

CALLBACK

From NASA's Aviation Safety Reporting System



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Fly the Airplane!

In all phases of flight, the first and foremost responsibility of the pilot, in any type of aircraft, is to fly the airplane. When there is a distraction or a temptation to fixate on an abnormal situation or an emergency, flying the airplane has to be the first consideration.

In each of the following ASRS reports, the enduring wisdom of the admonishment, fly the airplane, was reinforced.

Fly the airplane, everything else is secondary.

Airline Loops

Flying the airplane can be thought of as making the aircraft do what you want it to do. Whether that is accomplished by direct manipulation of the controls or through data input to an electronic system that manipulates the controls, the pilot is still responsible for ensuring that the airplane goes where he or she intends.

These three ASRS reports point out what can happen when pilots get out of the loop and relinquish command responsibility to the autoflight system.

■ We were given a clearance to cross 50 miles southwest of the VOR at FL200.... After double checking that I had properly placed the crossing restriction in the FMC (Flight Management Computer), the system displayed an immediate descent prompt.... I selected this option and observed on the flight mode annunciator that a descent was indicated and an altitude (20,000) was armed for capture.... I focused my attention on the FMC to adjust the descent rate and to observe the distance to the bottom of the descent point. The Captain then said, "What's going on?" I observed that the aircraft had entered a subtle climb, seemingly on its own accord. While arresting the climb, our altitude peaked at 400 feet above our assigned cruise altitude.... The automation took me, the pilot flying, out of the loop as I relied on the aircraft to execute the descent without monitoring the aircraft's initial entry into the descent....

We have to remember that no matter how much automation there is, the basics still apply. **Fly the aircraft** from the moment it leaves the gate until it is parked once again at the gate. Don't become passive and let the aircraft fly you. The more automation there is in the aircraft, the more the flight crew should work to remain an active and integral part of the loop.

■ I was the pilot flying. We were inbound at FL330. We were given clearance to cross 65 miles northwest of INTXN at FL230. I set 23,000 feet in the altitude window. The Captain worked the FMC. We were direct INTXN with several abeam fixes preceding INTXN on the FMC Legs page. The aircraft was in VNAV (Vertical Navigation)

path. The Captain created the INTXN/-65/230 fix and shortly thereafter, the aircraft started a descent. When Center called to confirm our clearance, we were passing FL260 approaching the 65 mile fix. We were well above our crossing restriction....

One of the factors in this error was automation complacency. The FMC does such a great job of flying the aircraft that normally you "set it and forget it." I usually check and double check the automation. And, in this case, manually compute the descent rate, speeds, progress, etc., to ensure meeting the crossing restriction. But today, distractions and fatigue led to poor prioritizing and getting out of the loop. The lesson is to reemphasize the critical need to set correct priorities, to overcome the distractions, and always **fly the aircraft**

■ While flying [an] arrival...[procedure], we were issued holding instructions. The holding data was entered in the FMC and the airplane was slowed prior to arriving at the holding fix. As we entered the holding pattern, I was about to report to ATC when we received a call from the flight attendant. Although this call turned out to be routine, it came across as an emergency call from the cabin.... At this point, the Captain called my attention to a vibration on the airplane. After a brief moment of investigation, we discovered that the source of the vibration was a loss of airspeed, which, when combined with the bank angle of the aircraft, resulted in a stall and a subsequent loss of altitude (approximately 500 feet). We tried to get a lower altitude from ATC, but they were unable to accommodate the request due to other traffic holding below us. Once recovery was complete, we returned immediately to our assigned altitude. The distraction, although momentary, diverted attention from the task at hand. In hindsight it would have been prudent to emphasize to the Captain the need for him to **fly the airplane**, before I got out of the loop with a call that we thought was of an emergency nature. I'm not positive this would have prevented our situation, but it may have been a good reminder of the priority of our tasks.

From the Captain's report on the same incident:

We were busy as we entered the holding pattern, so I decided to enter a "ballpark" holding speed versus looking one up. The ballpark speed (Vref +20) works in most situations, but not this one. Lesson learned— **fly the airplane**

Private Lessons

Forgetting to **fly the airplane** is not a problem restricted to air carrier pilots using sophisticated autoflight systems. In the following reports, unexpected events distracted pilots from flying a BE35, a Mooney, and a C172 respectively.

