King Air

A MAGAZINE FOR THE OWNER/PILOT OF KING AIR AIRCRAFT

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Turtles Fly (in King Airs) Too

Nonprofit coordinates GA to transport marine life

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COVER PHOTO
Courtesy of Textron Aviation

Turtles Fly Too partners with the National Oceanic and Atmospheric Administration and U.S. Fish and Wildlife Service, along with many nonprofit rescue facilities across North America that provide lifesaving rescues and rehabilitation services. Here, a transfer with the New England Aquarium in Boston during cold-stun season which runs from November to January.

Turtle Fliers

Pilots join forces to help endangered sea turtles and other species

by MeLinda Schnyder

I'm on the telephone with Leslie J. Weinstein, who is calling from Idaho, where he lives and operates his business, True-Lock LLC, and a nonprofit he founded, Turtles Fly Too. He feigns surprise when I ask about the irony of learning that a sea turtle rescue is based in a landlocked state known for its mountains and freshwater habitats.

"Wait a minute. Now, why would you ask that?" he quips. "Don't you know that Boise, Idaho, is the sea turtle capital of the world?"

Warren Brown helped transport a green sea turtle named Tsunami from the Georgia Sea Turtle Center to the St. Louis Aquarium in June 2020, here being loaded by volunteers. A boat strike left the small turtle with head, jaw and flipper injuries, and he has been rehabilitating the past three years at the Georgia Sea Turtle Center. He is estimated to be between 15 and 20 years old and weighs about 66 pounds; he could grow to about 500 pounds in his new permanent home.

Turtles Fly Too helps more than just rescued turtles. Pilot Dave Sutton volunteered his Piper Turbo Saratoga and his time to assist the effort to rescue a young Guadalupe fur seal – a threatened species – that had washed up on an Oregon beach dehydrated and lethargic. Five separate organizations were involved in this rescue with oversight by NOAA Fisheries West Coast office. Sutton flew the seal pup to Petaluma Municipal Airport which was then transferred to The Marine Mammal Center in Sausalito, California.

Experts say these seals, listed as a threatened species, are traveling farther north than usual following prey shifts due to warming waters along the West Coast, and an alarming number wind up dead or sick, malnourished and stranded.

While you won't find sea turtles living in Idaho, thousands are alive because of the efforts of Turtles Fly Too, which supporters refer to as TF2. The organization coordinates and facilitates general aviation efforts within a larger scale first responder relocation program directed toward sea turtles and other endangered marine species such as seals and whales that have been cold stunned, injured or entangled.

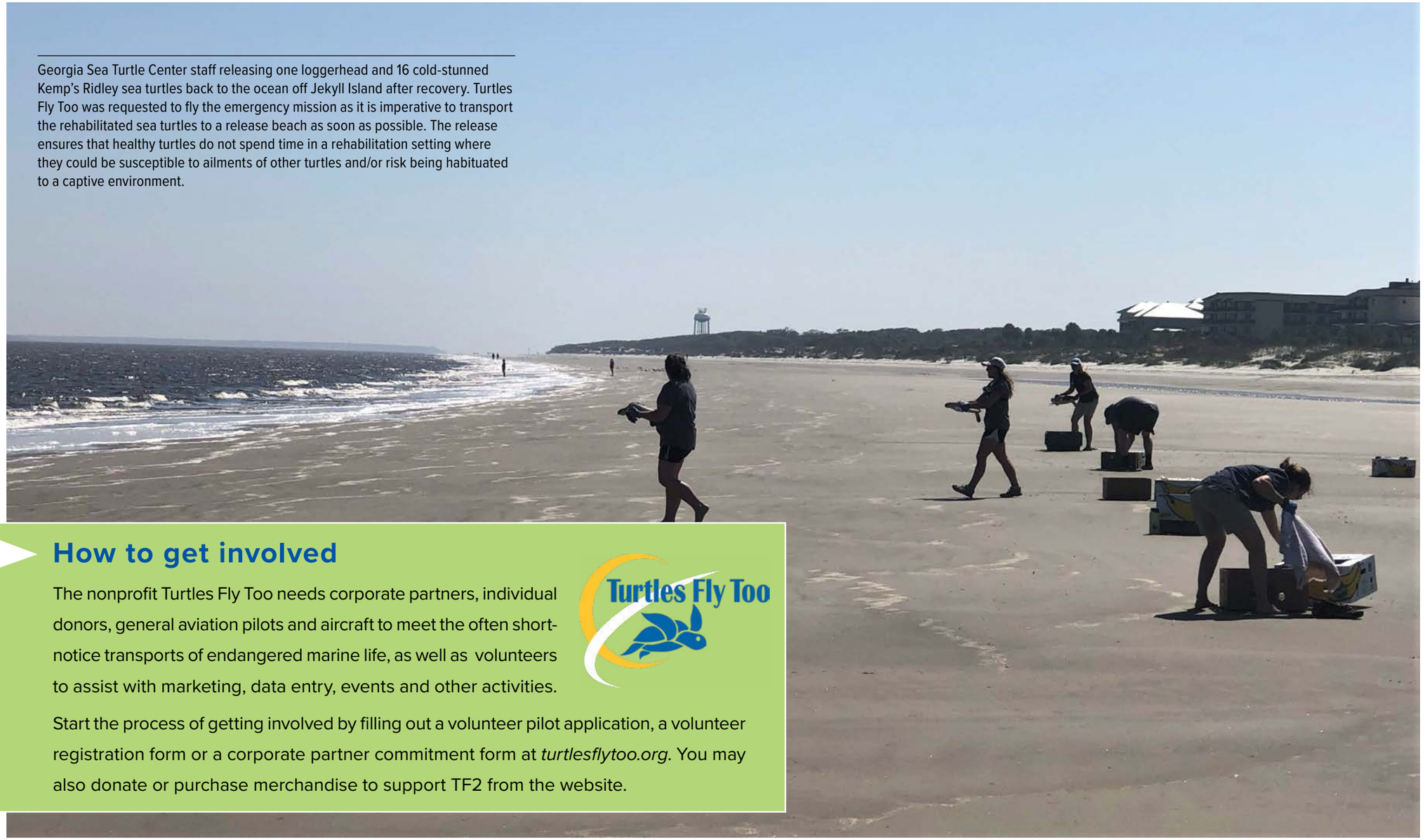
Jets, pistons and turboprops including the Beechcraft King Air are used to help TF2 fulfill its mission. The organization's leadership and considerable investment of time is driven by Weinstein's passion and the support of more than 400 volunteers. An industry-related, dedicated advisory board helps guide TF2, and the nonprofit hired its first staff member in November. Bonnie Barnes is a long-time TF2 volunteer based in Miami who also is a seasoned nonprofit professional; she designed and maintains their international database of available pilots.

When a mission arises, Weinstein uses the aviation database to select pilots by geographic region. These Turtle Fliers donate their aircraft, fuel, labor and expertise to transport endangered species or to give personnel and equipment a lift to a rescue site.

TF2 partners with the National Oceanic and Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service (USFWS), along with many nonprofit rescue facilities across North America that provide lifesaving rescues and rehabilitation services.

"We are the only organization that has been granted sea turtle transport authority by the USFWS, so we are called upon for rescue operations from Alaska to Mexico on the West Coast and on the East Coast, from Canada down into the Caribbean. We've begun to provide international flights as well," Weinstein says.

Using air transport instead of ground transportation shortens travel time for the mammals, reducing stress on the injured passengers. Air travel also means rescue teams can arrive on scene quickly, as was the case in July 2020 when a young humpback whale was found entangled in line, netting and cable in New York's Ambrose Channel. TF2 was contacted to transport a disentanglement team from Massachusetts to New York and back. Time was critical because the whale was alive but unable to feed and could barely raise his head above the surface for air. The mammal also was in danger of being hit by ships operating in the channel.



