King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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Striking Gold

Australian Charter Firm Serves Mining Companies

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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Mining the

An aerial view of the Super Pit in Kalgoorlie, one of the world's biggest open-cut gold mines. Western Australia accounts for almost 70 percent of the country's gold production.
(PHOTO CREDIT: DAN ROISSETTER)

Goldfields Air Services is based at Kalgoorlie-Boulder Airport in Western Australia. The charter and maintenance company owns a King Air B200C (left) and a King Air B200 (right) and leases additional King Air B200s (middle) from Formula Aviation when their workload is high.

King Air

Charter operator solves goldminers' turbine transportation needs

by MeLinda Schnyder

As soon as Dougal McQuie and Mark Woodley acquired Goldfields Air Services (GAS), a small charter and maintenance company based in the legendary Western Australia gold mining town of Kalgoorlie, they had an important decision to make.

One of the operation's largest clients was growing and their air transportation needs would soon require turbine aircraft operated by two-pilot crews. At the time, Goldfields had an all-piston, twin-engine fleet of two Cessna 404s, three Cessna 402Cs, one Cessna 310, along with a single-engine Piper Warrior in the flight school.

"So we looked at all of the available options," McQuie said. "Piper Cheyennes, Aero Commanders, we even looked at the Cessna 406s. The temptation to move into Conquests given our knowledge of Cessnas was very high, however in the end we chose King Airs. The 404s and one 402C were sold, and in a fairly short time we had gone from a Cessna fleet to a Beechcraft one."

That was 2010, and since then the partners – one a pilot and one an engineer – have guided Goldfields on a path from leasing Beechcraft King Airs to meet the needs of clients like AngloGold Ashanti Australia, part of the third-largest gold mining company in the world, to owning a fleet of three King Airs.

Working in remote Australia

Kalgoorlie, or Kal as it is affectionately known by locals, is a town (see below for gold mining history) of nearly 33,000 people about 370 miles east of Western Australia's capital city of Perth. Western Australia is one of the country's six states and encompasses the entire western third of the continent. Its 965,000 square miles is about the size of Western Europe and 2 million of its 2.6 million residents live in Perth. More than half of the state is considered the outback or the bush – the sparsely inhabited, arid interior area of the country dominated by agriculture, mining and tourism activities.

Another way to look at the area Goldfields Air Services covers: "We carry all sorts of passengers and freight into and out of a region bigger than Montana, Oregon, Idaho, Wyoming, Nevada, Utah, Colorado and Arizona combined," said McQuie, the company's managing director and chief pilot.

"On any given day, we generally are operating north and east from Kalgoorlie, servicing the remote and isolated communities of the western desert through to the Western Australia/South Australia border in the east, Alice Springs in the northeast and Broome in the north," he said. "We carry medical personnel, teachers,

The Australian Gold Rush

In 1851, Edward Hargraves discovered a grain of gold in a waterhole near the town of Bathurst, northwest of Sydney in New South Wales, one of Australia's six states. Hargraves was convinced that the similarity in geological features between Australia and the California goldfields (from where he had just returned) boded well for the search of gold in his homeland. He was correct. The discovery marked the beginning of the Australian gold rushes and a radical change in the economic and social fabric of the nation.

In 1852 alone, 370,000 immigrants arrived in Australia and the economy of the nation boomed as the rush spread to other states. The total population trebled from 430,000 in 1851 to 1.7 million in 1871 and the emergence of goldfield towns sparked a huge boost in business investment while stimulating the market for local produce, and laid the foundation for the country's agricultural industry.

In 1893, Irish prospector Paddy Hannan hit a significant alluvial gold deposit in the state of Western Australia and sparked Australia's largest gold rush. Still today, the city of Kalgoorlie is one of the most important mining areas in the world, with several large mining operations located in and around the city. Two of the world's biggest open-cut gold mines are nearby: the Super Pit and the Boddington Gold Mine are large enough to be seen from space.

Most of Australia's gold production comes from open-cut mines, where large capacity earth-moving equipment is used to remove waste rock from above the ore body and then to mine the ore. Waste and ore are blasted to break them into sizes suitable for handling and transport

Australia is the second-largest producer of gold in the world, behind China.

to waste dumps or, in the case of the ore, to the crusher. Underground mining is used where the depth of ore below the surface makes open-cut mining uneconomic. Vertical shafts and spiral tunnels are used to move people and equipment into and out of the mine, to provide ventilation and for hauling the waste rock and ore to the surface.

With a population of about 33,000, Kalgoorlie – where Goldfields Air Services is headquartered – is the largest city in the vast, remote interior of the country known as the Australian Outback. This section of the outback is called the Golden Outback by tourism officials, and it covers 54 percent of Western Australia.

While gold is the primary output of about 70 operations throughout all Australian states, Western Australia accounts for almost 70 percent of country's gold production. Australia accounts for about 9 percent of global gold production, second only to China, which moved into the top spot over the past decade by producing 16 percent of the world's gold.

Sources: Australian Government and Western Australia Tourism Board

One of Goldfields Air Services' biggest clients is AngloGold Ashanti, a gold and base metal mining company. GAS conducts regular flights to the mine sites for freight deliveries and crew changes. These miners are at Lake Wells Station in Western Australia.

students, miners and government workers, and anybody else who has reason to travel. We don't provide medical services but rather leave that to the wonderful guys in the RFDS whom we share the region with."

RFDS – Royal Flying Doctor Service – operates one of the largest fleets of King Airs and has been using the model for decades to provide emergency evacuations and bring primary health care to the remote areas of the world's sixth-largest country in land area. It was through their work that McQuie first learned about the abilities of the King Air.

After high school, McQuie followed his father into the business of working for large cattle companies that used fixed-wing aircraft to muster cattle in conjunction with horses or motorbikes on the ground. His role was partly pilot and partly assistant manager at a 2.5 million-acre sheep farm in Western Australia.

Five of Goldfields Air Services' pilots: back row (left to right) – Chris Hurst, operations manager, and John Boag, line pilot and flight school instructor; front row (left to right) – Dougal McQuie, managing director and chief pilot; James Lucas, flight school head of operations; Claire Drinkwater, line pilot and flight school instructor.

Dougal McQuie spent much of his youth in the right seat of a Cherokee 180 or a Cessna 172 while his dad performed aerial mustering on large cattle farms in Australia. McQuie earned his pilot's license the day he turned 16 and today is the managing director and chief pilot of Goldfields Air Services in Western Australia.

"One night I had cause to evacuate a young girl who was working for me after she had fallen off her motorbike and gone into seizures," he said. "She had suspected head and spinal injuries and our closest hospital was 900 km (560 miles) away. We had to load her onto the back of an SUV and drive her 40 km (25 miles) over bumpy dirt roads just to get to the homestead. That alone took a couple of hours. The RFDS King Air was organized as the medivac and it arrived at about 10 p.m. We lit the airstrip with cars and kerosene flares. It was like the hand of God coming to rescue this girl. What an amazing resource to have at our disposal. That was probably the first time I really understood the capabilities of the King Air.

"This aircraft came 450 nm in under two hours, landed on my little dirt strip that I operated my 172 from and in the middle of the night took my seriously injured worker back to a hospital without detour. They saved a life that night."

Ticking all the boxes

McQuie said Goldfields chose the King Air B200 because the model satisfied all of his mining company client's performance and safety requirements. Other factors they considered: King Airs are still in production and supported by Beechcraft, there is a simulator in Australia for advanced training, and he could lease a King Air to continue providing transportation for Anglo Australians without huge start-up costs.

"Originally we were able to lease one King Air B200, BB-529, from Formula Aviation in Perth," McQuie said. "She was an oldie but with fresh paint and interior, looked like a million dollars. This aircraft very quickly became the cornerstone of our business with clients booking it further and further ahead of time so they wouldn't miss out on it. One King Air soon turned into three."

