 1935 Tom Loffland traded the ship for a new Beechcraft Model B17E. NC58Y was dismantled at the factory and disappeared from company records.

(Textron Aviation)

Ted was under tremendous pressure. Desperate to meet the deadline, he fired off a telegram to officials at the Aeronautics Branch:

"We are in a jam regarding delivery of this ship, as the owner wants to go on an important trip Friday morning, June 16, and he is liable to do things if we cannot deliver the ship then. The customer is standing around fuming, so I would appreciate your authorizing flight tests by wire. I realize this is putting quite a bit of pressure on you, but it would certainly help out a starving airplane company if you can do it." "Starving" was the correct word. The Beech Aircraft Company's coffers were fast approaching empty, and Walter desperately needed to deliver the airplane and receive the balance due. Fortunately, Ted got his wish and flight tests were authorized for June 15. Four days later inspector George Gay conducted the flights. In his report to Washington, Gay noted that there was little or no perceptible difference between the first Beechcraft and the second (in 1933 he had conducted tests of NC499N). He praised the new tailwheel arrangement with its shock absorber that made taxiing over unimproved sod and grass runways much smoother.



Finally, on June 19 George Gay completed flight evaluations of Loffland's new Beechcraft, now registered NC58Y. Walter Beech had the money he needed to keep his company alive, and Tom Loffland had his shiny, new biplane. It was immediately placed into service flying between oil fields and drilling rigs in Oklahoma and Texas as well as transporting company officials on business trips.

The pilot hired to fly the bullish Beechcraft was 27-year-old Edwin "Eddie" Ross. He had learned to fly in 1926 and served briefly as a test pilot for the Redbird Airplane Company. By 1929 he was working for the

Loffland Brothers flying their opencockpit Travel Airs. When he arrived at the factory to take delivery of NC58Y, Ross suspected that the red Beechcraft would test his piloting abilities as no other airplane could. Although the airplane represented a massive step up in performance, Ross was confident that he could master the biplane.

Eddie quickly discovered that the ship's narrow landing gear track made taxiing difficult. The rigid tailwheel aggravated maneuvering on the ground, and he thought that a swiveling tailwheel, like those on the old Travel Airs, would be a welcome modification. He also disliked the restricted visibility over the big cowling surrounding the Wright R-975 radial engine, and from the first takeoff he increased power slowly and held full right rudder to avoid losing directional control.

Once the Model 17R-2 was airborne, it flew like no other airplane could. As Eddie gained experience his confidence increased, as did his admiration for the powerful flying machine Ted Wells had created. Tom Loffland liked it, too, and kept Ross busy during the first three months flying the ship throughout the Midwestern region of the nation.

On Sept. 19, 1933, however, the biplane was severely damaged during takeoff from an oil drilling site in Oklahoma. Ross gave the engine full power, pushed full right rudder to the floorboards and hoped for the best. With the R-975 bellowing, the Beecheraft left a thick cloud of dust in its wake as the wings struggled to produce lift in the hot, thin air. Barely off the ground and climbing lethargically, NC58Y struck an oil rig but kept flying. Eddie felt the ship lurch hard to the right. Instinctively, he cut the throttle to idle and managed to land without incident in a field.

A quick inspection of the wounded Beechcraft revealed that the lower-right wing panel was "washed out" but the lower-left panel was only slightly damaged. The crippled biplane was disassembled and transported by truck to the factory for major repairs. The right wing panel required 14 ribs, two steel main spars, two drag



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NC499N was photographed after a second brace wire was installed on the empennage. The biplane was flown extensively on demonstration flights across the United States, often piloted by Walter Beech. The airplane impressed everyone who flew in it, but no sales were forthcoming. (Wichita State University Libraries, Special Collections and University Archives)

wires, three compression members and one aileron. The left panel needed nothing more than a new wingtip bow, but upon inspection workmen discovered more damage to the structure adjacent to the left interplane strut. They also found damage to the left horizontal stabilizer leading edge. When repairs were completed, engineering inspector George Gay approved the work and the ship was returned to service October 12, 1933.

