CALLBACK

From NASA's Aviation Safety Reporting System

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Spring Training: Eliminating Fuel Errors

There are three basic principles of proper fuel management. The first is knowing the aircraft fuel system; second is preflight planning; third is monitoring of actual fuel consumption. Pilots who miss the basics may not make it all the way home.

Field of Dreams: *If You Plow It, They Will Come*

By including fuel quantity in a periodic scan of the aircraft instruments, an abnormal trend in fuel consumption can be noted and range calculations adjusted accordingly. This pilot did not recognize the signs, tried to change the game plan, and wound up out in left field.

■ *This was a break-in/ferry flight to bring the aircraft back from engine overhaul to the home field.... The fuel tanks had been...topped off to make sure they were full.... The aircraft has two 18-gallon tanks for a total of 36 gallons (35 gallons usable). After one hour of flight, the power was reduced from 75% to 65% per the break-in instructions and the fuel quantities were checked. The right tank indicated empty and the left tank was selected. After approximately two hours and 15 minutes [total flight time]…the decision was made to divert to ZZZ, a distance of 30 nautical miles…. Just before turning final, the engine started to sputter and died. I landed two miles short of the runway in a plowed field.*

There was no indication of fuel leakage.... Normal fuel burn prior to the overhaul...provided a duration of approximately four hours. On this flight, the fuel was exhausted at approximately two hours and thirty minutes.

Given the burn rate experienced during the first hour of flight, two hours and thirty minutes would have been a reasonable estimate for planning the off-airport landing.

"This Is Like Déjà vu…

When the actual fuel burn differs from the planned burn rate, range and endurance estimates must be revised accordingly. In this report, another pilot didn't have enough fuel to make it over the fence.

■ *Fuel planning indicated that we should have had one hour and 15 minutes fuel remaining at the time of the loss of power. The calculated fuel burn was 8.5 gallons per hour. We had departed with full tanks, but had to make an emergency landing in a field due to fuel starvation after three hours and 15 minutes. That gives a consumption rate of 12 gallons per hour. I suspect a fuel leak…. There were no injuries and no damage.*

… All Over Again" *Yogi Berra*

The pilot who submitted this report lost his cap and then joined the rest of the team... out in the field.

■ *The engines started to sputter. The emergency procedure for fuel exhaustion was performed, but it did not help the situation…. I…landed safely on a 500 foot cow pasture…. I noticed that the fuel cap was not attached. I had done a thorough preflight...and the fuel was topped off. After departure, I noticed the fuel gauge reading 80 gallons. About 20 minutes later it read 50 gallons. I monitored the fuel gauge and noticed it stabilized at 50 gallons. I...determined I had enough fuel to reach my destination. Five minutes later the engines stopped. In flight, I am unable to see the fuel cap.*

Advancing on a Good Hop

In this report, engine overhaul was once again a factor in a fuel starvation incident. A lucky bounce in the infield saved the day.

■ *My engine lost power [when] I was about three miles from the end of the runway in a descent… The apparent reason for the engine failure was a lack of fuel in the left tank…. The engine fired up after a touchdown bump in the field before the runway that permitted a normal landing.... A recent overhaul reduced the time on each tank from 2.5 hours to 2.0 hours. I was aware of this and…since the flight from ZZZ took three hours, there would have been an hour left in the right tank. Having not completed my landing check because of the problem, I did not know that. The solution is to start landing checks earlier, probably before descent.*

Fuel quantity, burn rate, and tank selection should be monitored closely throughout the entire flight.

AD — Attention Deficit

Fuel errors happen, even in the majors. A few change-ups disrupted this B757 crew's attention to fuel monitoring.