Leasing helped GAS make the transition to twin-engine, turbine aircraft with minimal capital expenses but flying the King Airs 1,000 hours a year called for ownership.

In 2014, Goldfields purchased a 10-year-old King Air B200 (BB-1862) with Rockwell Collins Pro Line 21 avionics from a similar charter company in the northern part of Western Australia. GAS had the original engines (with 5,000 hours) overhauled, then put the airplane into service in January 2015.

"It was the biggest investment the company had ever made and a serious investment into the long-term future of the company," McQuie said.

Soon after, they purchased a 1981 Beechcraft B200C (BL-30) to handle overflow from BB-1862. The factory cargo door has given Goldfields versatility to also use the aircraft for fire and flood relief, urgent freight collections, as well as search and rescue operations.

"She is the grandma of our fleet with 26,000 hours on her clock," McQuie said. "She has had a lovely dual Garmin 650 avionics upgrade a few years ago, which made her attractive to us as it gives us the redundancy we required to be able to go to remote locations not serviced by any other instrument approaches."

Last month, GAS took delivery of their first King Air C90 (LJ-1464) to replace the fleet's aging Cessna 402s and migrate all operations to turbine aircraft. The 1997 King Air is mostly in its original configuration and has 3,000 hours.

"The C90 still allows our customers a smaller aircraft that is cost-comparative to the 402s," McQuie said. "One of our most common routes is from Kalgoorlie up to Warburton, which is located in the central desert. It's a leg of 390 miles so its 4.5 hours round trip. With the cost of avgas in the region being quite high for a payload of up to 400 kg (880 pounds), it works out 5 percent better in the C90 because we can carry return fuel. The round trip takes 3 hours 25 minutes in the C90. For larger loads, the B200 knocks an extra 20 minutes off the trip."

'Backbone of our operation'

McQuie calls the King Air platform the "backbone of our operation" and is excited about the next chapter for Goldfields Air Services. The company flies about 2,000 hours per year: 1,000 with the King Air 200s and 1,000 with the 402s, with that work shifting over to the C90 this year. The hours are evenly split three ways between mining company work, government missions, and general private charter and flight training.

Last month, Goldfields Air Services took delivery of this 1997 King Air C90 to replace the fleet's aging Cessna 402s and migrate all operations to turbine aircraft.

GAS operates with eight to 10 pilots depending on the volume of contractual work and seasonal conditions, and also operates a flight school with five of the pilots covering both roles.

Goldfields Air Services purchased this 2004 King Air B200 in 2014 after leasing King Airs for four years. It is shown at its home airport, Kalgoorlie-Boulder Airport.

"On any given day they are flying both King Airs and 172s," McQuie said. "It's a great pathway for young instructors. I get a real kick out of seeing people progress personally and professionally and to see young pilots stick at it and be able to progress onto a larger aircraft is very rewarding. It can be slow and frustrating at times, but the rewards are there for those who stick at it."

Woodley, co-owner of the company and an engineer, heads up a team of five maintenance engineers in the hangar at Kalgoorlie-Boulder Airport (YPKG). The remoteness of their operations tests the team's self-sufficiency.

"They keep our aircraft in the air and their job is very challenging given the distances and remoteness of our own location," McQuie said. "We have learned to be very self-sufficient and self-reliant. You can't just duck next door and borrow a test box when yours needs calibrating when your nearest neighbor is 600 km (372 miles) away."

The majority of GAS's missions are transporting people: crew changes at mines, health practitioners at clinics and teachers in remote areas. There is often no infrastructure other than a dirt airstrip.

"We often take our passengers out in the morning and bring them back in the evening," McQuie said. "The King Air means that they get more time on the ground to do what they need to do when compared to the older pistons we were operating. And the increased range and speed of the King Airs is certainly instrumental in securing work that we couldn't have done in the Cessnas."

Among that work he's referring to is hot shot parts missions.

"If a mine plant suffers a breakdown and needs to get a part, the cost of the downtime can be as much as millions of dollars per day," he said. "For example, I took a bearing 4 foot in diameter weighing 350 kg (800 pounds) from Perth to Pannawonica in the middle of the night. I literally met the bearing manufacturer on the runway in Perth not half an hour after he had finished fabricating it.

"Sometimes a mine will need some tool or piece of specialty equipment urgently and they know that another mine has one they can borrow, so they send us to pick it up and deliver it. Sometimes it's nothing more than a circuit board on some control mechanism but without it the mine stops production and every minute counts."

There are no plans to add additional aircraft at this time, McQuie said, but down the road they might install a Blackhawk engine upgrade on the King Air C90 and they do plan to convert a Beechcraft Duke they own to turbine engines.

"Once we put turbines on the one Duke we own, we will have an all-turbine fleet, which I think is something a little rare and special for an organization like ours that operates smaller aircraft," he said. KA

The 1981 King Air B200C owned by Goldfields Air Services takes off from Tjuntjunjtarra, a large, remote aboriginal community in Western Australia.

Dealing with Annoying Allergies

by Dr. Jerrold Seckler

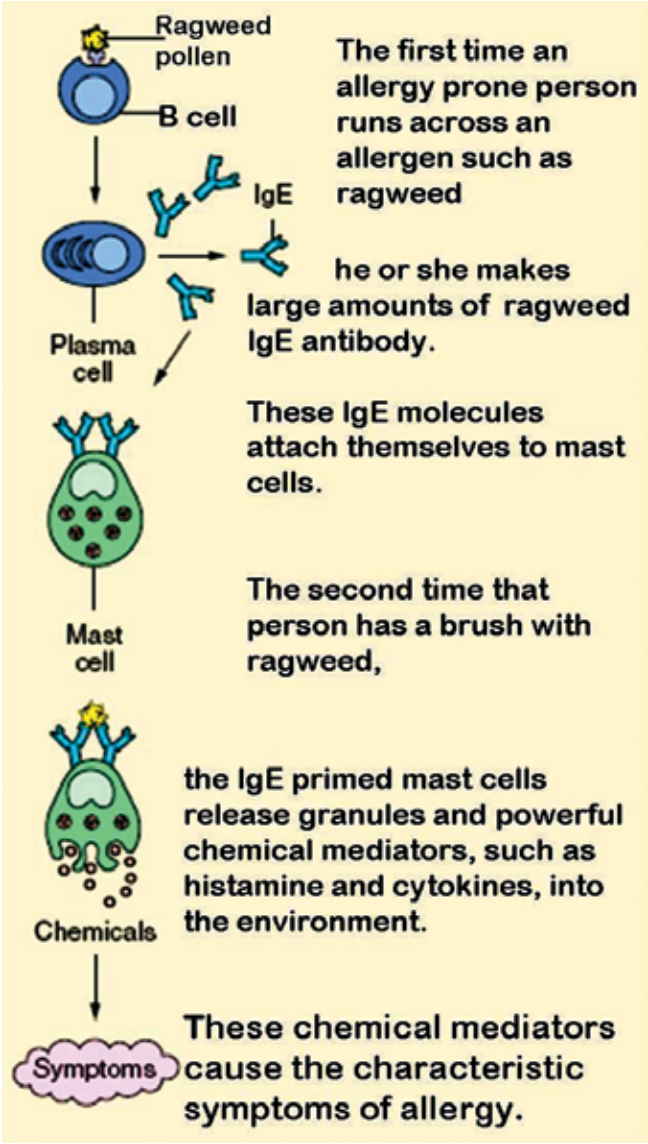
About 25 percent of people suffer from some sort of allergy. These allergies can manifest in a variety of ways, from mild skin eruptions to nasal congestion, and even severe respiratory distress. Regardless of the symptoms they cause, or the material (allergen) that initiates the allergic reaction, all allergies have something in common – namely, they are an immune system response to a substance that typically causes no reaction in the majority of the population. Common allergens include pollens, dust mites, various foods, animal dander and molds, although almost anything can induce an allergic reaction in susceptible people. It is important to note that not all reactions to specific substances are allergic. Some substances are simply toxic and the reaction they cause is direct and not mediated by an immune system reaction.