Georgia Sea Turtle Center staff releasing one loggerhead and 16 cold-stunned Kemp's Ridley sea turtles back to the ocean off Jekyll Island after recovery. Turtles Fly Too was requested to fly the emergency mission as it is imperative to transport the rehabilitated sea turtles to a release beach as soon as possible. The release ensures that healthy turtles do not spend time in a rehabilitation setting where they could be susceptible to ailments of other turtles and/or risk being habituated to a captive environment.

How to get involved

The nonprofit Turtles Fly Too needs corporate partners, individual donors, general aviation pilots and aircraft to meet the often short-notice transports of endangered marine life, as well as volunteers to assist with marketing, data entry, events and other activities.

Start the process of getting involved by filling out a volunteer pilot application, a volunteer registration form or a corporate partner commitment form at *turtlesflytoo.org*. You may also donate or purchase merchandise to support TF2 from the website.

Emergency requests are the norm for TF2, which is why Weinstein feels they can never have enough pilots in their database. Occasionally, though, transport requests are known well in advance.

In a fall 2020 newsletter, the Turtles Fly Too team put out a call for two upcoming missions. One was taking an endangered olive ridley sea turtle named Berni from a rehabilitation stint at the Vancouver Aquarium in British Columbia, to be released back to the wild in warmer waters off San Diego. The other was moving Pistachio, an endangered Kemp's ridley sea turtle from Tampa to her new permanent home at the Brookfield Zoo in Chicago. She'd been rehabilitating at a facility in Florida since being struck by a boat nine years ago. The wounds healed but permanent injuries to her head, shell and spine left little chance she'd survive if released back to the ocean.

The busiest time of year for TF2 is November. It's the start of cold stun season, which typically lasts 10 weeks. A sea turtle is cold-stunned when the water temperature drops below 50 degrees Fahrenheit. The condition causes a turtle's heart rate and circulation to drop so drastically that they are unable to swim or forage.

"It is anyone's guess how many turtles will wash up on the shores of Cape Cod, Massachusetts, this year," Weinstein says. "The number that have needed to be transported to rehabilitation facilities has ranged from 300 to 1,200 a year since 2014."

What he's most worried about this year is diminished resources available to help the turtles: from pilots who have personally been affected by the pandemic to rescue centers that have closed due to COVID-19 restrictions or cannot care for additional patients because their funds are down during this trying year.

"The Vancouver Aquarium announced the day after we transported the olive ridley sea turtle to

King Air pilot Chaz Harris said the appreciative staff at the New England Aquarium even named one of the rescued turtles after him. Chaz, the loggerhead named after Harris, spent a week at the New England Aquarium before Harris flew him to the South Carolina Aquarium, where he was admitted to their Sea Turtle Hospital to complete rehabilitation. The juvenile loggerhead was released back to the ocean four months later.

Turtle Flier Chaz Harris used the King Air 350, owned by his employer Polar Beverage, on five different missions to haul loggerheads and green sea turtles. He said the King Air was great for these missions as the cargo area is right in the back by the door and that makes it really easy to load them in and out.

SeaWorld San Diego that they were closing because of funding shortfalls due to COVID," Weinstein says. "And on the East Coast, instead of dropping 50 or 75 turtles at one place, we are having to make multiple drops at facilities in different cities. There's been a lot written about COVID being good for nature and conservation, but in this case we think conservation is being negatively impacted. This may be the most difficult winter we've experienced."

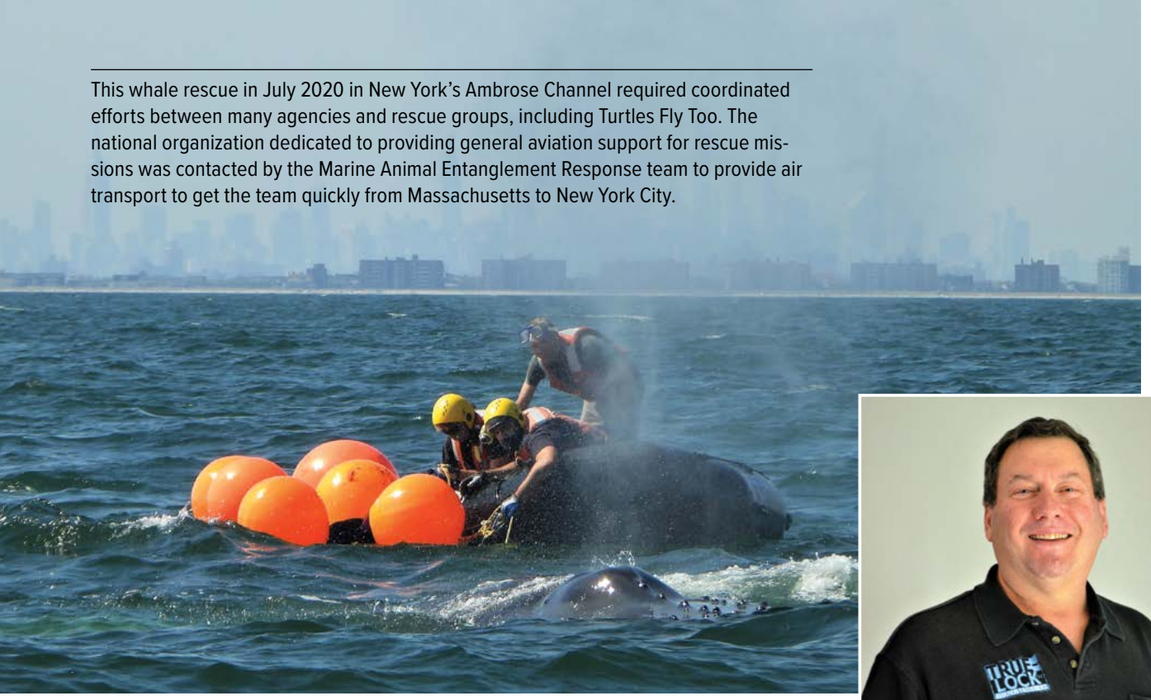
Merging conservation and aviation

"We are on the verge of losing many of our critically endangered species that our grandkids will never have the opportunity to enjoy. I do this for my grandkids and your grandkids," says Weinstein, proudly reporting the recent birth of his 12th grandchild.

He has dedicated his entire life to conservation, having spent his youth rescuing sea turtles on the shores of St. Augustine, Florida, hunting and fishing in the nearby woods and streams, and then working in ranching. His experiences taught him to protect the environment by improving, not depleting, valuable resources.

"Even as a child, the sea turtles that laid their eggs on our property fascinated me," Weinstein writes in his bio. "I found myself protective of them as I rescued many eggs from other beaches, where turtle nests were being robbed for profit or vandalized for sport, and brought them home, buried them and watched over their eventual hatching and journey to the sea."

His family's passion for the preservation of sea turtles and for research and education to improve sea turtle conservation is what encouraged he and his wife Linda to donate their oceanfront property in 2010 to the Archie Carr Center for Sea Turtle Research at the University of Florida, where he served on the development board. ›



This whale rescue in July 2020 in New York's Ambrose Channel required coordinated efforts between many agencies and rescue groups, including Turtles Fly Too. The national organization dedicated to providing general aviation support for rescue missions was contacted by the Marine Animal Entanglement Response team to provide air transport to get the team quickly from Massachusetts to New York City.

Leslie Weinstein, founder of True-Lock LLC, combined his passion for conservation and general aviation to form the nonprofit Turtles Fly Too.

Weinstein is no stranger to aviation. His father Nathan I. "Sonny" Weinstein was a pilot and an attorney for Embry-Riddle Aeronautical University, among other aviation-related entities. Weinstein also became a pilot but didn't stay current, though he has remained passionate about the industry.

