

Let's Run out of Gas

by Rich Martindell

Running out of fuel short of your destination must be easy to do because it seems to happen to a lot of people. The 2010 Nall Report's review of 1,418 accidents that occurred in 2009 concluded that 1,181 (83.3 percent) had a probable cause, such as fuel management, which alone accounted for 74 (6.3 percent). Fuel management can be broken down into three categories: flight planning—just flat ran out of gas; systems operation—fuel starvation with the selector on an empty tank and fuel on board the aircraft; and fuel contamination—water or particles in the fuel preventing the fuel from getting to the engine. (I checked the NTSB database, and in 2011 there were 1,446 Part 91 general aviation accidents. So far a probable cause has been issued for 947 [65.5 percent] of those accidents of which 36 [19.2] percent have been determined to be caused by fuel starvation, but we still have another 35 percent of the year's accidents pending a final report.)

FIGURE 15 : FUEL MANAGEMENT ACCIDENT TREND

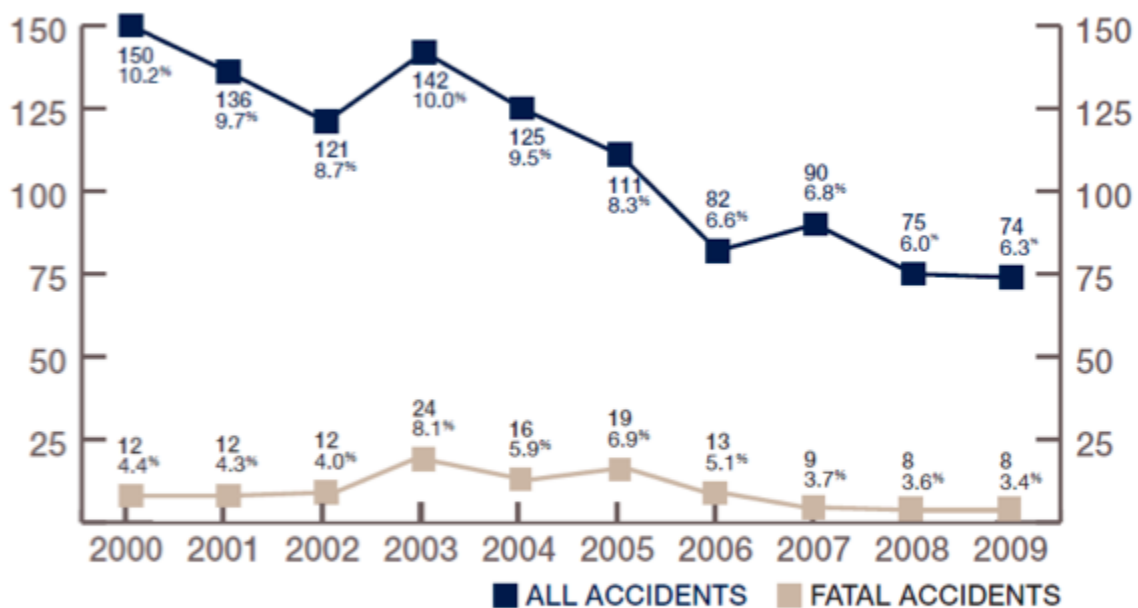


FIGURE 17 : AIRCRAFT INVOLVED IN FUEL-MANAGEMENT ACCIDENTS: NON-COMMERCIAL FIXED-WING

(Source: 2010 Nall Report, AOPA Air Safety Institute)

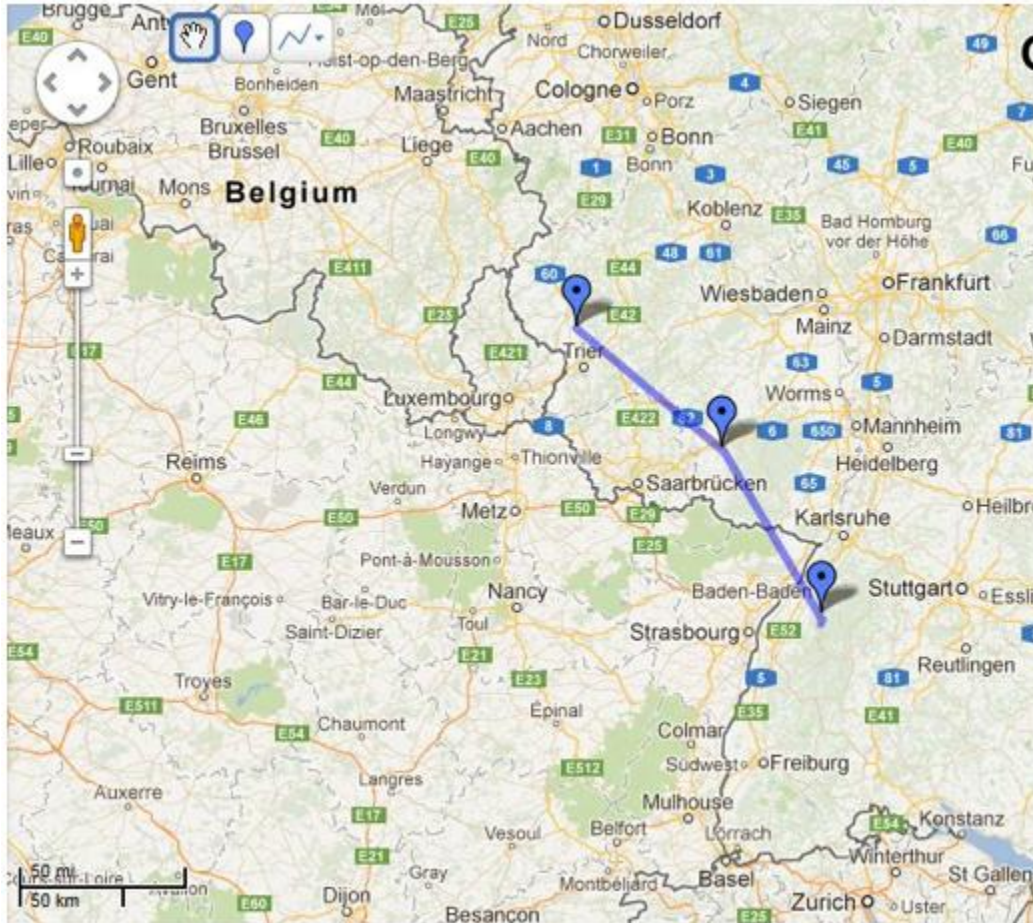
The good news is there is a downward trend in accidents due to poor fuel management. The bad news is there are still far too many accidents for a problem that can be prevented by a little self discipline and systems knowledge.