Ross continued to fly the Beechcraft and by June 1934 he had accumulated more than 400 hours flying NC58Y. During an annual inspection that month, the Smith controllable-pitch propeller was removed and returned to the Beech factory in exchange for a Hamilton Standard ground-adjustable unit. After nearly two years of thundering through the skies in the bullish biplane, in April 1935, Tom Loffland traded in NC58Y for a new Beechcraft Model B17E.

The final disposition of Model 17R-2 remains a mystery. It is known to have been dismantled at the factory (almost certainly at the order of Walter Beech) and permanently retired from service. Company records state that the ship was disassembled soon after being accepted in trade for the B17E. Given the Model 17R-2's brute power and high level of performance, Walter may have ensured that the airplane never flew again.



More than 80 years later no conclusive evidence has been found that NC58Y was preserved, in part or in whole. Walter Beech realized that the next generation of the Model 17, beginning with the B17L of 1934, was far more affordable, easier to fly, more economical and practical than the first generation Beechcrafts. The airplane's demise, however, seems undignified for a flying machine of such grandeur and technical elegance. Despite having long since disappeared from history, NC58Y still holds the distinction of being the first airplane sold by Walter Beech and his airplane company.

During the time that the Loffland Brothers' Model 17R-2 was in their service, the Model 17R-1 had soldiered on as the only company demonstrator. Prospects who flew in the airplane liked most of its features and were duly impressed by its sheer gusto and unequaled performance, pilots disliked the rigid tailwheel that acted more like an old-fashioned tailskid than a modern tailwheel. The installation did have the benefit of being simple and reliable, but it was damaging NC499N's sales potential.

As a result, Walter Beech and Ted Wells decided to remove the rigid unit and replace it with a full-swiveling tailwheel. It seemed like an easy modification, but Ted soon found himself in a dilemma regarding what size wheel and tire to use. Wells wanted to use a Warner 10 x 3-inch wheel because it would not affect the landing angle of the wings. A wheel of larger diameter would raise

A photograph taken in 1933 reveals a number of changes to NC499N, including final configuration of the empennage brace wires, installation of a full-swiveling tailwheel, and sets of louvers cut into the boot cowling to ventilate the engine compartment.

(Wichita State University Libraries, Special Collections and University Archives)

the empennage too high and result in a longer rollout after landing. Ted eventually decided to proceed with the Warner installation.

Because the modification would result in a technical change to the airplane that would take it out of compliance with the original Approved Type Certificate, Wells contacted Richard Gazley at the Aeronautics Branch. He agreed that the Warner setup could be approved but advised Ted that the Tire & Rim Association listed the wheel weight rating at not more than 400 pounds with the tire inflated to 55 psi. Despite Gazley's comments that a larger wheel/tire combination would be better, Wells replied that, "...we do not want to hang anything outside of the airplane that is unnecessarily large, as everything counts a great deal in the speed of our plane."

Late in July 1933, NC499N was rolled into the factory where the 16 x 7 rigid tailwheel and its mudguard were removed, and the aft fuselage rebuilt to comply with the configuration used on NC58Y. Gazley, however, approved the installation only for NC499N and did not require Ted to perform any drop tests of the new installation. Engineering inspector Fred Grieve perused the tailwheel, including the locking mechanism that held the tire straight when engaged. After flight testing, he approved the airplane for return to service.

After 18 months of operation, in September 1933 the Beech Aircraft Company had sold and delivered only one airplane – the 17R-2, NC58Y. The Model 17R-1, NC499N, had yet to find a buyer. It had become obvious to Beech



Walter Beech finally found a buyer for NC499N in April 1934, two years after the Beech Aircraft Company had begun operations. The Ethyl Corporation ordered modifications to the ship, including a wider landing gear and a new Wright R-975 static, air-cooled radial engine rated at 420 horsepower. The airplane crashed in December 1935, killing the pilot and a passenger.

(Textron Aviation)

and Wells that the Model 17R design was not viable in the existing business aircraft market. It was a great flying machine, but the harsh economic realities of the Great Depression were simply too ruthless to sustain sales. Walter and local pilots George Harte and L.G. Larson continued to fly NC499N on trips to prospective customers, and the ship had become a common sight at many airports across the nation.

