

When Pilots Become Passengers

Going along for the ride in Row 1

BY JAMES ALBRIGHT james@code7770.com

During my first-ever opportunity to lead a formation of two T-37 jet trainers as a solo pilot, my wingman, also a student pilot, failed the ride. I asked the instructor why the other lieutenant busted.

“He forgot to fly the airplane,” the instructor said. My wingman was tucked into position, a few feet off my left wing. When I began a gentle right turn, he fell low and outside the turn. “Why is he moving out of position?” the hapless student asked the instructor. Of course, that was a ridiculous question; the wingman’s responsibility is to fly his or her aircraft to maintain position. “Who is flying your airplane?” the instructor responded. “You or him?”

Even when flying “single ship” without another airplane a few feet from you, the imperative remains. It is you, the pilot, who must always fly the airplane. It is a lesson hammered into us early in our careers, but it is a lesson many of us soon forget, even regarding the most basic tasks every pilot must complete. At other times, we cede control of our aircraft to others who may not even be pilots. And, in a paradox of our crew resource management (CRM) training, we sometimes give up control of the aircraft to a crewmember who isn’t aware, leaving the airplane in no one’s control. How do professionally competent pilots find themselves in these out-of-control situations?

Never Forget Basic Pilot Duties

When is the last time you did an “AR-ROW” check? You know, the need to ensure you don’t leave the ground without first confirming the aircraft’s

airworthiness certificate, registration, radio station license and pilot operating handbook are on board and you’re within the proper weight and balance limits. As the level of sophistication of our aircraft grows, we tend to forget the very basics needed to get an airplane safely off the ground.

On Feb. 5, 2005, two Bombardier Challenger 600 pilots set out to depart Teterboro Airport (KTEB) in New Jersey with a cabin aide and eight passengers in back. Evidence indicates the pilots asked for a “top off” of their fuel, even though a check of the weight and balance data on board would have shown this placed the airplane’s center of gravity well forward of the limit. The pilot was unable to rotate during takeoff, even with full aft control column input. He had to abort, but he was unable to stop within the confines of the airport. The 41,000-lb. aircraft ran off the end of the runway at 110 kt., went through an airport perimeter fence and across a six-lane highway, struck a vehicle, and came to rest halfway inside a building.

Both pilots and two occupants of the vehicle were seriously injured, and the cabin aide, eight passengers and one person in the building sustained minor injuries. The aircraft was destroyed. It was a perfectly flyable airplane until the pilots failed to realize that the amount of misery and tragedy from exceeding limitations in a large aircraft is far greater than the grief such an oversight would produce in the small ones they first learned to fly.

The Challenger 600, with its supercritical wing and lower thrust Lycoming engines, is in many ways an unforgiving aircraft and requires a high level of attention to detail from its pilots. But

The first lesson in U.S. Air Force pilot training begins: “Fly the airplane!”

even a more forgiving aircraft can bite pilots who forget the first rule of aviation: Fly the aircraft. On Feb. 14, 2002, mechanics at a maintenance facility at Florida’s Palm Beach International Airport (KPBI) inadvertently left wooden sticks in the main landing gear weight-on-wheel switches of a Gulfstream V. The sticks were needed to accomplish several maintenance tasks while the aircraft was on jacks, causing the electronics to believe the aircraft was still on the ground. After the aircraft was released for flight, the pilots missed the wooden sticks during preflight and took off for a flight home.

After takeoff, the wooden sticks fooled the aircraft’s systems to believing the aircraft still had weight on its wheels and the landing gear would not retract as a result. The only danger facing the crew was if the throttles were brought to idle with the aircraft’s ground spoiler system armed. In that condition, the ground spoilers would deploy even with the airplane in flight.

But the pilots then failed to run the correct checklists, which would have deactivated the ground spoiler system. In fact, the pilots made sure the ground spoilers were armed, as habit pattern dictated. They didn’t realize that with the weight-on-wheels system fault warning (which they acknowledged), the ground spoilers would deploy as soon as the throttles came to idle. The pilot “chopped” the throttles while the aircraft was still 57 ft. in the air; at that point, the airplane came crashing down. Both pilots were unharmed but the aircraft has never flown again.