While the actual mechanism of allergic reactions is quite complicated, let's try to simplify it to aid in our understanding of why allergic reactions occur and what we can do to minimize their effect on us.

The first step in the allergy chain is sensitization. In this step, one is exposed to an allergen, let's say pollen. The pollen causes specific cells of the immune system to produce antibodies specific for that pollen. These antibodies are proteins called immunoglobulins, and will react only with the specific allergen that induced them. Unlike most antibodies, the immunoglobulins involved in allergic reactions, called IgE, do not circulate in the bloodstream, but rather bind to cells called mast cells that are present in the body's connective tissues. On a subsequent exposure to the allergen, the antibodies on the mast cells interact with the allergen and results in the release of several chemicals from the mast cell, including histamine, which causes small blood vessels to dilate and makes smooth muscles in the trachea to tighten, heparin that decreases blood clotting and serotonin which causes larger blood vessels to contract. There are other chemicals released as well, but you get the basic idea. It is these chemicals that cause the symptoms that accompany an allergic reaction such as nasal stuffiness, trouble breathing, skin rashes and, in some cases vascular collapse (anaphylaxis), which can be fatal.

Why some people's immune systems overreact to the presence of generally innocuous allergens while other's do not is poorly understood. There may be a genetic component to this excessive sensitivity as allergies seem to run in families.

From a pilot's perspective, typical allergies are a nuisance but are not serious. Nasal allergies however, can cause enough nasal congestion to result in blockage of the Eustachian tube (the tube that connects the middle ear to the nasopharynx) and this can result in



A pictorial view of the allergy chain.

severe pain with pressure changes, such as those occurring during climbs and descents. Pilots should therefore be cautious about flying if they are significantly congested. Those who are highly sensitive to specific allergens – like experiencing a vascular collapse after a bee sting – clearly need to do everything they can to avoid sharing the cockpit with a stinging insect. Additionally, they should carry an emergency kit with them for use should such a reaction occur.

The FAA does not consider allergies to be disqualifying per se, but does state that severe allergies require an FAA decision. How they define a "severe" allergy is uncertain.

Where the FAA is concerned about allergies is with the self-treatment of allergies by airmen. Because most of the symptoms experienced by allergy sufferers result from the action of the histamine released in the allergic reaction, treatment revolves around the use of anti-histamine medications, many of which are available over the counter (OTC).

It is imperative that pilots avoid the use of "first generation" anti-histamines such as Benadryl (diphenhydramine), brompheniramine, chlorpheniramine, and doxylamine. These drugs are highly sedating and are found in a large variety of OTC preparations including popular anti-allergy medications such as Dimetapp, Chlortrimeton, NyQuil, and Alka Seltzer + Cold medicine. Read the label of any allergy medication you buy very carefully and do not use one containing the drugs mentioned above.

Newer, second generation anti-histamines have the FAA's blessing. They include Claritin, Alavert, Clarinex, Mucinex and Allegra. The FAA suggests that before flying with one of these medications, you use it a few times and make sure you suffer no side effects.

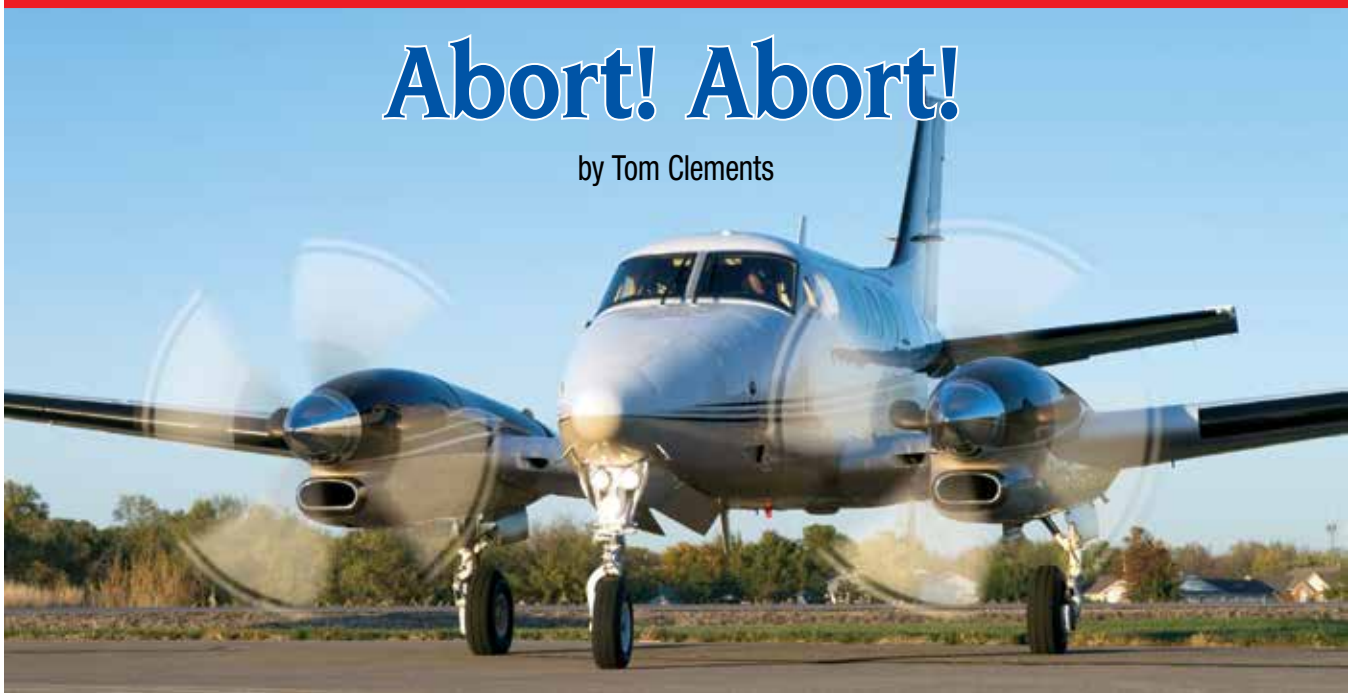
Of course the best advice is, as always, to use common sense. If you are having significant problems with allergies, don't fly unless and until you can safely and reliably control your symptoms. KA

Dr. Jerrold Seckler is retired after practicing medicine (urology) for over 40 years and as an active AME for 25 years. He has over 6,000 total hours, 2,200 of those in his 2001 Cirrus SR22. He is an ATP, CFII, former COPA Board Member and a ground instructor at Cirrus Pilot Proficiency Programs.

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.

Abort! Abort!

by Tom Clements



(PHOTO CREDIT: DAN MOORE VMG LLC)

I hope most of the readers of *King Air* magazine are familiar with the *BeechTalk* internet forum (*www.beechtalk.com*). The site is very well-run and controlled by its moderators, members must use their real names, and it is visited regularly by a wide variety of people from novices just entering aviation to old timers like me and many others. The common bond we share is an interest in and love for Beechcraft airplanes, both old and new. Since the Beechcraft airplane model line involves such a mix of planes spanning over 85(!) years of production, the site is logically divided into sections that apply to certain parts of this spectrum: Singles, Twins, Turbines, Classics, etc. I encourage my readers who have not yet discovered this forum to log on and take a look at the Turbines section. There is a lot of great information there. A search button allows you to quickly find past threads of interest. However, I should give you a warning: When you start to explore, don't have any important plans for the next few hours! You will quickly become enthralled by what you find.