"When I made the donation of my oceanfront property, the contract specifically stated that aviation had to play a role," although Weinstein shares that he wasn't sure what that would be. Later that same year, his friend Dr. Terry Norton, a veterinarian and founder of the Georgia Sea Turtle Center on Jekyll Island, Georgia, came up with a way to bring Weinstein's passions together. Norton needed him to use his aviation contacts to find a pilot willing to transport a green sea turtle from his facility to Dubuque, Iowa.

The same day Weinstein put the word out, the need was answered. Just a few months later, Norton called with a request to fly 50 cold-stunned turtles out of Cape Cod. And that's how Turtles Fly Too began, and why a sea turtle rescue group happens to have its home office in Idaho.

Weinstein, who serves as president of the board for TF2, has lived in Boise since 1978. He founded True-Lock LLC in 1992, which designs advanced fastener and materials technology for the commercial truck and bus industry. He converted that technology to the aviation industry, first by developing a solution for securely fastening skis to aircraft, then earning close to 2,000 FAA supplemental type certification/parts manufacturer approval certifications, including an aircraft wheel fastener assembly system and fire detector shield articles for the King Air series.

In 1991, Weinstein reconnected with Ed Stimpson, the longtime president of the General Aviation Manufacturers Association, and someone Weinstein's father had worked with. When Stimpson learned Weinstein had developed fastener technology that would withstand hostile environments, he facilitated a fast-track path to FAA certification. Weinstein received assistance from Gary Landes from Airglas, manufacturer of aircraft skis among other accessories. Prototypes were prepared within two weeks, and six weeks later, Weinstein had his first FAA certifications. What began with fastener technology gave True-Lock the ability to develop new STCs and PMAs, leading to the many certifications that included foreign aircraft and cloud seeding equipment.

As TF2 has grown, the nonprofit no longer relies solely on Weinstein reaching out to his industry connections. The Turtle Flier database has streamlined the process to match volunteer pilots to missions and the group holds two fly-ins each year to recruit and recognize volunteers. Weinstein says he hopes to resume those when restrictions on gatherings are lifted.

One shell of a mission

There have been a few King Air aircraft used in TF2 missions and Weinstein says he'd like to see more. They can haul a nice size payload of sea turtles, and if the aircraft is equipped with a cargo door, it's especially useful for transporting loggerhead sea turtles, the largest of all hard-shelled turtles and listed as threatened under the U.S. Endangered Species Act since 1978.

TF2's experienced Turtle Flier Chaz Harris has flown five missions using the King Air 350, owned by his employer Polar Beverage, based in Worchester, Massachusetts. The chief pilot and flight department manager for the family-owned business had a blast trying to wrangle the heavy loggerheads and was thrilled to find out the appreciative aquarium staff even named one of the rescued turtles Chaz.

Harris flew missions from the New England Aquarium to South Carolina and Georgia from 2014 until 2018, a convenient route because Polar Beverage has a plant in Georgia. Then, the company expanded by adding a plant in the western U.S. and replaced the King Air with a Cessna Citation 560XL business jet.

Harris hauled five loggerheads each riding in a dog kennel on three different missions and twice flew green sea turtles traveling in individual banana boxes.

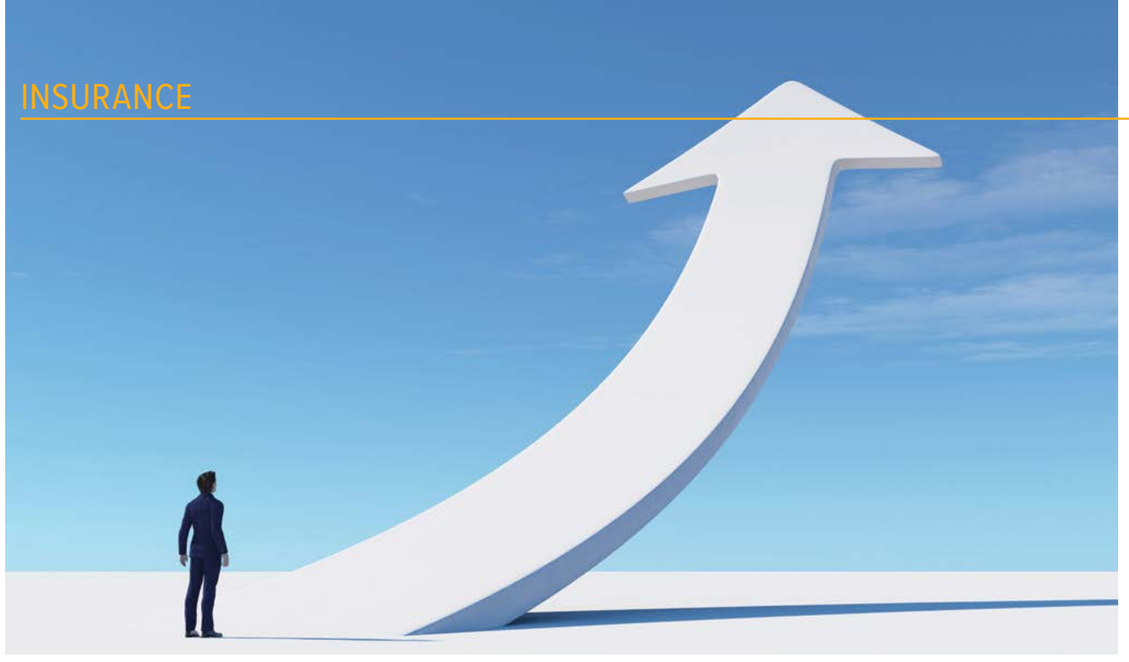
"The King Air 350 was great for this, and really any King Air would be," he says. "You've got the cargo area right in the back by the door and that makes it really easy to load them in and out. Usually the limitation is not the weight, but you have these kennel cages that won't fit through the door."

The majority of sea turtles transported are recovered from Cape Cod after suffering the effects of cold stun. From early November through mid-January each year, hundreds of turtles wash up on Massachusetts beaches during their migration south.

The sea turtles are taken to the New England Aquarium for triage and initial care, including warming their body temperatures slowly and starting treatment until they are stable enough to move to a long-term care facility. The goal is to bring the turtles back to health and return them to the wild so that they may rejoin the reproductive population and contribute toward recovery of these endangered species.

Chaz, the loggerhead named after Harris, spent a week at the New England Aquarium before Harris flew him to the South Carolina Aquarium, where he was admitted to their Sea Turtle Hospital to complete rehabilitation. The juvenile loggerhead arrived on Jan. 11 and was released in the ocean May 10.

"How cool is it that there's a turtle out there named Chaz?" Harris says. "These are fun missions to fly and they leave you with such a good feeling because all of the people involved are so appreciative."



The "Hard Market" of Aviation Insurance

by Kyle P. White

The aviation insurance industry has officially entered the "hard market." King Air owners and operators are seeing sharp increases in premiums with reduced ancillary coverages. Unfortunately, you can expect this trend to continue throughout 2021.

In addition to the hard market affecting price, it can also impact how strictly insurance carriers adhere to exclusions within your policy. In a hard market, they are looking to increase their revenue and limit their expense, or how much they pay out on claims. On the surface, you are seeing this through higher deductibles and less coverage. It is imperative that you are prepared and informed about what is specifically excluded within your policy so you do not find yourself in a precarious situation should you need to file a claim. Understanding the exclusions will help you identify the weak links in your insurance program. Then you can address them by buying them back, purchasing additional coverage through another type of policy, or simply being aware of potential pitfalls so you can make an extra effort to avoid them.