Most experienced Gulfstream pilots obsess over the danger posed by the ground spoilers and are paranoid

U.S. AIR FORCE

A/C MODEL: CL600-1A11
SERIAL NO.: 1014
Regs. NO.: N370V

GULFSTREAM:
DALLAS, TX.
FAA CRS VJ1R560K

DATE: September 9, 2001
JOB NO.: 0029962
CUSTOMER: DDH Aviation Inc.

about the many safety systems used to keep these spoilers from deploying while airborne. But even without the complications of a weight-on-wheels system, pilots need to keep in mind the basic stick and rudder skills needed to keep an aircraft flying.

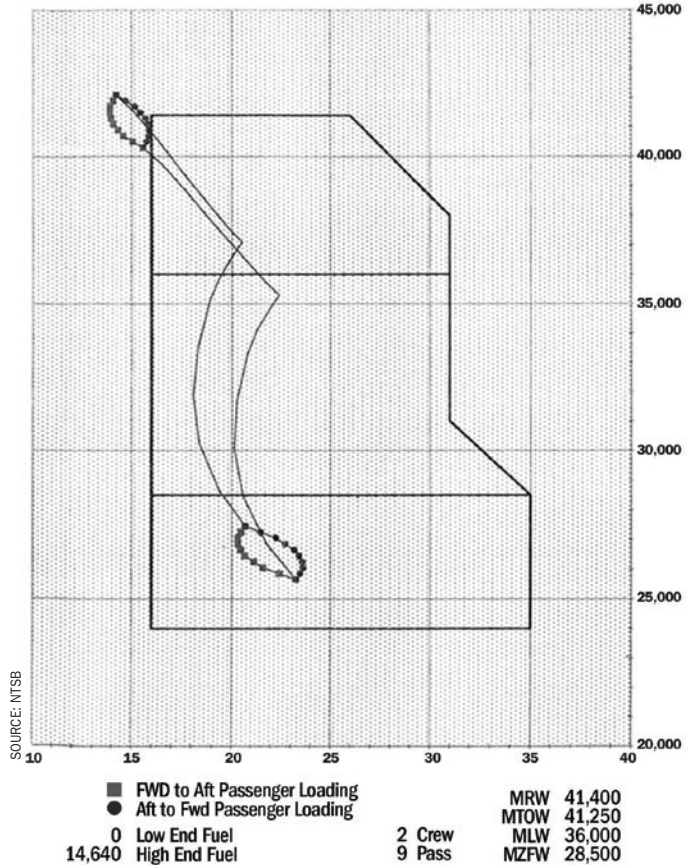
On Feb. 19, 1985, a China Airlines Boeing 747 encountered turbulence over the Pacific Ocean, causing all four engines to retard to a very low thrust setting and then again to a higher setting. The No. 4 engine “hung” near idle, causing the other three to go to maximum thrust and shed their bleed load to the hung engine, which degraded to below idle speed. The autopilot maintained altitude and directional control with elevators and ailerons only; the human pilot never corrected yaw with rudder. The pilot only disengaged the autopilot after deciding to descend for an engine relight.

At that point, the control wheel was deflected 22 deg. left while the aircraft was in a 23-deg. right bank. In just 33 sec., the aircraft rolled 64 deg. and pitched to 68 deg. nose down. The airplane then rolled on its back. The pilot disregarded what all three attitude indicators were reporting and was unable to recover until they popped out of the clouds at 10,000 ft. These pilots turned a minor malfunction into what could have been a catastrophe with 274 people on board. They failed to keep the aircraft in coordinated flight and then failed to execute a proper upset recovery. In other words, they ceased being pilots.

Never Cede Control of the Aircraft to Someone Not in One of Your Pilot Seats

A pilot is responsible for much more than stick and rudder skills or systems management. The coin of the realm for professional pilots is the decision-making that goes with the four stripes. Even a highly experienced airline pilot can be guilty of giving up control of the aircraft to someone on the other side of the microphone. We are well practiced at following “orders” from air traffic control (ATC), if for no other reason than to preserve our licenses. But we should never forget that we pilots are in command.

The classic case for ceding control to ATC might be that of Avianca Flight 52. On Jan. 25, 1990, the Boeing 707 was flying from José María Córdova International Airport, Medellín, Colombia (SKRG) to New York City’s John F.



Some aircraft cannot continue to add fuel without serious center of gravity problems in some configurations

Kennedy International Airport (KJFK). By the time it reached New York airspace, the Boeing had been assigned three holding patterns that totaled 1 hr., 17 min.

After being assigned a fourth hold with a 30-min. expect further clearance time, the pilot said “. . . ah well, I think we need priority we’re passing [unintelligible].” Twenty-nine minutes later the aircraft ran out of fuel and crashed, killing

73 of the 158 people on board. The accident report cited the crew’s failure to communicate an emergency fuel situation as well as traffic flow management.