One of the topics that recently received attention on the forum involved an aborted takeoff in a B200 King Air. The abort was initiated at about 60 knots while attempting to depart from an 8,000-foot-long runway. An outboard tire was blown during the abort that was initiated due to the illumination of the "Hydraulic Fluid Low" caution annunciator … yellow in color. The originator of the thread wanted input from the forum members to help answer two questions he had: (1) Was the abort justified? Should they have stopped due to that caution light? (2) Would blowing a tire be expected under these conditions? You can find and read that thread on BeechTalk and find a lot of good thoughts in the replies presented.

I, too, responded to the questions and it gave me the idea for this month's article. I'd like to share with you my thoughts on this situation, in particular, and aborted takeoffs in general.

My discussion will begin with the acknowledgement that an aborted takeoff can and should be an absolute non-event, regardless of the speed – within reason – at which the abort is initiated, *if the runway is long enough.* On an 8,000-foot, low-altitude runway, I believe any King Air pilot should be able to abort even at 100 KIAS and have absolutely no trouble slowing to a stop with many feet to spare. Furthermore, the abort procedure would not have to be a rushed or scary event at all: Just come to Idle, lift and enter Beta, then Reverse (don't hesitate to use it all at first!) and finally start applying brakes about the time you start leaving Reverse to get back to Beta. The Pilot's Operating Handbook (POH) says that we should not be in Reverse below 40 KIAS, so I *start* moving the power levers forward from Maximum Reverse at 60 and have them at Flat Pitch – the bottom of the Beta range, called Ground Fine on the later models – by 40. As the power levers leave Max Reverse and start coming forward, that's the time I start using brakes – even getting on them hard, if needed – at 40 knots and below. By 40 knots, the wing's lift is small enough that the aircraft's weight will be mostly supported by the tires, meaning that the chance of locking up a tire causing it to be scuffed or even blown is small.

If you search, you can also find a BeechTalk thread concerning "The Maddening Story of 200 Takeoff Data." That is a lengthy and educational article I wrote specifically discussing the testing and certification of the 200's takeoff data. One of the surprising events that I talk about there is the fact that in a high-speed abort, the airplane tends to rotate to a positive angle-of-attack and become airborne! This is due to the fact that the engine and propeller were raised four inches as compared to the 90- and 100-series, to accommodate the larger diameter prop. But this extra height puts the thrust line enough above the wing that positive thrust produces a strong nose-down rotation tendency whereas negative thrust (drag) tends to rotate the airplane nose-up. We Beech instructors were taught that an abort should be a combination of right hand back and left hand forward, to keep the plane firmly on the ground. (This is not as needed in the 90- and 100-series, but it is still a good habit pattern to ingrain. The 200- and 300-series, including the B300 or 350, exhibit this self-rotation tendency noticeably.)

In answer to question two, then, there is absolutely no reason – other than some brake malfunction – to experience a blown tire when aborting at 60 knots! A 200- and 300-series King Air has enough ground effect or "wing cushion" that a lot of weight does not get transmitted onto the tires until rather slow. That's why I want to only *start* with the brakes at 60 and not get aggressive on them until 40 and below. Badly scuffing or blowing a tire – and it is virtually always an outboard, never an inboard – is unfortunately quite common with pilots new to King Airs, especially if they come from a background of jet operation with anti-skid braking systems and limited, if any, reverse thrust capability. Even normal landings on reasonably long runways have had their share of tire problems with low-time King Air pilots. I make an effort to always tell newcomers to keep their heels on the floor and only use the bottom of the rudder pedals until approaching taxi speed. Then they can slide their feet up and apply brakes.

Let me add an important comment: During a "for-real," high-speed abort on a runway of sufficient, but not excessive, length, blowing a tire while braking is not going to cause me to give *any* pilot a black mark! Look, the brakes are sensitive, the airplane tends to be light on the tires until slow, and maybe the braking on the other three main tires was what helped in stopping the airplane before it hit the overrun. In the overall scheme of operating costs, a new tire now and then makes hardly a ripple!

Aborting at 60 knots on an 8,000-foot runway? There's not even a remote chance of tire failure when done correctly. As one responder to this BeechTalk thread wrote, "just coming to Ground Fine alone would probably have led to more taxi thrust being required later to make the turnoff!"

Now let's look at question one: Was the abort justified? Realize that the only reason given for the abort was the illumination of the "HYD FLUID LOW" caution light, that also triggered the Master Caution, yellow flashers on the glareshield in front of each pilot. In my opinion, yes, it certainly was justified and was the correct thing to do. Not everyone will agree, so let me present my reasons for believing as I do.

First, do you realize that the *only* aborted takeoff procedure in the King Air POHs follows an engine failure?! No other reason is given! Brake lock-up? Runaway rudder boost? Pitch trim runaway? Hitting a deer? Having another airplane on the runway in front of you? No! None of those possibilities is addressed

in any way, shape, or form! So, what this implies is that we, as pilots, must make our own decision about justified reasons for an abort. A large, multi-pilot flight department should have published Standard Operating Procedures (SOPs) in an attempt to get everyone on the same page, making the same go/no-go decisions. Standardization of procedures in a flight department with more than one pilot is such an important and admirable goal but one that, based on my observations, is extremely difficult to achieve.

Second, there's that old adage, "Would you rather be on the ground wishing you were in the air, or in the air wishing you were on the ground?!" I'll always opt for the former. So when an abort is done at a speed that makes it an absolutely easy slam dunk, then that's what I will do. But what is that "speed that makes it an absolutely easy slam dunk?" Here is where all of the takeoff conditions – runway length, airport elevation, OAT, wind, airplane weight, runway surface and slope – must be taken into account.

After that disclaimer about all the takeoff conditions that play a role, to now give a hard-and-fast answer may make me look foolish, but here goes: Up to 60 KIAS – even on 3,000-foot-long Catalina Island – I'll abort for *anything* not expected. Any annunciator coming on? Abort. An engine gauge reading incorrectly? Abort! Feeling that acceleration is sluggish? Abort. Cracking a windshield? Abort. Why heck, the other pilot making an unexpected loud noise from some body orifice, I might be pulling those power levers aft!

After 60 knots it gets trickier because, depending on runway length and the other takeoff factors, now the abort is not as easily accomplished. In this 60- to 80-knot range, my abort will only follow a strong yawing tendency – lack of directional control – or damage to the airplane, such as hitting an animal or a taxi light or having the door pop open. A red warning flasher? If aborting in this 60- to 80-knot range is not a certain slam dunk, then no, I am not stopping due to a red annunciator with one exception: Inverter Failure when faced with a low ceiling. G1000 or Pro Line 21-equipped machines don't even have an inverter. Nice!

Blasphemy! Take that crazy Clements behind the woodshed for a good thrashing! Of course, we abort up to V1 for *any* red annunciator! Our Ops Specs – for you 135 operators who have them – tell us to! It is also in the suggested SOPs that the NBAA publishes.

Now hold the tar and feathers for just a moment. I will not take space here to list all of the warning annunciators, each of which trigger the master warning flasher, but that would be a good homework assignment for you to do. In a quiet hangar or during your next boring, cruise segment, examine all your red annunciators and review

what they are telling you. I hope you will conclude that none of them says that the airplane won't continue to accelerate and fly. "Fuel Pressure?" Golly, I only have 10 hours to sort that one out! "Bleed Air Fail?" No problem to wait a while to address that at a safe altitude. "Oil Pressure?" (For those models that have it.) The engine is not in immediate probability of seizing. We have time to monitor the gauge and look for oil residue on the cowling at a safe altitude. I have yet to see a "Wing Fell Off" light in a King Air. I'd abort if I saw that one!

Inverter failure? The inverter light is a unique case. For the majority of King Airs, the main pilot-side flight instruments depend on AC power along with at least the torque gauges, the most important engine power instrument. If Visual Meteorological Conditions (VMC) exist and power had already been set – as it should have been, long before – then the plane will fly just fine with no alternating current. Yet departing into low clouds would not be nice, especially if you don't have another qualified pilot in the right seat to temporarily take control using that side's instruments, most of which will be working fine. So I encourage you to brief carefully, even if it is just talking to yourself, about the highest speed at which an inverter light would trigger an abort reaction. Keep in mind, too, that this should be a temporary problem only, until the other inverter can be selected.

