

CALLBACK

From NASA's Aviation Safety Reporting System



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GPS Goofs

In recent years, handheld Global Positioning System (GPS) units have become more affordable and more widely used. Many General Aviation (GA) pilots, in particular, find handheld GPS units a convenient supplement to other navigation methods. Mechanical problems with GPS are infrequent; a more common problem reported to ASRS is that old bogy—operator error. A GA reporter illustrates:

■ *I descended through a hole in the broken layer thinking I was 5 statute miles from [the airport] based on my GPS and DME. It appears I might have been inside the airport's Class D airspace. Trying to familiarize oneself with a new handheld moving map GPS while flying in a broken cloud layer environment and cross-checking with VORs and GPS is not a bright thing to do. Next time, it will be in severe clear and with a second pilot onboard.*

Our reporter offers good advice for future GPS familiarization flights. Another GA pilot relied only on the GPS to maintain positional awareness, and found the information deceiving:

■ *While watching my progress on the GPS moving map, at approximately one mile from XYZ intersection, it appeared I would be clear of the Class B airspace by the time I reached 3,000 feet. [However] I reached 3,000 feet*

prior to clearing Class B, and was informed to remain clear by ATC. I believe the automatically-sequenced map scale was a contributing factor, as it was set on a high mileage scale, which compressed the locations of XYZ intersection, the Class B airspace, and my position.

Appropriate cross-checking with other navigational aids might also have prevented this pilot's unauthorized penetration of Class B airspace.

Dead Batteries...and Reckoning

In an effort to get back to his home base, our next reporter passed up a perfectly good VFR airport en route, and then the problems really started to pile up:

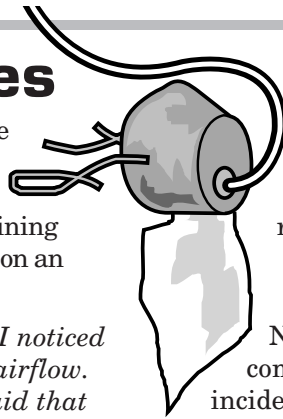
■ *Halfway [to my destination], the GPS batteries failed, ceiling and visibility lowered, I lost radio contact with Approach because of my low altitude, and was unsure of my position. I finally found [my destination] by dead reckoning. I made a poor decision not to land at [an intermediate point], where I could have plotted a course by VOR navigation and changed GPS batteries which I knew were low.*

Never fully depend on handheld GPS for position, and keep fresh batteries installed. ▲

Cabin Crew Priorities

In spite of what some passengers may believe, the cabin crew's primary duty is to ensure passenger safety. This duty becomes obvious during an aircraft emergency, when the crew's skills and training come to the fore, as described in this report to ASRS on an emergency descent and landing:

■ *I was seated in the aft part of the aircraft and I noticed some unusual changes in cabin temperature and airflow. Another Flight Attendant came to the back and said that she had been in the cockpit and the pilots seemed to be having some problem. I could tell we were descending. About this time, the Captain made a PA [Public Address] announcement stating that we were having a pressurization problem and that we might have to use the oxygen masks. He also asked passengers to make sure their seatbelts were fastened. I made my way to the front, checking seatbelt compliance. At this point, we seemed to be descending rapidly...[and] the oxygen masks deployed throughout the aircraft. I donned a mask...and slowly worked my way to the back, checking on passengers. All passengers seemed to get their masks on with no problems. The Lead Flight Attendant made the required PA*



announcement per our procedures. Our Flight Attendant procedures seemed to work well.

Flight Attendants receive extensive initial and recurrent safety training just so that all emergency procedures go as smoothly as the ones in this incident did.

Next, cool heads and good crew communications combined to bring an emergency return-to-land incident to a textbook conclusion, as described in this report from a Flight Attendant:

■ *On takeoff roll, multiple loud thumps (explosions) were heard when the left gear inside tire blew and made an incision into the wing, then entered the engine. We contacted the Captain and gave him as much information as possible. He informed us we were going to return to make an emergency landing, and we did so without incident.*

Since the cabin crew provided the Captain with a thorough assessment of the damage, none of the flight crew needed to leave the cockpit to survey the damage personally. All three flight crew members were able to remain in the cockpit and concentrate on preparing for the emergency landing. ▲

ASRS Recently Issued Alerts On...