■ I was on an IFR flight...when the cabin door opened about two inches, the passenger shoulder harness flew out, and the buckle began banging against the rear window. I attempted to retrieve the harness and close the door. When I turned back to the controls, the airplane was in an unusual attitude and 2,000 feet below the assigned

ASRS Alerts Issued in December 2005

Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	9
Airport facility or procedure	3
ATC procedure or equipment	5
Company policy or maintenance procedure	2
Total	19

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Air Carrier / Air Taxi Pilots	2357
General Aviation Pilots	669
Controllers	76
Cabin/Mechanics/Military/Other	111
TOTAL	3213

altitude. I recovered and proceeded to [destination] uneventfully. I learned a number of lessons, but most importantly, **fly the airplane first!**

■ I departed on an IFR flight plan and was cleared on course to 6,000 feet (final altitude). I leveled at 6,000 feet, and completed the post climb/cruise checklist when the Master Caution illuminated. The caution panel indicated a low voltage alarm then the alarm cleared and the ammeter was normal. Approximately three minutes later, the symptoms reappeared and remained. I was in visual conditions. I contacted ATC and advised that I needed to return to the airport immediately. I decided to declare an emergency. ATC responded with a clearance from present position direct. I turned the heading bug to the new heading...and began the emergency checklist. At some point, I inadvertently disengaged altitude hold and allowed the aircraft to descend to 5,000 feet. I didn't notice it until approach control inquired about my altitude, then cleared me to maintain 5,000 feet. I was cleared for the VOR approach which was uneventful.

Basically, the reason for this report is that I failed to do what I drill into my students—**fly the airplane...** first, last, and always. I was engrossed in the checklist and didn't notice altitude hold was no longer engaged until ATC questioned me. I devoted undue attention to a (relatively) minor problem to the exclusion of commanding the flight.

■ We were on the Localizer 15 approach...with an 800 foot ceiling. Approach control cleared us for the approach, but did not hand us off to the tower. I became distracted trying to raise approach on the radio and then trying to call the tower directly. I focused on the radio and forgot to monitor my altitude. My safety pilot finally pointed out that I was at 400 feet (about 150 feet below the MDA) and descending rapidly. Fortunately, we had broken out of the clouds and had the field in sight, so I immediately climbed to a safe altitude and completed the approach and landing. If there hadn't been a second pilot aboard to monitor the approach, I might have flown a perfectly good airplane right into the ground. I forgot a fundamental rule of instrument flying: first you aviate (you **fly the airplane**), then you navigate. Only then do you try to communicate. I allowed myself to get distracted over something that was not important. I should have either continued the approach, treating it as a "lost comm." situation, or better yet, asked the second pilot to try to straighten out the handoff with approach. Not only did I become distracted, but I also failed to use all the resources at my disposal. I hope I learned a lesson today because I'm lucky to be alive!

Corporate Climb

Confronted with multiple system failure messages, this G5 crew forgot lesson one, **fly the airplane**.

■ I was the First Officer, pilot not flying, on an IFR repositioning flight. We were talking with...Center and...as we passed through FL180 and changed our altimeters to 29.92, we began getting failure messages on our message screen. The first message was ADC #1 Fail followed by numerous other messages which were appearing and then clearing. While trying to interpret what was happening and determine what data was

accurate, we climbed through our assigned FL190. [Center] called us and asked our altitude. We reported FL228 where we had arrested the climb. We advised them of our problem and asked for an immediate return to ZZZ.... We were still unsure of the reliability of our instruments and compared them with our standby instruments until landing to ensure accuracy. We also made approach control aware of our situation and had them monitor our ground path and altitude readouts. Failure messages were appearing and going away so rapidly during the episode that we were unable to determine what the main problem was. We had as many as ten failure messages at a time appearing. Failure to level at FL190 was caused by failure of the autoflight system complicated by the multiple other failures. Lesson learned—**fly the airplane first**.

Military Attention

A C-141 flight crew recommends that pilots should prioritize their tasks, but always put one item at the top of the list... **fly the airplane**.

■ Situation: We were flying a C-141 on a one-time ferry flight with...numerous maintenance discrepancies.... We had the terrain warning system circuit breaker pulled for erroneous and continuous "Pull up" warnings. Since this circuit breaker was pulled, most of our aural warnings in the aircraft were inoperative, including the altitude "beeps" of 1,000 feet and 300 feet below or above the pre-selected altitude.... While we were passing 10,000 feet, in the climb to 12,000 feet, we were trying to restore the #1 Display unit, as well as the Moving Map display on the pilot's side, when we received a "Traffic" aural advisory from our TCASII. Our attention was diverted to the Multi-Function Display unit which displays the traffic symbols. We decreased the range on the unit, in order to better see exactly where the traffic was in relation to our aircraft. Then we noticed we had climbed through our assigned altitude of 12,000 feet and were near 13,000 before we started back down. Center called out traffic at our 10 o'clock position, while we were in the descent....

Recommendation: Remember that **flying the airplane** is the first priority no matter what else is happening.

Meet the Staff



Captain Dave "Sherlock" Austin joined the staff of the Aviation Safety Reporting System in 2004 as an Aviation Safety Analyst. After serving as a Naval Aviator, Dave was an air carrier pilot for 28 years. Captain Austin has accumulated more than 15,000 flight hours in a wide variety of

aircraft including the A-330, B-767, B-757, B-737, MD-80, DC-9, P-3, and P2V.

From 1995 to 2000 Dave completed a Master's Thesis (with research at NASA Ames Research Center) on a formal methodology for examining human actions in an active complex machine system. He also provided operational airline experience and consulted on various NASA projects before joining the ASRS team.