Finally, that big, scary nemesis – "Engine Fire." Surely, I'd abort for that one, right? No! And here's why.

To the best of my knowledge – and I have talked with a lot of other high-time King Air pilots and mechanics – there has never been an in-flight engine fire in a PT6! Even if there were a large fuel leak, what would ignite the fuel? The hot exhaust stacks are forward, not aft. (Well, except for the Piaggio and Starship.) If there had been a large fuel leak downstream of the Fuel Control Unit (FCU) and upstream of the nozzles, it is questionable whether you'd be able to make takeoff power normally.

Combine that thought with this one: King Airs have a horrible history of false fire warning lights. This tendency to illuminate when no engine fire is present was rectified when the newer, gas-filled tube warning system was installed, beginning with the 300 model in 1984. But the older system that was triggered by infrared radiation – or, in some cases triggered by flickering light – was known to yield many false warnings. ("Look! I see fire! Oh, wait, it's the sun, ninety-three million miles away.")

Here is my bottom line: Once the speed is such that an abort is no longer a slam dunk, easy procedure for the particular takeoff conditions that exist, then I am aborting for one reason and one reason only … inability to control the airplane.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Now one would normally think that "inability to control" would be experienced as a yaw that cannot be corrected by rudder input. Of course, that's correct. But also, it could happen in the pitch direction: Perhaps something jammed the elevators and liftoff/rotation attitude could not be achieved. Control lock overlooked and still installed? A rigging pin left in the tail cone accidently?

The control wheel lock that prevents elevator and aileron movement in the earlier models was designed such that the control wheel was level with the lock pin installed. After some reports of accidents caused by the control lock still being installed at takeoff – in all sorts of airplanes – Beech decided to put the hole in the control wheel shaft in a different position, one that would require noticeable left-wing-low (CCW) displacement of the wheel when the lock was inserted. That change made it much less likely to make the horrid mistake of overlooking the removal of the lock.

When a true loss of engine power is experienced after the decision speed has been reached and thus the decision is made to continue, now's the time that immediate and forceful input on the wheel and the pedals is mandatory. Obviously, the control requiring the most abnormal input is the rudder. Let me finish by leaving you with this thought, similar to what I wrote on the BeechTalk thread. It is likely that 100 percent of us were taught and have used the memory aid, "Step on the ball." Sure, if we are yawing horribly to the left with the wings level (or close to level) the ball will be skewed well to the right and we should apply right rudder to achieve a reasonable state of coordination. My experience has taught me, however, that there is a better, more useful, more instinctive memory aid to make the airplane fly correctly when dealing with a power loss soon after decision speed: **Step on the Heading.** I always set the HSI's heading marker on the runway heading. If the bug moves right of the lubber line, it tells me that I have allowed the airplane to turn left; I do not have sufficient right rudder force applied. By stepping on the heading "bug" with enough force – applying a strong dose of right rudder – I can make the nose swing back where it should have been. I will now know that the dead foot is the left one and that I have lost power on the left side. Practice this in the airplane or during your next simulator training session: Stepping on the Heading. I think you will likely agree that it is a more intuitive reaction to make than suddenly emphasizing the ball's position in your instrument scan.

Final reminder: What is the leading cause of loss of engine power in a King Air soon after liftoff? Power Lever Migration. What is this Power Lever Migration? It is the action of one or both power levers moving aft without pilot input. The cause? Friction knobs that are too loose,

that were never snugged up sufficiently before the takeoff roll began. Due to the fact that (1) both power levers sit slightly to the left of the cockpit centerline, and (2) that the end of the appropriate power lever cable connects to the right side of each engine, there is a significantly longer cable length on the right versus the left. This extra length adds more friction. Thus, the spring that is trying to pull the engine's FCU to idle has more of an effect on the left side than the right.

If the moving power levers are visually caught by the pilot and he moves his hand away from the landing gear handle and back to the levers, pushing them up correctly, no accident takes place and a good lesson is learned. On the other hand, if the spring back of the levers goes unnoticed, tragedy may result. In the pilot's mind, the "Power" step of the engine failure procedure has already been done. Furthermore, just as he or she has experienced in the sim, autofeather kicks in to quickly remove the drag of the windmilling propeller. Thus, there's little for the pilot to do other than hold the proper pitch attitude, step on the heading, and watch the houses get smaller.

Here's the kicker, friends: That power lever migration not only turned the autofeather system off – since the arming switches in the pedestal are no longer being activated – but it likely also reduced power on *both* sides, but with more of a loss on the left due to less friction resisting the spring's pull. Now, just holding the proper pitch attitude and stepping on the heading may well not be enough to prevent a crash. The total reduction in power may leave the airplane in a state such that maintaining airspeed and climbing is impossible while experiencing the windmilling propeller's drag.

If you don't have "Friction Knobs – Tightened" on your Before Takeoff or Runway Lineup checklist or flow pattern, you surely should! Not doing so can lead to a tragedy that should never have happened. Be alert, folks! KA

King Air expert Tom Clements has been flying and instructing in King Airs for over 44 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, go to *www.flightreview.net*. 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 *kblonigen@cox.net*.

The "Baby Beechcraft"

Part One

During the early 1960s, Beech Aircraft Corporation's Model 23 "Musketeer" marked the company's foray into the highly competitive, entry-level segment of the general aviation industry.

by Edward H. Phillips

In the wake of World War II, America's lightweight airplane market exploded as many pilots who had flown fighter and bomber aircraft came home and started flying schools across the United States. As a result, during 1946-1947 there was enormous demand for new aircraft. The war had proven the value of aviation, whether military or commercial, and the American public accepted flying with almost the same enthusiasm as it had embraced the automobile in the 1920s.

Late in 1944, airframe companies in Wichita, Kansas, which had provided thousands of training and liaison aircraft during the war, began development of new models and prepared for the massive downshift from war-time to peace-time production. Beech Aircraft Corporation, under the guidance of co-founders Walter H. and Olive Ann Beech, was developing the all-metal Model 35 "Bonanza" that would replace the classic, but aging, Model 17 biplane – an icon whose time had passed.

Across town at the Cessna Aircraft Company, Dwane Wallace was tooling up production to build the two-place Model 120 and Model 140, while far to the east in Lock Haven, Pennsylvania, William "Bill" Piper Sr. was gearing up to build hundreds of the famous J-3 "Cub," alongside the new PA-11 "Super Cub" and PA-12 "Super Cruiser." Other, smaller companies such as Taylorcraft, Aeronca and Interstate, planned to resume building "warmed-over" versions of their pre-war ships to meet the onslaught of demand from flight schools and private pilots.

Unfortunately, early in 1947, demand for small aircraft suddenly and inexplicably collapsed. It happened so fast that some thought it rivaled the disastrous stock market crash of 1929. Aviation leaders scratched their heads trying to figure out the cause, but it soon became apparent that the quintessential villain was overproduction and complacency fueled by the quest for quick and easy profits. Piper, Taylorcraft, Aeronca and the other small manufacturers had lost touch with the post-war market's changing concept of what a small airplane should be. A new generation of would-be aviators viewed their products as dull, uncomfortable and saddled with lackluster performance. Simply stated, airplanes that sold well in 1940 were soundly rejected by 1948.

During the 1950s, the Model 35 remained Beech Aircraft's entry-level airplane, but as the general aviation market continued to expand and attract thousands of new student pilots, management at the company realized that they were missing a potential marketing opportunity. By 1960, Cessna Aircraft and Piper Aircraft were riding a new wave of prosperity. The two-place Cessna 150, four-place 172 and the speedy Model 210 were modern designs that were excellent values for the money. Piper, despite its product line of steel tube and fabric airplanes, was still experiencing strong demand for its aircraft. Unlike Cessna and Piper, who offered a product line designed to encourage pilots to step up to the next level of performance as their experience level increased, the high-performance and more expensive Model 35 was a pilot's first introduction to the Beechcraft family.