Finally, in April 1934, the first Beechcraft built was sold to the Ethyl Corporation. At the time of the sale,



the ship had accumulated 500 hours in the air since its first flight in November 1932. The corporation's pilot, Dewey L. Noyes, handed Walter a check for \$11,827.35 and took delivery May 24 before flying the ship back east to New York City.

During the next 18 months Noyes was kept busy flying company executives around the country, logging 460 hours in the left seat. On Dec. 11, 1935, Noyes and a company official were killed when NC499N struck a hill near Munda, New York, in bad weather, including fog and low clouds. Noyes may have been descending slowly hoping to make visual contact with the ground. Suddenly the Beechcraft ripped through a stand of trees. The thick trunks quickly amputated all four wings before the fuselage slammed into the ground and toppled to a stop in an open field. The Wright radial engine was torn from its mount and rolled across the ground before coming to rest a short distance from the twisted and mangled fuselage.

It was a sad end¹ for a historic airplane and a tragic loss of two lives. During its brief career, however, NC499N had succeeded in thrusting Walter Beech and the Beech Aircraft Company's name to the forefront of aviation.

NOTES:

¹ In 1983 pilot and mechanic Steve Pfister excavated remains of the airplane that had been buried by the landowner 48 years earlier after the accident. He began constructing a new NC499N using some salvaged parts but died before completing the airframe. Noted aircraft restorer James Younkin took over the project, and the reborn NC499N is on display at the Staggerwing Museum in Tullahoma, Tennessee.

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.

VALUE KA ADDED

Textron Aviation Expands Service in Canada

Textron Aviation recently announced it has established Textron Aviation Canada, Ltd., a new wholly-owned subsidiary focused on expanding the company's service network. The first phase of the expansion includes the acquisition of assets of Aspect Aircraft Maintenance, Inc., an aircraft maintenance and repair provider in Calgary, Canada, where a Textron Aviation Mobile Service Unit (MSU) currently operates, and a new MSU base in Toronto.

According to the company, there are more than 500 Citation, King Air and Hawker aircraft operating throughout Canada. The recent acquisition will increase their customer's access to factory-direct service, ensuring they have a local connection for technical support, parts and maintenance.

The Calgary MSU operates as part of the Approved Maintenance Organization (AMO) certification, approved to perform maintenance and repairs on Citation, King Air and Hawker aircraft. As part of the acquisition, the MSU team based at Calgary International Airport will grow in the number of technicians and expand its capabilities to deliver AOG support and limited inspection items and engine maintenance.

Textron Aviation Canada is part of the company's continuous investment in locally based customer service. Earlier this year, the company added four new MSU bases in North America and introduced a line maintenance station at London's Biggin Hill Airport.

Garmin[®] Announces 2019 Aviation Training Events

Garmin has announced expanded pilot training opportunities for 2019 to include additional classes throughout the United States and more instructor-led courses. These training classes include GTN 650/750 touch-screen navigator series, the G500 TXi/G600 TXi and G500/G600 flight display systems, Garmin Integrated Flight Decks, and the GWX aviation weather radar. The training provides pilots with a hands-on approach to learning Garmin avionics in a classroom environment taught by experienced certified flight instructors.

G1000[®]/G1000 NXi Pilot Training: Intended to serve both novice and experienced aviators, this twoday course will explore the capabilities of the G1000 or G1000 NXi Integrated Flight Decks by providing hands-on, scenario-based training in a classroom environment. The course will focus on flight planning, instrument procedures, vertical navigation, the automatic flight control system and more. The cost to attend the G1000/G1000 NXi training class is \$749 and the class will be held in Olathe, Kansas, on the following dates:

- March 7-8, 2019
- June 10-11, 2019
- Sept. 26-27, 2019

GTN 650/750 and Flight Displays: For pilots who are considering an avionics upgrade or those who already have an existing GTN 650/750 paired with a Garmin flight display, Garmin is hosting several classes tailored specifically to flying with these avionics. This two-day class provides a collaborative environment designed to help pilots transition from analog flight instrumentation to Garmin flight displays. A presentation and practice format offers attendees the opportunity to practice real-world in-flight scenarios with Garmin avionics. The cost to attend this pilot training class is \$625 and is scheduled in Olathe, Kansas, for the following dates:

- Jan. 14-15, 2019
- March 2-3, 2019
- Aug. 22-23, 2019
- Nov. 4-5, 2019

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GTN 650/750 Pilot Training: Pilots may also take advantage of training classes tailored specifically to the GTN touch-screen series. This two-day class is available for \$495 and highlights loading and activating departures, visual approaches and instrument approaches and instrument approach procedures, flying holds, flight plan modifications and more. GTN-specific class dates are also hosted in Olathe, Kansas, and are scheduled for the following dates:

- March 25-26, 2019
- Oct. 26-27, 2019

Pilot Training Classes – Regional U.S. Locations: Classroom-based training opportunities will be hosted throughout several new locations within the United States in 2019. These classes will provide the same in-depth instruction offered at Garmin Headquarters, covering the G500 TXi/G600 TXi,

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G500/G600, G3X Touch and GTN 650/750 avionics suites. Cost to attend any one of the regional classes is \$795.

- Feb. 21-22, Garmin Chandler Office; Chandler, Arizona
- April 4-5, Garmin Cary Office; Cary, North Carolina
- June 20-21, Ace Aviation; Seattle, Washington
- Sept. 5-6, Ramada by Wyndham Englewood Hotel & Suites; Englewood, Colorado
- Oct. 10-11, Garmin Chanhassen Office; Chanhassen, Minnesota
- Nov. 20-21, Broward College;
 Ft. Lauderdale, Florida

Integrated Flight Decks: Integrated Flight Deck training is tailored specifically to aircraft type and flight operations performed by pilots attending the class. These ondemand courses are dependent upon instructor availability, training aids and other resource considerations. These classes provide a hands-on learning opportunity in a structured environment for pilots flying with the G1000/G1000H, G3000 or G5000/ G5000H Integrated Flight Decks.

Aviation Weather Radar Class: Successful operation of the weather radar requires an understanding of radar principles, as well as operational considerations and techniques. This class starts with the fundamentals of ground-based and airborne weather radar systems and covers best practices for using the Garmin GWX 70, GWX 75 and GWX 80. The class concludes with a scenario-based module on weather threat management. New for 2019, this class is suitable for pilots with little weather radar experience, pilots looking to refine their weather radar skills and those transitioning from other radar systems.

For customers interested in webbased online courses, Garmin offers several eLearning courses for the G3000[™] and G5000[™] Integrated Flight Decks, Link 2000+, GTN 650/750 Essentials and Weather Radar Operations. These eLearning courses are self-paced and guide customers through scenarios, which help build confidence with Garmin avionics systems.

Garmin will also be hosting various training classes at EAA AirVenture in Oshkosh, Wisconsin, (July 22-28, 2019) and at the National Business Aviation Association (NBAA) Convention & Exhibition in Las Vegas, Nevada, (Oct. 22-24, 2019). To attend any of the courses at Garmin Headquarters in Olathe, Kansas, or throughout the United States, register online by selecting the Training Tab on www.flyGarmin. com. For additional information or to request training for any one of the G1000/G1000H, G3000 or G5000/ G5000H Integrated Flight Deck courses, contact aviation.training@ garmin.com.

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GARMIN'S #1 G1000 NXi RETROFITTER

At Elliott Aviation, we are Garmin's #1 King Air G1000 NXi retrofitter and we've completed **more Garmin G1000 installations than all other dealers in the world COMBINED!** We're so confident in our experience that we offer new installations on a G1000 NXi with a 15-day, \$3,000 per day guaranteed downtime. For current G1000 owners, the NXi gives you a cost-effective, plug-and-play solution that can be completed in as little as two days. As a Factory Authorized King Air Service Center, Elliott Aviation offers on-site training to make sure you are comfortable with your system before you leave.

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- •Greater Display Resolution and Brightness
- Improved Map Performance
- •Many More Improvements!

