

CALLBACK

From NASA's Aviation Safety Reporting System



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Back to the Basics



Many aviation accidents and incidents are the direct result of not using basic skills and procedures learned as a student pilot. Just as in many athletic activities, flying proficiency is dependent upon mastering a core set of basic skills. It is only after

these fundamentals become second nature that the finer points can be addressed. But professionals also recognize that the basics are more than a foundation for greater proficiency. In aviation, where the consequences of neglecting the basics can be severe, these fundamental principles must be incorporated as ongoing, integral aspects of the profession.

In sports, the losing coach's lament, "We need to get back to basics and focus on the fundamentals," is heard so often that it has become a cliché. As the following ASRS reports show, the same sentiment is also expressed in aviation.

Preflight Basics

A thorough preflight is fundamental to a safe and successful flight. As this E145 Captain found, a thorough (and persistent) preflight can save the day when another member of the team forgets the basics.

■ *On preflight... there was something visible in the left logo light area. We requested maintenance to check it out. Maintenance told us that there was nothing wrong, that it was just the logo light housing. I have done numerous preflights and had never seen this before. I demanded that a lift be used to inspect the area. A maintenance technician and I went to the top of the tail where we found a bucking bar used for riveting. Who knows how long this tool was there. If it got lodged in the control cables, a fatal accident could have occurred. The tool could have been left there from manufacturing, but I doubt it. There were no identifying marks on it. Our maintenance and quality assurance people need to be a little more careful. Keeping track of tools is basic.*

Start Basics

The pilot of this C182 learned the hard way that there is a basic principle that should be followed when starting any aircraft: *No aircraft engine should be started or allowed to run unless a competent operator is at the controls.*

■ *...The engine would not turn over. The prop was probably up against the compression/power stroke and either a weak battery or starter was unable to move it "over the hump." This had happened before, so I turned off the ignition, battery, and alternator switches and got out to hand pull the prop through.... When I pulled it, I heard the engine fire up. I jumped and ran from the prop before it could hit me. The plane began to move forward. I ran around to get in and shut it down, but the door had blown closed. I was unable to open the latch while running and holding the strut. I finally fell down and did a flip on the tarmac. The plane moved across the airport about a half-mile to the airport boundary.... There was a drop-off along the fence line... where the nose dug in. The airport manager was jumping in his truck as I ran up, so we followed the plane until it stopped. The ditch had about a foot of water in it. I waded out, got in to ensure the switches were off and turned the fuel tank selector off....*

I had not set the parking brake nor chocked the plane. The throttle was cracked for start.... Don't trust the ignition to be off just because the switch is in the OFF position. More obviously, set the parking brake prior to a "pull through" as well as before start. Basic stuff.

Of course the pilot did not expect the aircraft to start while he was out of the cockpit, which is why it pays to always follow basic prop procedures: *Before moving a propeller, ensure that the mixture is at idle cutoff, the magnetos are off, the key is removed, the master switch is in the off position, the parking brake is set, and the aircraft is chocked.*

Taxi Basics

Although technological advances introduce new procedures, most of the basic principles of aviation remain the same. As this CL65 crew learned, those quaint old basics that applied to 20th century flying machines and airmen still apply in the 21st century.

■ *The Captain was the pilot flying. We were cleared by Ground Control to taxi from Gate 1 to Runway 20. I reviewed the airport diagram, advised the captain of the taxi route, and then proceeded to input takeoff data in the FMS. The next thing I heard was ground calling for us to, "Stop right there." I looked up and saw that we were headed to Runway 14 and were about to cross Runway 20 at Taxiway D. We should have been on Taxiway N. Fortunately, there were no other aircraft around.... We turned the aircraft around then used the correct taxiway. The Captain had not been here recently (neither had I), but it really isn't that complicated. I was pretty busy with my head down loading data into the FMS (no excuse). But for a very alert ground controller, we would have taxied across an active runway.... Things get pretty busy in 21st century aircraft, but you still need to pay attention to the basics- what you are doing, and where you are going!*

ASRS Alerts Issued in April 2005	
Subject of Alert	No. of Alerts
Aircraft or aircraft equipment	5
Airport facility or procedure	1
ATC procedure or equipment	4
Chart or Publication	1
Total	11

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April 2005 Report Intake	
Air Carrier / Air Taxi Pilots	2517
General Aviation Pilots	849
Controllers	39
Cabin/Mechanics/Military/Other	144
TOTAL	3549

Takeoff Basics

This C310 pilot's experience shows just how easy it is to let a preconceived notion and a bit of complacency interfere with basic operating procedures.