All of that, however, was about to change. In 1961, Frank E. Hedrick, executive vice president, announced a major broadening of the company's commercial product line that would "open new markets" to the worldwide retail sales organization. At the company's annual Beechcraft International Distributor and Dealer Management Meeting, Hedrick unveiled an entirely new type of Beechcraft – the Model 23 "Musketeer." It was hailed as the company's entry-level airplane, priced well below the Model 35 at $13,300 with standard equipment. The low-wing Model 23 offered pilots a four-place cabin, 160-horsepower Lycoming O-320-D2B four-cylinder opposed piston engine, a cruising speed of 135 mph and a range of 899 statute miles.

According to Wyman L. Henry, vice president of marketing, Beech Aircraft was "launching a new way of life with the Beechcraft Musketeer." The all-metal Model 23 would sell at a price competitive with one of the lowest-cost, four-place business aircraft available on the market – namely the 1962 Cessna Model 172C that sold for about $12,000. Henry pointed out (correctly) that the chief barrier to buying a Beechcraft had been its price, and the Model 23 would remove that barrier. In addition, "it would be possible for [Beechcraft] distributors and dealers to pioneer more widely in developing business aircraft from the ground up; to offer to the businessman who had never flown or owned any airplane, a Beechcraft in which he could start flying from the very first minute of his training in the art of flight."[1] According to the plan, as businessmen "discovered the benefits of business flying and moved upward to faster, farther-ranging

aircraft, there would be a more advanced Beechcraft ready and waiting for his next stage of progress," Henry said. Sales projections for the 1963 model year called for delivery of up to 1,000 units.

The Musketeer was designed and developed at the factory in Wichita, Kansas, and the team was led by engineer John I. Elliott. The airframe made extensive use of the company's subcontractor experience with truss-grid, honeycomb core construction that had been used to build flight controls surfaces for the Convair F-106 jet fighter. The Model 23's wing featured a National Advisory Committee for Aeronautics (NACA) 63_2A415 laminar-flow airfoil.

The cantilever wing's dihedral was set at slightly more than six degrees, while the angle of incidence varied from three degrees at the root to one degree at the wingtip. Fuel capacity was 60 gallons. A single, extruded aluminum alloy main spar was located at 50 percent of the wing chord. The aluminum alloy skin and stringers were bonded to the ribs from the spar forward, but aft of the spar conventional rivets were used. No trim tabs were installed, but the one-piece, counter-balanced stabilator did feature a full-span, anti-servo tab. Manually operated, corrugated flaps were installed, along with corrugated, slotted ailerons. All primary flight controls were activated by steel cables under tension.

The cabin could accommodate up to four occupants (including the pilot), and a single door, located on the right side, was standard (a left-side door was optional). The large windshield afforded generous visibility, as did two windows on each side of the cabin. The fixed, trailing-beam tricycle landing gear used stacks of rubber discs to absorb taxi, takeoff and landing loads. The prototype airplane (registered N948B) incorporated a full-swiveling nosewheel located aft of the engine compartment.

First flight of the prototype occurred on October 23, 1961, with engineering test pilot S.C. Tuttle at the controls. The flight test program continued with few changes being made to the Model 23. Of these, the most significant modification was relocation of the nose landing gear farther forward, which improved ground handling characteristics, and the addition of nosewheel steering through the rudder pedals.

The FAA issued Beech Aircraft Approved Type Certificate A1CE for the Musketeer on February 20, 1962. As certificated, then Model 23 had a maximum gross weight of 2,300 pounds and a maximum speed of 144 mph. The price remained at $13,300 with standard equipment, which included a single VHF com/nav radio and complete instrumentation for IFR flight. The initial production batch of Musketeers were delivered to dealers and distributors beginning in October 1962 (for the 1963 model year), from the Wichita factory. Management's optimistic figure of 1,000 units was not achieved, but Beechcrafters did manufacture 553 airplanes before production shifted to the Model A23.

Responding to comments from pilots, flight instructors, dealers and distributors, the engineering department made a series of upgrades that improved performance, comfort and appearance of the entry-level Beechcraft. The Model A23 "Musketeer II" was introduced in June 1964 and featured a third cabin window, 165-horsepower, fuel-injected Lycoming engine and a series of minor, but important, refinements to the cabin and exterior paint design. All of which increased the airplane's customer appeal. Those improvements, however, came at a cost – a standard Model A23 was priced at $14,250, and 346 were built for the 1964 model year.

As a four-place private and business aircraft, the A23 served the mission well but it was not suited to the role imposed upon it to teach student pilots how to fly. To resolve that issue, in 1965 Beech Aircraft offered an economy version of the new Model A23-19 known as the "Sport III," powered by a Lycoming 150-horsepower, carbureted O-320-E2C engine turning

Landing the C23 *Sundowner*

During my eight years working for Beech Aircraft Corporation, this author served as a flight instructor in the company's Beech Flying Club located at Beech Field in Wichita, Kansas. The primary training airplane flown by club members at that time was the Model C23 *Sundowner*.

Although the C23 possessed Beechcraft quality and decent performance, in my opinion it was not well suited to the task of training student pilots to land the airplane with full flaps. For flight training, the airplane was almost always flown with only the CFI and the student on board, and usually with fuel tanks only half filled. Under these conditions the Sundowner's center of gravity was well forward but still within limitations. Full fuel tanks would have aggravated that condition.

To offset the forward CG and make landing easier, bags of lead shot or sand were secured in the baggage compartment behind the rear seats (observing structural limits of the baggage floor), and acted as ballast, shifting the CG farther aft. Regardless of whether the Sundowner was flown with or without the ballast, it was essential that the student learned to fly the airplane "by the book."

On short final, if indicated airspeed (IAS) was too high, flaps were fully extended and the aircraft out of trim longitudinally, it was difficult to transition the airplane into a normal flare. Toss in a strong crosswind and the situation only worsened. If the pilot tried to force the aircraft onto the runway, the potential existed for a propeller strike and damage to the nose gear. Worst case scenario was that the nose gear would touchdown first, possibly leading to the airplane "wheelbarrowing" down the runway. If the final approach was not stabilized, I taught students to immediately initiate a go-around and make another approach.

By contrast, if the student flew the airplane "by the numbers" at the proper IAS (flaps extended) and trimmed accordingly, the C23 would transition to the flare and land on the main gear first.1 It was an easy aircraft to land if configured correctly in accordance with the Pilot Operating Handbook (POH). It just took good airmanship, training and practice.

On the positive side, the C23 had a generous cabin, excellent outside visibility, was not too noisy and the two cabin doors made entry/egress easy. It was not a fast airplane, but was speedy enough for most private pilots on cross-country flights. There are hundreds of Model 19-, 23- and 24-series Beechcrafts for sale on the used airplane market, representing an affordable alternative to much more numerous Cessna and Piper aircraft in their class.

Introduced in 1965, the Model A23-19 Sport was a two-place basic trainer built specifically for independent flight schools and Beech Aero Centers. The Model A23-B19 (shown) was powered by a Lycoming engine rated at 150 horsepower and began rolling off the assembly lines at Liberal, Kansas, in 1970. (WICHITA STATE UNIVERSITY LIBRARIES, SPECIAL COLLECTIONS AND UNIVERSITY ARCHIVES)

a fixed-pitch propeller. The two-place trainer was a "no-frills" airplane featuring only two cabin windows per side, but selling for only $11,500, its lower acquisition and operating costs made it popular with flight schools and flying clubs.