As a quick review, your King Air policy is structured into multiple sections:

- **Insuring Agreements:** Who IS covered, for what, where and when
- **Exclusions:** Who is NOT covered, for what, where and when
- **Definitions:** Explains intent or definition behind bold-faced words within the policy
- **Conditions:** What you must and must not do in order to not jeopardize coverage
- **Endorsements:** Changes to any of the above

It is important to remember that an **occurrence** is what triggers the policy. (You will notice in your policy, "occurrence" is written in bold-face, meaning your policy defines it. All bold-face terms in your policy can be found in the definitions section of the policy.) The definition of occurrence, while specific to each carrier, generally states there must be "bodily injury" or "property damage" to be considered an occurrence, prompting your policy to respond. While the specifics of each policy vary, we will cover some generalities of what is *excluded* within a typical King Air policy. Please review your specific policy and familiarize yourself with the specific wording of your coverage.

Exclusions: Here you will find the words "This policy does not apply," followed by a list of exclusions. Each exclusion will go into detailed subparagraphs, laid out in legal terms. The policy is a legal document, but the legal terminology frequently leaves the policy holder a little unsure about the actual exclusion. The King Air policy used for this article has eight specific exclusions. Here is a list of what they intend to exclude, or not cover:

1. **If the King Air is being used for an unlawful purpose or a purpose not stated in the approved use section of the policy** (typically found on the first few pages of your policy) **there is no coverage.** The simplest way for you to not violate this exclusion is to have the approved uses state, "all operations of the named insured." Obviously, you can't be violating the law by running drugs with the aircraft, but all legal uses of the aircraft would then be approved. Currently a hot button issue with the Federal Aviation Administration (FAA) are third-party dry leases versus putting the King Air on an FAA Part 135 certificate. Be sure you have in writing with your broker and underwriter what you are using the aircraft for and that it is an approved use.
2. **If your pilots do not meet the pilot warranty, or if the Airworthiness Certificate is not in full force and effect.** The pilot warranty is an area where we frequently see coverage issues. The most inclusive wording available is "pilots as approved by the named insured." This is as simple as it sounds; anyone you approve can fly the aircraft. If you have a complex pilot warranty, you are more likely to inadvertently breach your coverage. Equally important, make sure you pay close attention to the required recurrent training. Without the required training, your claim will be denied.
3. **Losses because of radioactive or nuclear subjectivity.** Designed around nuclear war, fortunately, this isn't something we've had to contend with in recent memory.
4. **Claims caused by war, including rebellion, revolution, martial law, attempts at usurpation of power. Strikes, riots, civil commotions or labor disturbances are also excluded. Government**

confiscation or seizure is also not covered. "War" has many meanings in the aircraft policy. For example, flying your King Air to Central America could create a large exposure. If the local general decided to seize the aircraft because he thinks it could be useful for him, you would not have coverage, unless you buy back this exclusion. Many finance companies recognize this and require their borrowers to buy the war hull coverage which removes many of the perils listed in this exclusion. Throughout 2020 we have seen "strikes, riots and civil commotions" in the headlines. Purchasing war hull coverage would provide you the necessary coverage should a riot spill over to your airport or damage your King Air.

5. **To any liability that is assumed by the policy holder in a contract or agreement unless there would have been coverage otherwise stated in the policy. Furthermore, there is no coverage for claims happening as a consequence of; noise, pollution, electrical interference, UNLESS it results from a crash or collision.** Assumed liability or "contractual liability" was fairly easy to overcome during the soft market. Nearly any contract you entered was accepted by the insurance carrier. The hard market is changing that. To be proactive, put all signed contracts on file with your insurance company for approval. That means you should put dry leases on file with your insurance carrier for approval, as well as your local FSDO. Hangar leases are also becoming a point of contention. Your local FBO may ask you to sign a contract stating they aren't responsible for damage they cause to your King Air. They may even require an official certificate of insurance stating they are an "additional insured" under your policy and that your policy will "waive the rights to subrogate" against the FBO. This means your policy would pay for the FBO's negligence. However, the FBO should have their own coverage, called specifically "hangarkeepers legal liability." You may find that your insurance company charges you more money in 2021 should you require them to pick up the negligence of the FBO. Do not sign the lease agreement without disclosing it to your insurance company. If you do, you will find yourself without the insurance you thought you had. Within this exclusion you will also find pollution may not be covered. For example, pollution would be covered if it is the result of an aircraft crash and fuel leaks out causing damage to the environment. However, it would not be covered should a deteriorated sump started leaking fuel on the hangar floor overnight and entered the local

sewer system. This is a peril that needs to be covered by a separate pollution policy.

6. **If workers' compensation is applicable or bodily injury or death of the named insured.** The workers' compensation exclusion should be paid attention to if you have pilots flying your aircraft as W-2 employees. Make sure you are carrying workers' compensation on them, as that is the first line of defense should the pilot hurt their back while loading bags or shutting the heavy airstair door.
7. **Property damage to property owned, occupied, rented or used by the insured for any purpose exercising physical control.** While this is a notable exclusion, it deals with a wide variety of exposures, such as "hangarkeepers." If you have an aircraft in your control, in your hangar, and you were to damage it, you may not have coverage for your negligence.
8. **Wear, tear, deterioration, freezing, any electrical malfunction or mechanical failure. Foreign object debris or damage (FOD) is excluded unless it is a result of an "ingestion." Also, heat or hotstarts are excluded.** This final exclusion comes up occasionally for hotstarts, freezing or mechanical breakdown. At least one carrier will allow you to buy back the hotstart exclusion.

A recent freezing exclusion claim happened when the pilot landed at a remote airport during liquid precipitation. While on the ground the temperature dropped below freezing, but the precipitation also quit. When the passengers arrived, the pilot walked around the aircraft, got in, and went to start the engines. He noticed the engine wasn't operating normally during the start phase and aborted the flight. Upon investigation, it was discovered the fan blades had frozen in place, prohibiting the air flow for a normal or cool start. With this exclusion the situation would not be covered and cost you many thousands of dollars.

Aircraft insurance policies can be complicated to follow. The best preflight is a comprehensive review of your policy leading up to your renewal. Your broker should walk you through the policy, clarifying what is covered, not covered, or is a coverage that can be purchased either through the current policy, or on another type of policy such as workers' compensation or a pollution policy. KA

Kyle P. White, an aviation insurance specialist for a global insurance brokerage company. He has professionally flown King Air 90s and B200s and holds an ATP and multi-engine instrument instructor license. You can reach Kyle at *kpwhite816@gmail.com*

Exercise Your AC During the Winter

by Dean Benedict

After a long, hot summer, cooler temperatures have finally arrived. You might think the air conditioning system (AC) in your King Air deserves a vacation after all of its hard work in the blazing heat. But before you send your AC into hibernation for the winter, I've got a surprising tip that could pay off down the line – run your AC from time to time, even when you don't need it.

Every year, as soon as the weather warms up, I am besieged with questions from pilots, owners and mechanics about their King Air air conditioning. Sometimes it's lackluster performance, other times it is completely inoperable (inop).

There are many things that can go wrong with the AC, but let's consider the most common problems. One being leaky seals that have allowed the Freon to escape, seized expansion valves is another, as well as failed condenser blowers. These are my top three culprits that cause problems with King Air air conditioning. Coincidentally, all three can be aggravated by non-use during the winter and would benefit from periodic running of the AC whenever the OAT is above 50°F. Doing this helps prevent the seals from drying out and becoming brittle, it lubricates the expansion valves and the compressor, and it keeps the greases inside the condenser blower from desiccating.

" ... you shouldn't just turn on the vent blower; you need to run the whole system. Five or ten minutes ought to do it."