■ *According to an Airworthiness Directive (AD), 1,000 pounds was the minimum fuel total in the center tank. The tank, which had been filled to 5,500 pounds, was used down to zero due to a diversion of attention during climb and cruise. There were numerous changes in altitude and speed as a result of moderate turbulence. Too many distractions involving flying the aircraft through the turbulence diverted our attention from this supplemental procedure.*

ASRS Recently Issued Alerts On…
Bell 407 rotor mast crack
A300 tail vibration incident
Falcon 20 unlatched engine cowlings
Wake turbulence incident at a southern airport
Runway signage confusion at an eastern airport

A Monthly Safety Bulletin from

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http://asrs.arc.nasa.gov/

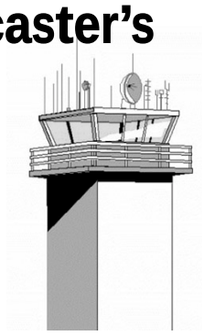
February 2003 Report Intake	
Air Carrier / Air Taxi Pilots	1757
General Aviation Pilots	526
Controllers	34
Cabin/Mechanics/Military/Other	114
TOTAL	**2431**

Meanwhile… in the Bleachers

As if they didn't have enough to do keeping the passengers contented, safe and secure, the Cabin Attendants on this flight also discovered an unusual fuel problem– (L)Avgas.

■ *The First Class Flight Attendant advised of a gasoline type odor coming from the forward lavatory…[then] three flight attendants called from the rear galley [to report] a strong gasoline type smell from the aft lavatories. Not knowing what we had…we took the necessary precautions anyway.... [The associated] circuit breakers were pulled and the lavatories were locked.... Operations advised that it was, in fact, 100LL Avgas (not the type of "blue fluid" we were expecting in the lavatories). Dispatch advised [us] to divert to the nearest field immediately…. According to maintenance, the lavatory truck had been topped off with blue fluid earlier that day. However, the blue fluid was 100LL Avgas, not lavatory fluid. We were the 13th aircraft to be serviced from that truck. The first 12 received pure lavatory fluid because the Avgas, rose to the top. Since the truck's pumps suck from the bottom, they were not affected. We weren't so lucky. Our forward lavatory received a mixture of lavatory fluid and Avgas, but the aft lavatories got all Avgas…. It is not certain, but is felt that the truck driver loaded Avgas because it is blue. Then, realizing the mistake, filled the truck with blue lavatory fluid….*

From the Broadcaster's Booth



The controller who submitted this report to ASRS got behind the count and learned that some situations require help from the bench.

■ *A jet departed while a Cub was in the pattern doing touch and goes. The jet developed an emergency and.... I vectored it back to the airport.... I sequenced the Cub...to follow the jet. When the jet rolled past Taxiway Yankee, I put a Cardinal into position... The last time I saw the Cub he...was doing a 360 [degree turn] to allow the jet to land. I was distracted watching for the jet to clear. When I turned around to check for the Cub and to clear the Cardinal for takeoff, I spotted the Cub about to touchdown. I didn't issue a go around because I felt it would have been more dangerous than allowing the Cub to land. The Cub stopped over 100 feet behind the Cardinal, then cleared the runway. The Cub pilot said he saw the Cardinal sitting on the runway, but knew he could land and stop soon enough. In hindsight, I would not have put the Cardinal into position at the intersection after the jet landed... Also, I should have instructed the Cub to continue doing 360's on the downwind until this situation with the jet ended. Valuable lessons were learned. Don't try to do too many things while an emergency can distract your attention from the operation. Also, I should have requested assistance from other controllers [who were] on break. More eyes and ears help keep things safer.*

Oops! Our Error

A loyal fan submitted this report to ASRS when he noticed a disorienting change in the ***Callback*** layout.

■ *I would like to relate a scary experience with an aeromedical problem known as "pagination vertigo." I have been a* ***Callback*** *reader since the beginning. Like thousands of other pilots, I have gotten used to seeing the latest issue tacked up on the airport bulletin board. After reading the first page, you simply pull up a bottom corner and read the backside. It has always been that way. Like pushing the left rudder pedal and the plane goes left. You could count on it. Then the December 2002 Issue arrived. Luckily, I was sitting at my desk when I opened it. I read the first page, grasped the lower right corner, and pulled it up. An intense case of vertigo swept over me as the text appeared upside down! Fortunately, I was able to avert my gaze and avoid a fall to the floor from three feet AGL. A standby attitude indicator would have helped.*

Replacement of a faulty gyro at the printer has corrected the back page unusual attitude problem.