In 1970 Beech engineers modified the Model 23 airframe into the Model A24R "Super R" featuring a fully-retractable landing gear operated by an electrohydraulic powerpack system. Cruising speed at an altitude of 7,500 feet was 162 mph. Carrying 60 gallons of fuel, the A24R could fly 711 statute miles. Price was $24,950. (WICHITA STATE UNIVERSITY LIBRARIES, SPECIAL COLLECTIONS AND UNIVERSITY ARCHIVES)

A second version was the four-place Model A23A "Custom III" that sold for $14,500 and was powered by a 165-horsepower, fuel-injected Lycoming IO-346A-A powerplant. First flight occurred on October 15, 1965. The third option was designated the Model A23-24 "Musketeer Super III" that first flew on November 19, 1965. Featuring seating for four occupants, the A23-24 had a maximum speed of 158 mph and gross weight (normal category) of 2,550 pounds. To further increase sales appeal, in 1966 the company offered yet another variation of the A23A – the six-seat A23A-24 "Musketeer Custom III" powered by a Lycoming O-360-A2G engine rated at 180 horsepower. The two far aft seats, however, were small and the cramped space made them suitable only for children, not adults.

Although the initial Model 23 series was built at the Wichita factory, in July 1964 the company shifted all activities production to a recently-converted facility located near Liberal, Kansas – 200 miles southwest of Wichita. The 121,000-square foot campus was specifically intended to manufacture and support the Musketeer. The Model A23, A23A and A23-24 began rolling off the Liberal assembly lines in late summer 1964.

One of the first challenges facing the workforce at Liberal was conducting a major upgrade program to the original Model 23 Musketeer aircraft that had been built at Wichita. William H. McDaniel, historian for the Beech Aircraft Corporation, stated the situation this way: "Those first Musketeers, in the opinion of Beech, fell a little short in some details of being fully worthy of their name. In striving to produce a low-cost plane that would still be worthy of the Beech nameplate, some small items had slipped through that seemed not quite Beech-like. All Musketeer owners were notified that they could bring their planes in to the Beech factory, at their convenience, for modifications to be made entirely at factory expense." In addition, the factory offered to ship modification kits to owners who could not (such as those in Europe, Asia and the Pacific regions), or chose not, to bring their airplanes to Liberal. All of the upgrades were minor and were not driven by the Model 23's airworthiness. Hundreds of Musketeers built for the 1963 model year received the modifications.

To provide flight schools with an airplane capable of teaching pilots basic aerobatic maneuvers such as loops and spins, in 1968 Beech Aircraft launched a version of the Musketeer designated the Model 19A "Musketeer Sport III" that featured shoulder harnesses, a g-meter and quick-release door on the right side of the cabin. The engine remained a 150-horsepower Lycoming O-320 turning a fixed-pitch propeller. The following year, however, the O-320 engine was replaced with a 180-horsepower Lycoming powerplant to improve

performance. The two final versions of the A23-19 series were the Model B19 that was introduced in 1970, followed in 1972 by the B19 Sport 150. Both versions were powered by the 150-horsepower Lycoming O-320 engine. Production of the A23-19 series was terminated in 1978 after 1,525 units had been built.

In 1970, the Model C23 Musketeer entered production. The front cabin section was widened by four-and-a-half inches (at the two front seats) and the cabin featured larger, reshaped windows to improve outside visibility. The final version of the Model 23 was the C23 that entered production in the 1970 model year. The four-place C23 was powered by a Lycoming O-360-A4G engine rated at 180 horsepower.

In 1972, a left-side cabin door became standard equipment, and the Beechcraft was renamed "Sundowner 180." Cruising speed was 143 mph and gross weight had increased to 2,450 pounds. The next model year Beech engineers decreased the height of the Sport and Sundowner instrument panels by one-and-a-half inches to improve forward visibility, and the throttle, mixture and carburetor heat controls were housed in a new, center-mounted quadrant. The final change to the Model C23 occurred in the 1974 model year when the height of the cabin windows was increased one inch. Late-model C23 airplanes produced from 1975 until 1983 when production was terminated, were powered by Avco Lycoming O-360-A2G, -A4G, -A4J or -A4K engines rated at 180 horsepower at 2,700 RPM. The first production Sundowner 180 was serial number M-1362 and the last C23 built was M-2392, completed in 1983 when manufacture of the Sundowner was terminated, ending a production run that spanned 20 years.

A grand total of 4,366 airplanes were manufactured, all under Approved Type Certificate A1CE, including 48 CT-134 ordered by the Royal Canadian Air Force in 1971 as a replacement for the de Havilland DHC-1 "Chipmunk." These airplanes were fitted with strakes on the cowling, stabilator and ventral fin to improve recovery from intentional spins. In 1981, the original CT-134 fleet was augmented by the acquisition of another 24 Beechcrafts designated CT-134A. These were modified versions of the Model C23. In addition, in 1970 the factory built 86 Model A23-24 and A24 aircraft that were equipped with Avco Lycoming engines rated at 200 horsepower and fitted with two-blade, constant-speed propellers.

By 1970, the success of Beech Aircraft Corporation's Musketeer program prompted introduction of a retractable-gear airplane based on the proven airframe of the Model A24. In keeping with Beech Aircraft's marketing strategy, the new airplane would fill a gap between the Model C23 and the iconic Model 35 Bonanza. Engineering and flight testing was progressing well by late 1969 in preparation for the aircraft's introduction for the 1970 model year. FAA certification was achieved on December 23, 1969, under the original Approved Type Certificate A1CE of the Model 23 series.

Salient changes included installation of an electro-hydraulic retraction/extension systems that was similar to that used on the Piper PA-24 and the Cessna 177RG. The main gear retracted outward into large recesses in the wing, but the nose gear retracted aft, turned 90 degrees and laid flat in a recess under the engine. The engine chosen for the new Beechcraft, designated the Model A24R "Super R," was Avco Lycoming's four-cylinder opposed, fuel-injected IO-360-A1B that developed 200 horsepower at 2,700 RPM and was fitted with a two-blade, constant-speed propeller. In general, performance was on par with Piper and Cessna competitors with a cruising speed of 162 mph at an altitude of 7,500 feet, and a range of 711 statute miles at a 75 percent power setting.

Priced at $24,950, the A24R sold well with 59 being delivered in 1970, followed by 35 in 1971 and 55 in 1972. The improved B24R "Sierra 200" debuted for the 1973 model year equipped with a left-side cabin door as standard equipment. Minor upgrades included the same 1.5-inch decrease in instrument panel height incorporated in the Model C23 Sundowner, refined cabin features and an Avco Lycoming IO-360-A2B engine featuring a new crankshaft with counterweights, and the oil cooler was relocated to improve airflow through the core.

Factory workers in Liberal, Kansas, built 39 airplanes that year and another 113 in the 1974 model year – the highest production number achieved for the series. When the C23R entered production for the 1977 model year, it featured fairings surrounding the main landing gear wheel wells to reduce drag, aileron gap seals and a more efficient propeller that increased maximum speed by six knots. The C24R Sierra 200 was manufactured for seven years from 1977-1983 before an economic recession forced termination of the Model C23 and C24R. For example, only 13 A24R were built in 1983. KA

NOTES:

1. Beginning in the late 1940s, this principle had been employed with great success by Cessna Aircraft, thanks to the marketing savvy of general aviation visionary, Dwane L. Wallace.

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.

Pro Star completes first Advent eABS modification on King Air 300 series

Pro Star Aviation of Londonderry, New Hampshire, and the Advent eABS Dealer for the Northeast, has successfully installed the very first Advent Anti-Skid Braking System (eABS) modification on a King Air 350i. The patented eABS is a digital and active system with haptic function and is the first Anti-Skid Braking System for unpowered brakes.

According to Pro Star, the modification takes about 10 days to complete. Current certified applications for the Anti-Skid Braking System include the King Air B300 and B200 models.

For more information on the Advent eABS, go to *www.aircraftsystems.aero* and for Pro Star Aviation, visit www.prostaraviation.com.