It's important to note that you shouldn't just turn on the vent blower; you need to run the whole system. Five or ten minutes ought to do it. For example, if the OAT is

If the OAT is above 50°F, you could run the AC during taxi out. Select Auto Cool and turn the rheostat counter-clockwise all the way.

in range, you could run the AC during taxi out. Select Auto Cool and turn the rheostat counter-clockwise all the way. Keep an eye on your load meter. After 7-15 seconds, you should see a marked increase if you're in a 200, 300 or 350 model series. In a 90, it will spike right away, indicating the air conditioning is on.

If the AC doesn't come on, it could be that your cabin temp sensor is out of adjustment. In this case, select Manual Cool to bypass the cabin temp sensor and get the AC going. Then make note to put the cabin temp sensor on your list of possible squawks to be checked out at the next inspection.

In general, airplanes do not like to sit idle. I've seen it over and over throughout my career, when an airplane is grounded for a long time, things will just break spontaneously. The same is true for systems like the air conditioning.

Remember, it is futile to run the air conditioning when the outside air temp is below 50°F, as the system will not operate. But if the OAT allows, give your AC a little exercise whenever you get the chance. Come next summer, you'll be happy you made the extra effort. KA

Dean Benedict is a certified A&P, AI with over 45 years of maintaining King Airs. He's the founder and former owner of Honest Air Inc., a maintenance shop that specialized in Beech aircraft with an emphasis on King Airs. In his new venture, BeechMedic LLC, Dean consults with King Air owners and operators on maintenance management and supervision, troubleshooting, pre-buys, etc. He can be reached at *dr.dean@beechmedic.com* or (702) 773-1800.

Aircraft Interior Disinfection SAIB, FAA and EC Expand Collaboration

by Kim Blonigen

FAA Issues SAIB Regarding Aircraft Interior Disinfection

In early November, the Federal Aviation Administration (FAA) issued Special Airworthiness Information Bulletin (SAIB) NM-20-27 regarding Aircraft Interior Disinfection. Although it was primarily focused to transport category airplanes, the SAIB states "the information and guidelines may also apply to other categories of aircraft."

With increased frequency of use of disinfectant, due to COVID-19, on aircraft interiors as well as additional areas not previously disinfected, the SAIB focuses on potential near- and long-term implications for airworthiness.

"Although disinfection is not directly related to aircraft airworthiness, too frequent or improper application could result in negative impacts, which could include the following conditions:

- Corrosion
- Embrittlement
- Increased flammability
- Electrical short circuit

Depending on the system or part affected, any of these conditions could create either an immediate or latent airworthiness issue."

The bulletin notes that the FAA recommends owners and operators follow the aircraft manufacturer's disinfection guidelines, which the manufacturers have published on products and methods they have evaluated and found acceptable. Also, the SAIB provides "additional guidance and information regarding potential negative impacts that may develop."

To review the entire bulletin, go to *https://www.faa.gov/aircraft/safety/alerts/SAIB/* which allows you to search for specific bulletins.

FAA and EC Expand Collaboration and Commitment to Improving Safety

The FAA reported that it and the European Commission (EC) demonstrated their continued commitment to collaboration and aviation safety improvement during the 14th meeting of the Bilateral Oversight Board.

The FAA and the EC signed four decisions to the U.S.-EU Safety Agreement. Two of the decisions adopted additional annexes to the original agreement for pilot licensing and flight simulators. The new annexes are new areas of collaboration between the FAA and EC. They reflect the completion of a multi-year effort to allow reciprocal acceptance of certain approvals in those areas and implement the expanded scope of the cooperative efforts agreed by the FAA and EC in December 2017.

The first decision establishes an annex that facilitates the conversion of FAA and European Union Aviation Safety Agency (EASA) private pilot certificates, airplane ratings and instrument ratings. Currently, up to 9,000 European residents hold FAA pilot certificates.

The second decision establishes an annex that allows the FAA and EU or Member State authorities to conduct recurrent evaluations on Flight Simulation Training Devices on each other's behalf in the U.S. and in Europe.

These annexes reduce duplication and leverage FAA and EU resources, which allows both agencies to allocate resources to higher safety-risk areas. The streamlined procedures and reduced costs will benefit industry, government and the flying public.

The third decision allows technicians certificated by all EU aviation authorities to perform maintenance on civil aeronautical products. The final decision restores a reduction in the fees that EASA charges U.S. manufacturers for basic design changes on U.S. aerospace products. KA

Catching the Cabin … and Vice Versa

by Tom Clements

Are you familiar with the title's term, "Catching the Cabin?" It usually refers to the action, in a descent, of having the airplane's altitude match the cabin's altitude. Why does this happen? Three reasons come to mind.

First, the pilot forgets to set the cabin altitude properly for the landing condition. Especially when flying as the sole pilot, with no one cross-checking your actions, it is relatively easy to miss the step on the descent checklist of setting the pressurization for landing. Instead, the pressurization controller (remember, it is merely a governor of cabin altitude) remains at the setting used for cruise, say at maybe 7,000 feet. If the controller is overlooked, then the cabin remains at 7,000 feet. As the airplane descends, the difference between inside and outside pressure decreases, of course. That is, Differential Pressure (ΔP) becomes less. Since it is impossible to have a negative value of ΔP, that means the cabin can never be higher than the airplane. So, when the airplane reaches the 7,000 feet in this example, ΔP becomes zero, the outflow and safety valves are pushed open, outside air flows into the cabin, and the cabin descends right along with the airplane. The occupants suddenly experience the airplane's rate of descent, perhaps 1,500 fpm or even more. Hello, sinus pain!

The second reason why the airplane altitude matches the cabin altitude is because the rate of cabin descent was set too low on the pressurization controller's rate knob. Let's work a math problem together: Suppose in your C90B, the cabin was at 7,000 feet as you cruised at 22,000 feet. You are landing at Sea Level (SL). An unrestricted descent from FL220 to SL at 1,300 fpm will take about 17 minutes. For the cabin to get from 7,000 feet to SL in 17 minutes requires a rate of descent of about 412 fpm. If the rate knob is set for 300 fpm – perhaps in a misguided attempt to be kinder to the passengers' ears – then at 1,500 feet the airplane will "catch the cabin" and the remaining 1,500 feet of descent will again see the passengers and their ears experiencing the rate of descent of the airplane.

The third and last reason for "catching the cabin" in a descent is simply coming down at a much greater rate than usual. Doing an emergency descent at, say, 5,000 fpm – maybe due to a passenger having a medical emergency – will take about 4.4 minutes from 22,000 to SL. For the cabin to get from 7,000 feet down to SL in that same amount of time equates to a little over 1,500 fpm. Since it's unlikely that the pilot(s) will dial in such a high rate, it is probable that again the airplane will "catch the cabin" … leading to the last portion of the descent being unpressurized with the 5,000 fpm descent rate. Ouch!

The 90- and 100-series of King Airs face another inconvenience in the above situations. Remember that it is quite common for the ram air door on the lower left side of the nose to be blown open when high airspeed and low ΔP exist simultaneously. Three factors normally keep the door shut: (1) spring tension; (2) an electromagnet; (3) Differential Pressure (ΔP). However, it appears that the spring and the magnet are often insufficient to overcome the dynamic air pressure caused by high airspeed when there is no ΔP.

The King Air 90- and 100-series face another inconvenience when "catching the cabin." It's quite common for the ram air door to be blown open when high airspeed and low ΔP exist simultaneously.

The forcing open of that door leads to the disconcerting outcome of rapid cabin pressure fluctuations … rapid cabin dives followed by rapid cabin climbs. The sudden addition of outside ram air dives the cabin down but the resultant higher cabin pressure then closes the ram air door, the cabin starts to climb as it loses the extra ram air input, the door then blows open again and the whole process keeps repeating until the airspeed is slowed or ΔP again becomes positive.