The pilot’s primary responsibility once airborne is to get back on the ground safely, even if that means telling air traffic control you cannot obey their instructions any longer. Transmitting the word “MAYDAY,” repeated three times, is the universally accepted way



Even a sophisticated Gulfstream V needs a thorough preflight, as the crew of N777TY found out.

to say, “I am declaring an emergency.” It sets into motion special procedures on the other side of the microphone and theoretically gives you the sky. There is no penalty for overusing the phrase. The lesson for all pilots to understand here is that this is the polite way to declare an emergency and let air traffic control know you need their assistance.

There is another, albeit impolite, way and it comes from my experience as a U.S. Air Force pilot during an era when we had more than our share of crashes. We were well-schooled in the art of informing air traffic control what we were going to do, as opposed to what they wanted us to do. “I’m not asking,” we would practice saying, “I’m telling you.” That language, used when needed, ensured we never ceded control of our aircraft to someone who wasn’t in it with us.

Of course, ATC is not our adversary; the controllers are on our side. Their mission also concludes with your aircraft safely again on the ground. It is up to you to communicate and up to them to offer any help they can. Perhaps we get too much well-intentioned help from within the airplane and without.

An airline pilot must frequently battle decisions from dispatchers with the authority to change routing or even divert aircraft. Business aviation pilots have a more insidious pressure from within the cabin. Often, they battle decisions from the person who signs their paycheck or pays for the charter flight. Pilots need to set the ground rules early or this relationship can end badly.

On March 29, 2001, a Gulfstream III operating under FAR Part 135 was scheduled to fly from Los Angeles International Airport (KLAX) to Aspen-Pitkin County, Colorado, Airport (KASE), with the arrival planned before a nighttime landing restriction took effect. Both pilots were aware of the night restriction and the captain had some Aspen experience.

The instrument approach aligns the aircraft just about on the extended runway centerline but is classified as a circling approach because a descent from the minimum descent altitude (10,200 ft.) to the runway (7,815 ft.) at visibility minimums (3 sm for a Category C aircraft) would require more than an 8-deg. descent.

Unfortunately, the charter customer and his passengers arrived late to the airplane in Los Angeles, which delayed the Gulfstream’s arrival at Aspen a few minutes later than allowed by the nighttime restriction. The charter customer stressed the importance of landing at



Gulfstream III N303GA approach path

Aspen before and during the flight. As they began the approach, a passenger occupied the jump seat and they learned the previous two arrivals had gone missed approach.

After passing the final approach fix with a descent rate of 2,200 feet per minute, the pilot briefly leveled off 300 ft. below the next minimum altitude, and then resumed his descent, still too early to have sighted the runway. The alert tower controller asked if they had the runway visually, to which the first officer responded, “runway in sight.” But it probably was not. And even if they did see the runway visually, they were still 2,200 ft. above the field with barely 3.5 mi. to go. So, getting it on to the pavement would have required a whopping 6-deg. descent angle. We instrument pilots must constantly be on guard against seeing what we want to see, versus what we do see.

Passing the missed approach point the captain asked, “Where’s it at?” The airplane crashed 2,400 ft. short of the runway threshold, killing all on board.

While the accident provides many lessons about instrument procedures and how “official sunset” affects arrivals to airports in mountainous terrain, perhaps the most important lesson to be learned regards pilot decision-making. You should never let the desires of those wanting to get there usurp your decision to go someplace else.

CRM Isn't an Absolute

We pilots not only have a need to be in control but also have a need to appear in control to those around us. This often manifests itself as a cool, calm demeanor that could be captioned with, “Everyone else may be freaking out, but

I’m not fazed at all. I’m in control.” The problem, of course, is that sometimes we convince ourselves everything is OK when it really isn’t. As I’ve been told a few times: “When all about you have lost their heads and you remain calm, perhaps you don’t understand the problem.”

On Dec. 29, 1972, Eastern Air Lines Flight 401 had what amounted to a simple gear indication problem. The Lockheed L-1011’s green “down and locked” light failed to illuminate. The captain directed the first officer to engage the autopilot and replace what might have been a faulty light bulb. As the situation unfolded, the captain, the first officer, the second officer and a maintenance specialist who came along were all consumed with addressing the malfunction.