■ *I landed on Runway 1...dropped someone off, and immediately called the tower to say that I was departing again. I was expecting Runway 1 and began taxiing toward the end of the ramp. The tower gave me taxi instructions which I read back (still mentally fixated on Runway 1). Although I read back the taxi instructions, I didn't really listen to them.... As I approached Taxiway A (which was on the way to Runway 1).... The controller said to stop right there and hold short of Runway 25, which I did.... The controller then said, "Cleared to depart Runway 25 at Taxiway A." I was mentally sorting out my confusion... saw that a left turn onto the runway was aligned with my landing on Runway 1, proceeded to turn left onto Runway 7, and departed. Once airborne, the controller informed me that I took off from the wrong runway. This is the second time I've noticed that I "let my guard down" on the Part 91 leg of a Part 135 day. This incident has reinforced my efforts to "get back to the basics," the same basics that I learned as a private pilot and the same basics that should apply no matter who you are, what your level of ratings, experience, or the immediacy of the mission.*

Departure Basics

In the following report, two pilots allowed training environment distractions to cause their departure from the basics.

■ *During departure, my student did not level off below the overlying...Class B airspace and I did not catch it. At 4,300 feet MSL, the tower said, "Maintain clear of Class B." We descended back down below 4,000 feet immediately.*

I was paying attention to my student's handling of the aircraft. I did not remember that we were under the...Class B, which I know begins at 4,000 feet MSL. My student knows this also since he is based there....

In the training environment, we must both pay attention to the basics!

Enroute Basics

This multi-tasking helicopter pilot demonstrated that, no matter what the mission, the number one priority has to be accomplishing everything related to safely flying the aircraft.

■ *...After landing I began to think about the [clearance] the controller had given me.... I think he may have said that he needed me at 500 feet while enroute for passing*

under the Runway 33 approach course. If that was true, I should have descended to 500 feet and then proceeded on course. The bottom line is, I should have known exactly what he wanted, but I did not. I believe that I made a mistake in not giving 100% attention to the ATC instructions. When flying a multi-task job, i.e. [media], EMS, power line [patrol], lift work, etc., there can be many distractions from the customer that have little or nothing to do with the immediate job of flying the aircraft. In the future, I will lock out the [company] radios while receiving a clearance or ATC instructions.... I am going back to the basics- first the aircraft and ATC, then I'll take care of any company business.

Approach Basics

In what seems like a rather extreme case of failure to learn fundamental phraseology, this Air Traffic Controller points out the need for flight instructors to cover all of the basics before releasing a student for solo flight.

■ *I was working local control and ground control. I had a line of arrivals on Runway 9, and a C172 approaching Runway 36. The air carrier that was number one for Runway 9 did not accept LAHSO (Land and Hold Short) clearances, so I instructed the C172 to make a low approach at or above 500 feet. He asked me to repeat. I did, and he said, "Roger." The C172 then landed and held short of Runway 9. The pilot called the tower and said that he did not know what a low approach was. The air carrier aircraft did not comment about the C172 landing on an intersecting runway. It seems to me that students are released too soon before they fully learn the basics.*

Landing Basics

Another instructor and student duo teams up to drive home the point that distractions are a common hazard in the training environment.

■ *I was teaching a student pilot night landings. We were on a visual approach and cleared to land on Runway 7. We were having a difficult time finding and identifying the airport because of all the city lights and didn't see the runway until we were only two miles out. We began a quick descent and set up for landing Because we got a late start on the approach and because I was distracted with instructing a student, I did not realize we were landing on the wrong runway.... Had this happened during a busy time, it could have been a dangerous situation. This was definitely a wake-up call for me. It's time to get back to basics. I am ultimately responsible for what happens in the airplane and I must always be completely aware of where I am and what is going on.*