The 200- and 300-series have a different ram air door system. You will notice that the NACA scoop on the lower left side of the nose no longer exists. It has been replaced by a door on the forward end of the air conditioning's evaporator chamber, which is now on the right side of the nose. The NACA scoop was no longer needed since the inlet to the air conditioning's condenser is on the right side also. By adding a hole in the floor that the condenser sits on, ram air becomes present at the door. The more convoluted passage of air must tend to decrease its pressure since the blowing open of the door at high airspeeds is a nonexistent phenomenon. As a side note, the 200-series and 350-series with the Keith environmental system have no ram air inlet at all!

With the exception of the emergency descent, there are two simple actions that will assure you will *not* "catch the cabin" during the descent. First, set a sufficient rate of descent with the rate knob. Rarely will 400-500 fpm not be enough to guarantee the cabin will get close to field elevation before you get there. Except when dealing with a severe head cold and stuffy sinuses, rarely will anyone be uncomfortable at these rates of descent.

Second, as I have discussed in *The King Air Book* and previous articles, why wait until nosing over in the descent to set the pressurization for landing? In these days of nonsmokers and clean outflow valves, there is no problem whatsoever in running at maximum ΔP in cruise. Thus, move the "Pressurization – SET FOR LANDING" step from the Descent checklist to the last step of the Cruise checklist. That way, it cannot be overlooked in the busyness of the descent.

Most all of what I have written above is "old hat" for pilots of pressurized airplanes. But now let me present another case of "catching the cabin" that is not nearly as common nor well-known.

In this scenario, it's the cabin, climbing, catching the airplane instead of the airplane, descending, catching the cabin. I recently received an email concerning this phenomenon and then had a telephone conversation with the pilot who was involved. After we had discussed the situation a bit, I asked him if he was based in the Dallas, Texas, area. "Yes! At Ft. Worth!" was his answer. In my experience, the Dallas-Ft. Worth metroplex almost always keeps turboprops down at relatively low altitudes for a l-o-n-g time when departing.

Let's again assume that our controller's Cabin Altitude knob has been set for a 7,000 foot cabin before we departed. Soon after takeoff we observe the cabin is climbing at 500 fpm as we have set. Perfect!

But then ATC tells us to level at 3,000 feet. Friends don't let the cabin catch you!

If ATC keeps us down at 3,000 feet for four minutes or longer, the cabin will catch up to us as it continues its attempt to reach 7,000 feet. In the olden days of PT6A-20-powered A90s, B90s and early C90s, their speeds were low enough that rarely were ram air doors blown open in this situation. It took high-speed descents to do it. But now, with -21s and -135As so prevalent and with a V_{mo} of 223 knots – even higher on the F90 – versus the old 208-knot redline, the newer airplanes definitely have the ability to blow the ram air door open in level flight. ›

Move your "Pressurization – SET FOR LANDING" step from the Descent checklist to the last step on the Cruise checklist and it won't get overlooked with all the busyness of the descent.

So, there you are, impatiently waiting at 3,000 feet for the order to continue climb, when suddenly you – and your passengers – feel some major pressure fluctuations! You see the cabin's VSI fluctuating wildly, from 2,000 fpm down to 2,000 fpm up. Welcome to the "I blew open the ram air door" club!

Now at long last ATC assigns you to, say, 10,000 feet. Being so frustrated with the wasted time at 3,000 and having built up a great deal of airspeed, you pitch that sucker up to 10 or 15 degrees and convert some of that airspeed into altitude. Now what?! Why is the pressurization not working?! Darn it, ΔP is staying at zero and the cabin is climbing as fast as we are! What the heck is wrong now?!

Nothing. You see, although the "real" cabin could not go above you and hence remained at 3,000 feet, the controller was still trying to raise the cabin to 7,000 feet at 500 fpm. What I call a "phantom" cabin exists above you. If held at 3,000 feet for five minutes, this phantom cabin – where the controller is trying to put the real cabin – is now passing 5,500 feet (3,000 + 500 fpm x 5 minutes). Only when the airplane and the *real* cabin catch up to the *phantom* cabin will the controller finally be able to operate correctly. About the time you are making the decision to try and sell this lousy King Air because of its pressurization problems the dang thing starts to work perfectly … and does so for the rest of the flight!

These low-altitude, long-duration, level-offs are so rare that it is easy to forget or overlook what needs to be done to prevent the problems I have just described. Here's the key: Don't let the cabin catch up to you in its climb.

As soon as you sense that the low altitude level-off is going to last longer than desired, crank the rate knob to the counterclockwise stop, as low as it will go. If the cabin stops ascending at 500 fpm and only creeps up at about 100 fpm, it prolongs the time before ΔP nears zero and the problems manifest themselves. Once you are cleared higher, then reset the rate knob for your normal 500 fpm or so.

But in an extreme case, maybe even a very slow-climbing cabin eventually catches up to the airplane. We cannot let that happen without asking for discomfort. If you see the cabin getting within about 1,000 feet of the airplane – and that means ΔP will be nearing about 0.5 psid – then take the cabin altitude knob on the controller and dial it down to 1,000 feet or so below you (2,000 feet in our example). That will maintain the 0.5 psid ΔP and prevent the ram air door from opening. It also means there will be no phantom cabin above you. As ATC finally permits the climb to continue, then reset the rate and altitude knobs to the normal settings.

To summarize, there are only two times during normal operations that you want to see ΔP at zero: First, at and right after takeoff; second, just before landing. At all other times, don't allow the airplane to "catch the cabin" while descending, and don't let the cabin "catch the airplane" while climbing. Got it?! 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" and "The King Air Book II." He is a Gold Seal CFI and has over 23,000 total hours with more than 15,000 in King Airs. For information on ordering his books, contact Tom direct at *twcaz@msn.com*. Tom is actively mentoring the instructors at King Air Academy in Phoenix.

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

The Scarlet Marvel (Part Two)

At the National Air Races in September 1929, the Travel Air Type "R" monoplane turned the world of air racing upside down by conquering its military opponents, much to the delight of Walter H. Beech.

by Edward H. Phillips

Travel Air's speedster was photographed parked in the grass alongside a Great Lakes biplane. The monoplane averaged 194.9 mph around the pylon course, beating the Army Air Corps XP3A by 40 seconds. The Free-for-All race was won based on elapsed time, not speed. (Textron Aviation)

Douglas Davis climbed aboard the Type "R" racer and squeezed into the small cockpit. Time was of the essence as he quickly ran through a mental checklist: "Fuel ON, Magnetos BOTH, Throttle IDLE." Davis motioned to the mechanic and yelled "Switches ON." The propeller swung around and the mighty Wright J6-9 radial engine coughed to life, belching smoke from all nine exhaust stacks before settling into a staccato rumble.

It was September 2, 1929, the last most important day of the weeklong National Air Races (NAR). Tens of thousands of spectators filled the grandstands to overflowing as they waited for the start of Event No. 26 – the Free-for-All speed dash.

The Army Air Corps entry was the XP3A powered by a Pratt & Whitney static, air-cooled radial engine rated at 450 horsepower. The biplane was flown to second place by Captain R.G. Breene. (Textron Aviation)

Davis taxied the Travel Air monoplane across the airfield and was directed by officials to the starting line directly in front of the main grandstand. Six other challengers were also taxiing into position, including Captain R.G. Breene in the Army Air Corp's Curtiss XP-3A and Lieutenant Commander J.J. Clark in the U.S. Navy's handsome Curtiss F6C-6. Walter H. Beech, watching closely from the sidelines, realized that the only other serious contender was Roscoe Turner flying a Lockheed *Vega* fitted with a Pratt & Whitney *Wasp Jr.* engine rated at 450 horsepower. The other two entrants stood little or no chance to win the race.