At some point, it is hypothesized, a 15-lb. force caused the autopilot pitch mode to disengage without an audible warning. The aircraft had two autopilots and in this aircraft the autopilot computers were mismatched. It was possible for such a force to disengage the first officer’s autopilot without an indication on the F/O’s instrument panel. The aircraft gradually descended from its 2,000-ft. assigned altitude without anyone in the cockpit noticing. Six minutes after the troubleshooting effort started, the airplane crashed into the Everglades, killing 101 of the 126 persons on board. In this incident four crewmembers were focused on troubleshooting, and none were focused on flying the airplane.

Six years later, on Dec. 28, 1978, the errors of Flight 401 were replayed by United Airlines Flight 173 on approach to Portland, Oregon, International Airport (KPDX). The arriving McDonnell Douglas DC-8 did not provide a clear indication that the landing gear was



The pilots of Eastern Air Lines Flight 401 prioritized systems repair over flying the airplane before crashing into the Everglades

down. The captain consulted with his flight crew and all available company resources on the ground. He concluded that the gear was probably extended, but he wanted to make sure the cabin crew had enough time to prepare the passengers for a possible gear collapse upon landing.

Meanwhile, the F/O became concerned with the aircraft's low fuel state and spoke up a few times, expressing his apprehension to the captain. However, the captain did not share concern about the decreasing fuel and returned his attention to consulting with company maintenance resources and the cabin crew. He remained worried about rushing the cabin preparation, saying at one point, "I'm not gonna hurry the girls."

Nearly 1 hr. after first discovering the problem, the aircraft ran out of fuel and crashed. Of the 197 persons on board, 12 were killed.

In both of these landing gear incidents, the pilots thought they had time on their side because they were so near to their destinations. They forgot that airplane time is paid for with fuel.

Time and keeping track of time is part and parcel to flying your airplane. With a cabin fire, we now know time is fleeting. But back in 1998 that wasn't the case; most operators believed the imperative to any cabin fire was to fight the fire. On Sept. 2, 1998, Swissair Flight 111, a McDonnell Douglas MD-11, departed JFK for Switzerland's Geneva-Cointrin Airport (LSGG) only to have an arcing power cable cause smoke and fire in cabin insulation near the cockpit.

In less than 6 min. the pilot decided to return to Boston-Logan International Airport (KBOS) to facilitate passenger handling. But the Massachusetts airport was 30 min. away. As the situation deteriorated, the air traffic controller

offered and the pilot accepted vectors to Halifax Stanfield International Airport, Halifax, Canada (CYHZ), which was considerably closer.

But as they neared the airport, the crew indicated they would need more time to run checklists and then to get approval to dump fuel. Fifteen minutes after first detecting the smoke, the aircraft crashed into the Atlantic Ocean.

In its investigation, the Transportation Safety Board of Canada concluded that even if the crew had commenced an immediate diversion to Halifax as soon as they knew they had a problem, they would not have been able to maintain control to make a safe landing. According to the common practices of the time, the crew acted prudently. But given what we know about cabin fires today, at the first sign of trouble the crew should have pointed the airplane to the first landable surface, flown as fast as possible, and landed overweight.

Reviewing each of these accidents with the benefit of hindsight involves a great deal of second-guessing, and I am

certainly guilty of "Monday morning quarterbacking." The point, however, is to understand that we pilots must never forget to fly the airplane first, to make our decisions based on the safety of the airplane and not the pressure brought to bear by outside forces. Taking care of the crew and passengers begins with taking care of the airplane.

Who's Flying the Airplane?

Over my Air Force career, I flew formation in four aircraft types and found "form" to be one of the most rewarding things we did in military aviation. But in each case, the risk was not taken lightly; the formation was advantageous to the operation. The same can be said of any act of aviation. There is a reason you have been entrusted with harnessing tens of thousands of pounds of thrust during a takeoff that could require split-second decision-making if something goes wrong. There is a reason you are the one manipulating the controls of a high-speed aircraft approaching a slab of asphalt with a load of passengers oblivious to the dangers you are so skillfully avoiding.

After you become comfortable defying gravity for a living, you might let your guard down to these risks because you've successfully defied them for so long. But you can never become complacent to the risks. You should always remember the basic pilot skills needed to keep things under control. You cannot cede control of an aircraft you have been charged with flying, and you cannot become blind to committee-think when CRM attempts to take over. It is up to you to never become a passenger in Row 1 of any aircraft. You are, after all, the pilot. **BCA**

The last lesson in U.S. Air Force pilot training and every lesson that follows is the same: "Fly the airplane!"