Garmin Pilot™ application expands features, capabilities and global reach

Garmin International Inc. announced several global enhancements and an expanded feature set for the Garmin Pilot application on Apple and Android mobile devices. European IFR autorouting and flight plan filing, improved airspace classifications, the wireless transfer of Jeppesen charts via Flight Stream 510 and more are available with the latest Garmin Pilot update for Apple mobile devices. Additionally, Garmin Pilot is making its debut as a comprehensive global navigation application for Android mobile devices, allowing customers to flight plan and view weather products throughout the world within the app. These series of global enhancements bring superior flight planning, filing, flight logging capabilities and more to Garmin Pilot customers within an all-inclusive, single application solution.

European IFR flight plan filing and autorouting for Apple mobile devices

New Eurocontrol autorouting and flight plan filing within Garmin Pilot allows pilots to more easily file flight plans and fly throughout complex European airspaces. Within Garmin Pilot, autorouting is easily accessed in the trip planning page,

allowing pilots to select the departure/destination airport pairs and areas to avoid. Routes are validated by Eurocontrol and then presented based on optimized criteria set by the pilot, including time, fuel required or altitude. Pilots can also browse alternate route proposals, select the most appropriate for their flight and easily activate the route within the Trip Planning page. For easier interpretation, pilots can also view the route on a map prior to filing and activating the flight plan.

Wireless transfer of Jeppesen charts via Flight Stream 510

Customers with a GTN™ 650/750 touchscreen navigator or the new G1000® NXi integrated flight deck with Flight Stream 510, can now take advantage of the wireless transfer of Jeppesen charts via Garmin Pilot on an Apple mobile device. Flight Stream 510 supports Database Concierge, the wireless transfer of aviation databases from the Garmin Pilot app to a compatible GTN navigator or the G1000 NXi. In addition to Database Concierge, Flight Stream 510 also enables two-way flight plan transfer between the GTN or the G1000 NXi and shares traffic, weather, GPS information, back-up attitude information and more between mobile devices and compatible avionics.

Additional features included within the Garmin Pilot app for Apple mobile devices:

- Easily access winds aloft data from the radial menu for easy viewing at a glance.
- Configurable radar color tables allow pilots to customize the color intensity of the radar returns based on preference.
- Pilots can access and utilize the scratch pad in split-screen mode.

Garmin Pilot introduces a global application for Android mobile devices

New for Android mobile devices, Garmin Pilot is now a full-featured navigation application for use throughout the world, including flight planning, global weather information, VFR flight plan filing and more. Rich, interactive maps integrated within Garmin Pilot offer worldwide coverage using Jeppesen NavData. Highly configurable maps also allow pilots to choose between track-up or north-up orientation depending on preference. Unique to Garmin Pilot, a radial menu provides easy on-screen access to perform common tasks in-flight or on the ground, including the option to create user waypoints, navigate direct-to, graphically edit flight plans, view weather conditions and airport information at a glance.

Global weather information including METARs, TAFs, AIRMETs, SIGMETs, NOTAMs and winds aloft may be displayed graphically as an overlay on the moving map page, within the airport information page and as a widget in split-screen mode. Additionally, radar and satellite imagery for Western Europe, Canada, Australia and the U.S. provide pilots with even more weather products to it's easy to determine if precipitation or cloud cover will impact a particular flight.

Additional features also included within Garmin Pilot for Android mobile devices:

- FastFind, which incorporates predictive logic to suggest airports and waypoints using current GPS location so entering flight plan information is faster and easier.
- European Visual Reporting Points (VRPs), which can be overlaid on the moving map and be incorporated into a flight plan for easy navigation throughout Europe.

The newest release of Garmin Pilot for Apple and Android mobile devices are both available immediately. For new customers, Garmin Pilot is available from the Apple App Store and Google Play Store as a free download for the first 30 days. After the 30-day trial period, customers may purchase an annual subscription of Garmin Pilot starting at $74.99. Visit *www.garmin.com/aviation* for additional information.

King Air Technically...

RECENT SERVICE BULLETINS, ADVISORY DIRECTIVES AND SAFETY COMMUNICATIONS

From Communiqué # ME-TP-002: Multi-Engine Turboprop Communiqué

Issued: March 2017

ATA 00 - Contacting Technical Support

Textron Aviation Technical Support is here to provide technical assistance to owner/operators either by phone or email and sometimes even in person. In order for Technical Support to do this job effectively and accurately, some basic information will be required before the issue is brought to the Technical Representative (Tech Rep). When contacting Technical Support, please ALWAYS include the following:

- Airplane's serial number
- A detailed description of the issue
- Pictures
- Dimensions, if applicable
- When troubleshooting, tell us what you have already done
- If you have already contacted us and reached another technical representative, let us know their name, this includes any field representative
- Where you are calling/writing from
- If the call is related to an STC or kit

A wealth of information can be provided to the Tech Rep by first providing the serial number of the airplane. The serial number tells the model of the King Air that is in work. Providing the serial number allows the Tech Rep to determine whether the King Air is a 1966 or 2017 model. This will confirm what engines, avionics, propellers, and landing gear (mechanical or hydraulic) systems are installed on the airplane. Knowing the serial number as soon as the conversation begins, the Tech Rep can start reaching for the correct Maintenance Manual, Illustrated Parts Catalog, etc.

A detailed description of the issue prevents the Tech Rep from requiring going back to the customer with more questions regarding the issue. This is crucial in areas where there is a substantial time difference as it may take a 24-hour cycle to complete the conversation.

Be sure to provide, in detail, all work that has already been completed to prevent duplicating the repair efforts. If the issue is already in work with another Tech Rep, let us know so we do not have to start all over again.

Supplying the area where the airplane is being serviced will allow the Tech Rep to contact the nearest Field Rep and/or the closest Service Facility to aid in resolving the issue.

Tech Reps are unable to assist with STCs installed by third parties due to the lack of technical data required to provide accurate support. Please contact the STC holder and/or installer for assistance. Tech Reps can, however, assist with kits developed by Textron Aviation. Be sure to have the kit number ready for quicker response time.

ATA 30 – King Air 250 Propeller De-Ice Boot Protection Circuit Kit, Rev 1

BB-1509 and after; BL-141 and after; BY-1 and after; BZ-1 and after with Composite Propeller Blade STC SA02130SE

King Air Communiqué ME-TP-001 announced the availability of kit 101-3301-0001. This announcement was made premature as the kit has not cleared the final stages for certification. This kit is not yet available, please disregard.

ATA 52 – Cabin Door Weight Limit

All

There have been some reports of the cabin door hinge and the cabin door upper channel cracking prompting the question: What is the cabin door weight limit?

There are no published cabin door weight limits, but it has been a common practice not to allow more than one person at a time on the cabin door. Some operators have even gone to the extent of installing a homemade placard stating, "One person on steps at a time."

The "one person at a time" rule does little if the one person is heavier than the normal person in the general population. Also, there is an issue with ambulance operators where it requires more than one person at the time in addition to the stretcher and the patient they are trying to load. For these instances, it is a good idea to provide the door some additional support. This communiqué online shows a solution created by one of the operators. The support is placed on the ground in line with the cabin door to provide support while loading and unloading operations are taking place.

Painting the support bright orange and installing flags may help to make it more visible. There is the risk of leaving the support behind as it is not in the line of sight of the person closing the door, so installing flags may aid in preventing this.

The single cable handrail installation makes this situation worse in that the weight loads on the cabin door excerpt a twisting motion on the door. These airplanes will benefit by installation of the dual cable kit. This kit provides parts and information to install an additional cable on the forward side of the door. There is no kit available for the King Air B300 as most B300s left the factory with these cables installed. Kit information is provided online within this communiqué.

The above information is abbreviated for space purposes. For the entire communication, go to www.txtavsupport.com.

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