Recurring harmonic vibrations in E145s
Model aircraft activity near a New York airport
SF34 engine failure attributed to a leaking oil seal
Two incidents of false door latch warnings on CARJs
False transponder signals from an on-airport aircraft factory

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February 1999 Report Intake

Air Carrier/Air Taxi Pilots	1864
General Aviation Pilots	592
Controllers	52
Cabin/Mechanics/Military/Other	158
TOTAL	2666

Conditional Clearance Confusion

U.S. Air Traffic controllers generally avoid attaching conditions to their taxi instructions. However, “conditional clearances,” in which the pilot’s compliance with an instruction is dependent on the completion of an action by an arriving or departing aircraft, are common at many foreign airports. A pilot’s lack of familiarity with conditional clearances can lead to runway transgressions and other problems, as evidenced by this report to ASRS from a military transport pilot flying in a foreign country.

■ *The clearance as we perceived it was “cleared onto the runway to wait following air carrier X” (air carrier X being the one that was beginning its takeoff roll). Traffic on a 5-8 mile final was observed, but the thought was that we would receive an immediate takeoff and we read back the clearance as we heard it. Upon seeing the aircraft in front commence his departure turn, we queried Tower for takeoff clearance. At that time, he informed us that we had been “cleared [onto the runway] following the landing traffic.” He sent the landing traffic around.*

We are not accustomed to the...conditional clearance and had not given forethought to the hazards involved.

In another incident at a foreign airport, the First Officer of a widebody jet reported a similar misunderstanding of a controller’s conditional clearance.

■ *We were holding short of the runway. Two other heavy jets had just taken off with very tight departure spacing.*

As soon as the jet before us was airborne, both my Captain and I understood the Tower Controller to say, “Traffic on a 3-1/2 mile final, line up Runway 8.” I specifically read back: “Cleared to line up Runway 8,” with no mention of a conditional clearance. I looked again and saw the final approach traffic about three miles out. I thought there was ample spacing for our takeoff between the departing and arriving traffic, and expected Tower to clear us for takeoff as we taxied into position. About one minute later, the Tower told the aircraft on final approach to go around, and told us that he had cleared us to line up on Runway 8 after the final approach traffic had landed.

A final report illustrates how a conditional clearance can be implied in the phraseology of a controller.

■ *We were cleared by the Tower, “Line up and wait, air carrier Y on three mile final.” We responded, “Roger, line up and wait.” We taxied into position and hold, at which time we noticed the jet on final. Tower then instructed air carrier Y to go around. Tower told us after the go-around that he had told us, “Line up and wait, after the air carrier on a three mile final.”*

Unless the specific conditions of a clearance are explicit and unambiguous, pilots need to query the controller for clarification or for additional information as soon as possible following issuance of the clearance. ▲

Ahoy, Maties!

The Captain of a DeHaviland Dash 8 on approach into an East Coast airport reports a different sort of “conditional clearance”:

■ *We had briefed for the ILS approach. We were tracking inbound on the localizer and Approach Control kept us high (above glideslope) before clearance for the approach. I elected to fly the approach manually to facilitate intercepting the glideslope from above. We contacted the Tower at the Final Approach Fix [FAF]. Not long after the FAF, I heard the Tower issue a caution to the aircraft ahead of us that there was a ship in the channel with a height of 150 feet. The Tower Controller then issued the same “Caution, ship in channel, 150 feet in height” to us. At this point we were over halfway between the FAF and the runway. While concentrating on flying the approach, in the back of my mind I was trying to consider the significance of the caution. We continued the approach and made contact with the approach lights just above the normal decision altitude [DA] (218 feet). After landing...we looked over the approach*

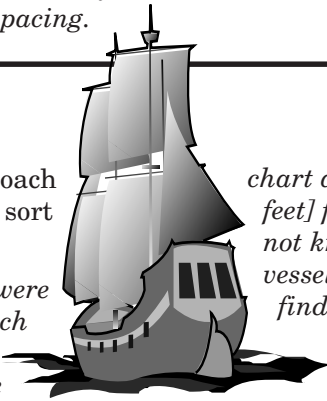


chart and realized the “conditional DA” [359 feet] for tall vessels may have applied. I did not know what height constitutes a “tall vessel.” It is not written anywhere that I could find. I asked Clearance Delivery and they did not know, but they checked and told us it was 85 feet or higher. Oops!

We were clearly remiss in not catching the “conditional” DA during the briefing, but there were several issues that “set the trap” for us. First, there was no mention of ships in the channel until we were well inside the FAF. Second, the Controller did not use the terminology “tall vessels,” which gave us an ambiguous caution message.

The reporter recommends that ATC use the phraseology, “Tall vessels in approach area,” which is the wording found on both NOS and commercial approach plates. This terminology would likely have triggered recognition among the flight crew that the higher, “conditional” decision altitude was required. ▲