Beech and engineer Herbert Rawdon knew that the Army and Navy biplanes, as well as Turner's Lockheed monoplane, were reasonably well matched against Travel Air's low-wing Type "R." The scarlet speedster, however, weighed in at only 1,950 pounds in racing trim – significantly less than its opponents – and had the distinct advantage of having been designed specifically for air racing around a pylon course. As a result, both Beech and Rawdon concluded that the contest probably would evolve into a duel between Davis and Breene.

Event No. 26 consisted of 10 laps flown around a triangular 5-mile course with turns marked by large pylons. The winner would be determined by elapsed time, not speed. As the final moments before the race ticked by, Davis sat snug in the cockpit, occasionally exchanging glances with Breene and Clark as NAR officials walked up and down the starting line ensuring that each airplane and pilot were ready.

Satisfied that all was in order, one official stood in sight of all the contestants and slowly raised the starting flag. For safety, the six airplanes would take off in a prearranged order at 10-second intervals. Suddenly, the flag dropped, Breene's XP-3A was first, followed by Davis, Clark, Turner and the others. The ground trembled as engines roared and propellers blew up massive clouds of dirt and dust. The crowds roared, too, as they yelled in support of their favorite aviator.

As for Walter Beech, he just puffed away on his pipe, hoping that in less than 30 minutes he could begin collecting on a long list of lucrative bets he had made with friends and competitors during the week. If Davis won, Walter would be a rich man.

Captain Breene was leading the race as the racers approached the first pylon, followed closely by Clark and Davis. Between the first and second pylon the Travel Air flew past Clark, then Breene, and slowly began pulling away from the field. Davis knew he had to decide in advance how best to fly around each upcoming pylon – too high and his adversaries could regain the lead, too low was very dangerous, too tight risked colliding with the pylon and too wide would lose time.

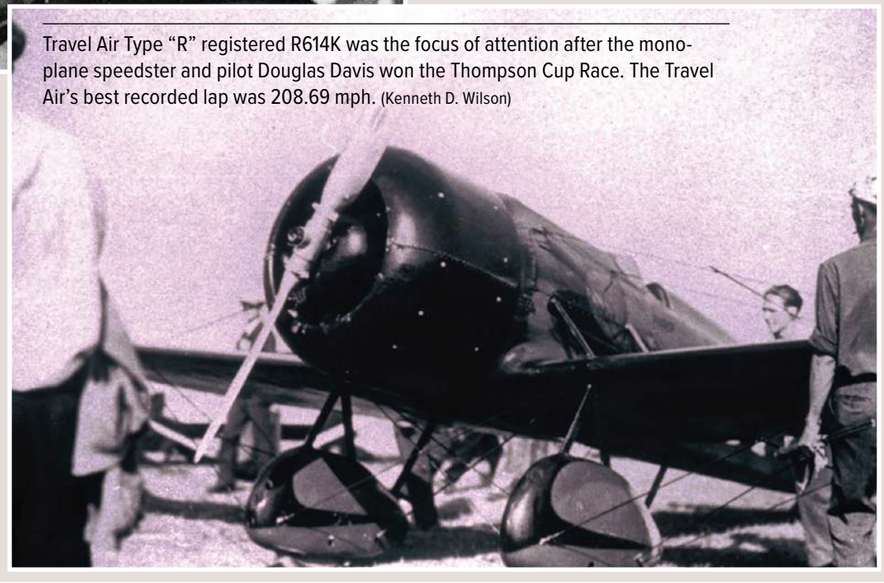
As the race unfolded, Breene passed Turner and two other ships, as did Davis, but the Type "R" was stretching its lead over the Army and Navy ships with every lap. Breene and Clark, however, were flying their machines skillfully, rounding each pylon as tightly as possible at an altitude of only 250 feet. Breene also dove the XP-3A into each turn, but Davis deviated little from his planned altitude as he flew each turn and built a commanding lead.

As the race neared its conclusion, Davis feared he had turned inside of one pylon – a mistake that would cost him the checkered flag. With his heart pounding like a jackhammer, he whipped the monoplane around and flew back to circle the pylon. In his haste to complete the turn, he pulled back on the stick so hard that he momentarily lost his vision. Uncertain if he had negotiated the turn legally, Davis circled the pylon a third time before rolling wings level and continued holding the lead. The two Curtiss Hawks were fast and had been gaining on the red racer, but the Travel Air never relinquished its first-place position.

During the last minutes of the event Davis managed to stay ahead of Breene and the XP3-A, and took the checkered flag after completing 10 laps in 14 minutes five seconds and posting a maximum speed of 208.69 mph while averaging 194.9 mph. Breene placed second with a time of 14 minutes 42 seconds at an average speed of 186.84 mph. Turner beat Clark to the line for third place at a speed of 163.44 mph. After landing, Davis shut down the hard-working J6-9, clambered out of the cockpit to accept the Thompson Cup amid a thunderous roar from the crowds.

Two months after his victory at Cleveland, Davis recalled the pylon incident during an interview with *The Atlanta Journal* newspaper: "You know, there is a limit to what a man can endure when he is flying at high speed. When you pass the 200 mph mark you have to be careful on your turns. If you change direction too abruptly, blood

Douglas Davis became the first and only pilot to win the Thompson Cup. In 1930 the name was changed to the "Thompson Trophy." (Kenneth D. Wilson)



Travel Air Type "R" registered R614K was the focus of attention after the monoplane speedster and pilot Douglas Davis won the Thompson Cup Race. The Travel Air's best recorded lap was 208.69 mph. (Kenneth D. Wilson)

rushes from your head and you go blind. That happened to me in the Cleveland race. Near the end I thought I clipped a pylon too closely. If I had failed to go around it my entry would have been thrown out of the meet. I had a long lead over the field, so I figured it would be better to circle the marker again and make sure I was around it. But this time I pulled up on the stick too quickly and everything went black. By the time my head cleared I was already past the pylon, so I circled back once more. This time I took a larger curve and made sure I was outside the pylon. The judges told me after the race I had made a good turn each time."

In fewer than 15 minutes Travel Air's so-called "Mystery Ship" had turned the world of air racing upside down. Russell C. Johns, a journalist for *Aero Digest* magazine, wrote that the speedster was "undoubtedly the most outstanding development among racing planes" adding that its victory "focuses attention on the whole matter of America's status in pursuit of aviation and matter pertaining to radical changes in design that might help the Army and Navy keep up with progress."

In the wake of Travel Air's striking success in Event No. 26, military officials did begin thinking seriously about the monoplane and its inherent advantages of less drag and more speed. One year later, the Navy returned to Cleveland with a monoplane of their own – the reborn Curtiss F6C-6 that had been transformed into the XF6C-6 powered by a Curtiss *Conqueror* engine that developed 700 horsepower.

As for Walter Beech's post-race activities, he is reported to have walked around the airfield collecting a few thousand dollars in bets. Travel Air mechanic Ted Cochran recalled that Beech "was going around the field taking up everybody's bet. He had a wad of bills that would choke a mule and he was really happy." Cochran estimated that Walter had won more than $60,000, which is highly improbable, although he did hand out $100 bills whenever the Travel Air team needed cash.

The Cleveland NAR was history. The "Scarlet Marvel" returned to Wichita triumphant but had little time to rest. Senior officials of Travel Air's parent company, the Curtiss-Wright Corporation, were anxious to capitalize on the racer's sudden notoriety. The monoplane was refurbished in preparation for more racing as well as public appearances at local and regional "air meets" from coast to coast.

Although Davis would fly the airplane again, the ship was flown throughout the remainder of September and October by Clarence Clark and Ira McConaughey. After having its red and black paint cleaned, polished and buffed to a lustrous shine, the Type "R" was flown to the Kansas City International Exposition and placed on display for all to admire. In November Davis flew the airplane from New York City to his native Georgia to participate in the Atlanta Air Races. When asked if Curtiss-Wright would place the monoplane into production, Davis replied that the company did have plans to do so, but that a second cockpit would be added and the wingspan increased to reduce takeoff and landing speeds. Those plans, however, were quickly abandoned as the national economy entered an unrecoverable, inverted flat spin in the wake of the debacle on Wall Street in October.