Looking at the fuel starvation accidents due to poor flight planning I would break that down into two subsets: those that don't flight plan at all and those that flight plan poorly. My only solution for getting the attention of those that don't plan at all is an NCIS head slap with a two-by-four. Those who plan poorly err in their calculations, such as having less fuel than they think or not checking performance charts to get the proper fuel flow for their flight profile.

Even if you do a good job flight planning, that is only half the task. You also have to monitor your actual performance in flight against your flight plan to see if you are getting better or worse ground speed or different fuel burn than your calculations predicted. If the engine does quit there are two important things to do: 1) turn on the fuel pump if you have one, and 2) switch to another tank. Even if you have *both* selected, you should now try each individual tank to see if you can find some trapped fuel.

I nearly ran out of fuel while flying an Air Force F-4 in Europe: even though we did everything by the book, mother nature kept throwing us curve balls. When I first arrived and was going through my local area check out, the base weatherman impressed on us that our base had almost twice as many IFR days as the worst commercial airport in the United States, "So you should always have a backup plan to your backup plan if you don't want to get surprised by the weather." Winter weather is the worst, and on the winter day of my adventure, the field started off below minimums (300/1) with low clouds and snow storms in the area. I was flying as the instructor in the back seat with a new, low-time pilot in the front seat. With weather like that we had to have an alternate—it was 80 miles away and the weather there was forecast to be 500/2 or better. We briefed the flight and then went on weather-hold waiting for things to improve. When the weather finally improved, we went to the airplane and taxied out to the runway, but by the time we got there the field was again below minimums. We held at the end of the runway for half an hour and were then told to taxi back to our shelter, shut down, refuel, and go back into the squadron to wait for the weather to get better. Personally, I would have called it quits then.

But the weather did improve, and this time it was still above minimums when we got to the runway, so off we went. While we were still on the departure, TRACON called to tell us the field had again gone below minimums and the command post wanted us to go to the IAF and hold at max loiter until the weather got better and then land, oh, and by the way, if the weather doesn't improve, go to the alternate when you reach divert fuel. Needless to say, the weather didn't improve, and after an hour of holding, we were on our way to the alternate with about an hour of fuel remaining. When we got to the IAF for the alternate, we weren't the only ones there and we entered holding. A T-39 (the military version of a North American Sabreliner) started its penetration and then approach control gave them the current weather: 100 foot ceiling with ¼ mile visibility in blowing snow. Oops!



Google Map of Central Europe

Up until now the pilot in the front seat had been doing the flying and talking on the radios. Now it was time to stop doing what the command post and ATC wanted and start taking care of us. Time to use my hip pocket plan for when the snow turns brown. Both our home base (Spangdahlem) and the divert base (Ramstein) are located in the hilly region of Germany east of Luxembourg. In my experience, when the weather is lousy there, it is usually better in the Rhine valley in Germany along the French border north of Basel, Switzerland. So I asked for the current weather at the Canadian base near Baden-Baden next to the Black Forest and was told they were special VFR for low visibility due to haze but no clouds or snow storms, but it was another 90 miles away. I declared an emergency for low fuel and asked for a clearance direct to the Canadian base. I had to declare an emergency because the direct route between the two bases in Germany went through eastern France, and we didn't have pre-approval to fly through France.

Not a problem. We were cleared and off we went. On the way to the Canadian base, the controller told us the field was closed—all pilots were in a safety meeting and there would be no flying that day. I told ATC I didn't care if the field was closed, we were going to use the runway. That caught the controller and the pilot in the front seat by

surprise, but I got no arguments. Even from the back seat I could tell that the junior pilot's eyes were as big as saucers. My civilian flying background told me landing at an uncontrolled airport was no big deal even if it was unheard of in the Air Force. By now, even from 20,000 feet, we could see the ground and the Rhine River and we started our descent. I set us up on a right downwind and told the front seater it was his airplane. He asked, "What do I do now?" I said, "See that runway? Land on it!" In the time it took us to get to the Canadian base, they had been able to scramble a controller to the tower and we actually got a clearance to land. We shut down with 10 to 15 minutes of fuel remaining.

The takeaway here is once you figure out you're short on fuel, swallow your pride, give up on your original plan, take control of the situation, and do something proactive. It's way better than landing in the dirt 10 miles short of your planned destination.