

SOME DAYS JUST DO NOT GO AS PLANNED

By Gene Benson

The day began early on this summer day in New Hampshire. I had purchased a used Beechcraft Duchess to be used as a multiengine training airplane. I was to take delivery of the airplane in Georgia and fly it back. The early start was necessitated by the need to take a regional airline flight from Manchester to JFK and connect with a flight to Atlanta where the broker selling the airplane was to meet me and drive me to the smaller airport where the airplane was located. My plan was to take delivery and fly the airplane back to New Hampshire, arriving by late evening.

The regional airline flight to JFK was uneventful and I always enjoy watching people from all over the world passing through that airport. The Boeing 767 departed on time for Atlanta with me located in the middle of the center section of seats. Once we were established in our climb to altitude, I settled in with a techno-thriller book and was happy to leave the flying to somebody else for a change.

My tranquility was to be very short-lived. A loud bang followed by extreme vibration throughout the cabin got my attention. The vibration was so severe that I could not focus on the seatback ahead of me nor any of the documents in the seatback pocket. I realized that we had a serious problem and my jet experience told me that we had probably shed a fan blade and the vibration would stop in a few seconds when the engine was shut down. For some reason, I suppose that I felt the need to do something, so I started the timer on my wristwatch. (What kind of pilot would I be without a big chronometer on my wrist?) As the vibration continued beyond the three-minute mark, I was getting concerned. Looking around revealed that many passengers had passed the concerned level and had upgraded to terrified. The flight attendants were still in their seats from the takeoff. I do not believe that we had reached even 18,000 feet of altitude yet and I had not sensed any turn being made. I could not believe that we were not returning to JFK. Then the vibration suddenly ceased. I punched my stopwatch and it read six minutes and forty seconds. That seemed like quite a long time to run the checklist, but I had faith that the folks up front knew what they were doing. Strangely, no announcement was made and it appeared that we were continuing on our way. I was fully aware that a Boeing 767 will perform well on one engine, but continuing on, especially after the severe and long-lived vibration that the airplane had experienced, did not seem like the best choice. Finally, about ten minutes later, an announcement was made that we would be arriving about forty minutes late into Atlanta and that there would be no beverage service on the flight.

We did arrive safely at Atlanta. Being seated in the middle of the airplane, it took awhile for me to deplane. I made a dash to the windows overlooking the ramp. A maintenance stand was already in place in front of the number one engine and I could see multiple fan blades broken. A few weeks later, I was talking to a friend who was a Boeing 767 captain for that airline. As soon as I began telling my story, he interrupted and said that he knew all about it. He said that it was the last leg of a multi-day flight for the captain and he wanted to get home, hence the decision to continue the flight rather than return to JFK. He told me that the captain was being disciplined for his decision to continue the flight.

Now I was in Atlanta, though late. I was met by the broker who drove me to see my newly acquired Beech Duchess. I had a pre-purchase inspection done on the airplane a few days prior, so I was fairly confident that all was in order. I began with a thorough preflight of the airplane. Everything looked good until I took the first fuel sample from one of the tanks. It appeared to be 100% water. I found a bucket, dumped my sample in it and took another sample. All I got was a tube of water. I went to the other wing and took a fuel sample. All water again. I went in and asked the broker about it and of course he knew nothing. He said that it had rained a couple of nights ago and the airplane was outside, but that was all he knew.

I placed the bucket under the first wing that I tested and opened the fuel drain to let about a gallon escape. It appeared to be all water. I opened the drain again. About three gallons of water was removed before fuel appeared. The opposite tank received the same treatment and again, about three gallons of water had to be drained. Then, I rocked the wings everyway that I could and let the airplane sit. I went back into the office and began the task of examining the logbooks to make sure everything was in order. A half hour later, I completed my logbook examination to my satisfaction and called my favorite maintenance provider to verify that the installed fuel caps were the correct ones. They were. I

decided to sample the fuel one more time to make sure the water was gone. It was not. The half hour or so of sitting had allowed yet more water to reach the lowest point of the tanks. Both tanks revealed more water. This time, after a couple of samples, both tanks delivered pure fuel into the sample tube. Of course, I checked all drains and sumps one more time and all was good. I had the tanks topped off, waited a respectable amount of time, and resampled everything. Good to go! Satisfied, I filed a VFR flight plan to my first planned stop, Charleston, SC.



My departure was normal and I settled into a nice flight on a beautiful, though uncomfortably warm day. I was now about five hours behind my planned schedule. Time to spare, go by air. More time yet, go by jet. I began to realize that I was tired so I decided that I would end the day in Charleston and continue my trip tomorrow. The nice folks at Charleston recommended a hotel nearby with a restaurant, confirmed that there was a vacancy, and gave me a ride.

I was up early the next morning and made my way to the FBO. I had intentionally not ordered fuel because a little voice was telling me that there might still be some water in that Duchess fuel system. If water was present, I wanted to be sure that it was residual and not delivered with my new fuel. I hopefully took a fuel sample from one of the tanks. Bad news. The sample was once again 100% water. I repeated the sampling with the other tank with the same result. How could that be? I had flown long enough that the engines should have ingested some of that water and issued a complaint but I had heard nothing but smooth operation. A second sample still revealed water. I requested and received a bucket from the line attendant. I think he was relieved that I had not purchased fuel from his FBO. I drained more than a gallon of water from each tank again. I repeated my procedure or rocking wings and waiting. I was relieved that the next samples were pure fuel from each tank. I had the airplane topped off, sampled the fuel again, and departed VFR.

Now, somewhat skeptical that all the water was gone, I decided to make my next stop somewhere in Pennsylvania. To my surprise and relief, the samples were all fuel. I got some lunch, had the airplane topped off, sampled the fuel again, and departed for my New Hampshire destination. I arrived late afternoon, put the airplane in the hangar, and went home. The next morning, I had maintenance take a look to make sure I had not missed something on the airplane and I told a technician my story about the water in the fuel. By the time I got settled into my office with my coffee, the technician was in my doorway with a fuel sample tube in his hand. Even from the distance, I could see that the tube contained about half water and half fuel. At first, I thought that this was a joke; that he had taken a half tube of fuel and added water to it. The look on his face quickly dispelled that notion. Out came the buckets and we drained at least a half-gallon of water from each tank.

I had not flown through any rain during my trip nor had there been any rain in Charleston while the airplane sat on the ramp. Once I was back at the home airport, the airplane spent the night in the hangar. The fuel caps were inspected again and found to be in good shape and to be the correct caps for the airplane. The water had to have been in the tanks when I departed for Charleston. How did so much water get into those tanks and where was it hiding? The fuel tanks on the Duchess are aluminum with no bladders, eliminating the possibility of a wrinkled bladder hiding water. No one has ever been able to give me a plausible explanation of how so much water could have been in the tanks after so many fuel drains and samples.

I consider myself to be incredibly lucky that the water did not find its way to my engine during my flight. My decisions to land twice during the flight and take on fuel perhaps allowed me to escape having a rough-running engine or a complete loss of engine power on one or both engines.

This was an extreme and also a rare situation. I am not aware of any other case in which so much water remained in the fuel system of a light, GA airplane after such extensive draining, waiting, and draining again. It serves as a reminder to me and I hope also to others, that if a little water is detected, much more could be present. The second reminder is to always be prepared for a loss of engine power. I did not lose power on either engine, but I am sure that I was not far from that happening.