During the air races in Georgia, Doug Davis flung the ship around the pylons in a crowd-pleasing demonstration of the airplane's brute power. He followed that impressive routine with a dazzling display of aerobatics that included vertical maneuvers as well as rolls and loops. Later, Davis dove the Travel Air to an airspeed that he estimated approached 250 mph, then made a vertical climb to 3,000 feet.

A reporter for *The Atlanta Journal* summed up the aerial demonstration this way: "All who have seen the ship agree it is a marvel of the age, and many who watched it doing stunts over Candler Field hardly believed their eyes." Such was the mystique of the "Scarlet Marvel." It was perhaps Davis, however, who summed up the airplane best: "She's a great little ship." KA

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

Garmin Adds New eLearning Courses for G1000 NXi Integrated Flight Deck

Garmin® International Inc. recently announced two new eLearning training courses for the G1000® NXi. These training courses are available in a virtual eLearning format allowing pilots to learn at their own pace, with the G1000 NXi Fundamentals eLearning Course providing a foundational understanding of the system, while the G1000 NXi Essentials eLearning Course is focused on systems installed in high-performance piston and turbine engine aircraft.

Core training topics

All training courses build on a common core of training topics. These topics are common to all G1000 NXi systems but are tailored to the audience for each course. The topics include:

- Primary Flight Display (PFD) and Multifunction Display (MFD) function
- Audio Panel Features
- Automatic Flight Control System
- Hazard Avoidance Features
- Safety Features
- Abnormal Operations
- Managing Databases
- Operational Flight Scenario

Learn best-practices for G1000 NXi operational use

For those that are new to Garmin avionics, transitioning to advanced avionics, or perhaps want to refresh their understanding of the system, the G1000 NXi Fundamentals eLearning Course provides comprehensive training on the system designed for piston engine equipped aircraft. This course describes features of the system in detail and uses a scenario to demonstrate how particular features function in different phases of flight in order to see this advanced system in action. In order to practice what you learned during this course, the Garmin G1000 NXi PC Trainer software is available for purchase online.

G1000 NXi for high-performance piston and turbine aircraft

For those operating high-performance piston or turbine-engine equipped aircraft, the G1000 NXi Essentials course presents best practices for the G1000 NXi integrated flight deck by providing detailed training for pilots wanting to get the most out of the system. In addition to describing features in detail and showing how they can be used effectively in flight, scenario-based training demonstrates typical high-performance piston and turbine-engine aircraft operations, providing an opportunity to see the G1000 NXi system in full effect. For your specific or similar aircraft, the Garmin G1000 NXi PC Trainer software is available for purchase online and provides the opportunity to take what you learned throughout the course and apply it. In addition to the core training topics, the G1000 NXi Essentials eLearning Course includes additional instruction on:

- Vertical Navigation
- Automatic Flight Control System
- Advanced Features
- User Waypoints
- Managing Databases
- Multiple Operational Flight Scenarios with different performance profiles

Proceed through the course at a pace that works best

Available immediately after purchase using a computer or tablet device with internet access, pilots can navigate through the virtual course at their own pace. Assessments throughout the course validate knowledge obtained of critical items while documenting the learning process. With the ability to pause lessons as needed to return to the lesson later, this is a convenient option for any pilot. Also, pilots can retake specific lessons or even the entire course during the subscription period.

The G1000 NXi Fundamentals eLearning course is available now for $94.95 USD, and the G1000 NXi Essentials eLearning Course is now available for $145.95 USD. For aviation training needs, including purchasing one of these eLearning courses, please visit *www.fly.garmin.com/training*.

For additional information, please contact *aviation.training@garmin.com*

Raisbeck Names Intercontinental Jet Service Corp. as Authorized Dealer

Raisbeck Engineering Inc. announced the addition of Intercontinental Jet Service Corp. (IJSC) to its global network of Authorized Dealers. With this appointment, IJSC brings its extensive range of MRO services and expertise to the Beechcraft King Air market for which Raisbeck offers time-proven performance, safety and comfort enhancement systems.

Intercontinental Jet Service is an Federal Aviation Administration (FAA) Part 145 repair facility based in Oklahoma at Tulsa International Airport (TUL) where it provides major inspections, heavy structural repairs, propeller overhauls and avionic upgrades for many aircraft makes and models. IJSC said that becoming a Raisbeck Authorized Dealer enabled them to meet the demands of discerning King Air operators looking to improve the efficiency of their aircraft.

Please visit *www.ijetservice.com* for more information about the maintenance facility.

MT-Propeller Receives TCCA Canada Approval of 5-blade Composite Props for Beech 99/100

MT-Propeller Entwicklung GmbH has received the Acceptance of their EASA STC for the Quiet Fan Jet composite propeller MTV-27 on the Beech 99/100 series by TCCA Canada. The U.S. FAA STC is in progress.

The company says the installation of the 5-blade MTV-27 Propellers on the Beech 99/100 series provide the following advantages:

- Takeoff improvement by 10%
- No propeller speed restrictions on ground while operating in low idle
- Lower ITTs during startup for less engine wear

- Significant cabin noise (up to 10 dB(A)) and vibration reduction
- Unbeatable esthetic ramp appeal
- Compliance with the strict German, and other European Countries, noise regulations

Due to the smaller diameter, the MT-Propeller for the Beech 99/100 series has more ground clearance for less blade tip erosion and FODs. They also have no life limitation and are repairable in case of FOD. With the longest industry TBO of 4,500 hours or six years for the 5-bladed turboprop MT-Propeller has proven its reliability over years.

The vibration damping characteristics provide almost vibration-free propeller operation and have bonded on nickel alloy leading edges for superior erosion protection of the blades.

MT-Propeller is the holder of over 220 STCs worldwide and OEM supplier for more than 90% of the European aircraft industry, as well as 30% of the U.S. aircraft industry. More than 25,000 propeller systems with more than 80,000 blades are in service.

MT-Propeller has a factory certified network of 62 service centers. For questions, contact *marketing@mt-propeller.com* .

ForeFlight's Latest Release Includes Cloud Forecasts and 3D Traffic

ForeFlight 12.10, which was recently released, includes a powerful new forecast weather layer in three different places: on the map, in Profile View and in 3D Preview. The Clouds layer provides a 24-hour forecast of cloud coverage from the ground to 63,000 feet, with sliders to view different forecast periods and altitudes. And like the existing

Icing and Turbulence forecast layers, you can view the Clouds layer from multiple perspectives using Profile View and 3D Preview to easily visualize weather conditions along your planned route.

The Clouds forecast map layer is included in Pro Plus subscription plans and above, while the same layer in Profile View and 3D Preview is available with Performance Plus plans.

The 3D Airports view is also improved, now depicting live internet Traffic via FlightAware in three dimensions around the airport environment. Tap on any traffic target to reveal its recent flight path for a clearer picture of its movement. 3D Airports is included in Performance Plus plans.

The 12.10 upgrade also includes many additional mountain peak markers on the Basemap, a new Airport Terrain Information button that reveals significant terrain variations near an airport, and more.

Go to *foreflight.com/releases/12-10/* for more specific information.

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THE INFORMATION YOU NEED TO KEEP YOU AHEAD

Pratt & Whitney's Know My PT6 app can help you optimize the performance and availability of your turboprop engine with valuable maintenance and power management recommendations. Access key PT6A engine booklet content and excerpts of new Service Information Letters, contact our Customer First Centre directly, find authorized service centers, parts distributors, and more.

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