

CALLBACK

From NASA's Aviation Safety Reporting System



Issue 406

November 2013

FLT 4223,
Line up
and wait



Expectation Bias



FLT 4233,
Line up
and wait

An expectation of what we think will happen has a tendency to alter what we subsequently observe or hear. This *expectation bias* is often exacerbated by *confirmation bias*, i.e., being focused on information that confirms one's interpretation of a situation while giving less weight to that which contradicts it. The following ASRS reports show how mistakes can be made when Pilots and Controllers are carried along by familiar cues, slip into habit patterns, and become less aware of changes to what is "expected."

"I Absolutely...Heard Our Callsign"

Circumstances confirmed this CRJ900 crew's expectations to the point where the First Officer "absolutely" believed that their callsign was given with a takeoff clearance. The Captain, also hearing what he expected to hear, started to taxi across the hold short line before a voice from the Tower raised a red flag.

■ *As we approached the end of the runway, an air carrier flight in front of us was cleared for takeoff. We pulled up to the hold short line and stopped. We were the only aircraft in the Number One position at the end of the runway. There was nobody across the runway waiting to depart from the east side. It was just us and a few aircraft behind us....*

I heard Tower clear us to, "Line up and wait" and I read back the clearance on the Tower's frequency. The Captain called for the line-up checklist and started to advance the thrust levers. As the nose of the aircraft crossed the hold short line, somebody transmitted on the Tower frequency, "Who's taking the runway?" This immediately raised a red flag and before I could say anything, the Captain brought the aircraft to an abrupt stop.

We were barely across the hold short line and the Tower said something to the effect of, "Who is Number One at Runway 32?" I replied with our flight number and stated, "You cleared us to line up and wait on 32." The Tower Controller replied, "Actually, I cleared another flight (it was behind us) to line up and wait on 32, but if you're Number One for the runway, line up and wait, Runway 32." We... departed uneventfully.

In retrospect, I can see that expectation bias was clearly in play. I absolutely believed that I heard our call sign

being cleared to line up and wait and did not consider the possibility that the Tower had inadvertently cleared the aircraft behind us to line up and wait. Interestingly, both of us were positive that the clearance was for us, so checking with the other pilot would not have yielded a different result. In the words of the Captain, this was a wake-up call for both of us to ensure we are more alert to all clearances and transmissions. Bottom line, I made a mistake and erroneously responded to another aircraft's clearance.

"There Was No Doubt About Our Clearance"

In a situation very similar to the report above, this B767 Flight Crew's expectations were also affected by the circumstances and possible Controller confusion.

■ *We were Number One for take off and from our vantage point, no other traffic was seen for our runway. We heard and read back "Line up and wait, Runway 26L." The cockpit was orderly and sterile with no distractions. Checklists were completed and when we crossed into position, we were told by Tower that they intended the "line up and wait" for [another aircraft]....*

The confusion occurred, in my opinion, due to expectation bias. We were clearly Number One and we understood that we were cleared into position to line up and wait. We were the only aircraft taxiing toward takeoff that we could see on either side of the departure end of the runway. Until Tower questioned our action, there was no doubt about our clearance....

We believed we heard clearance for our airplane and clearly read back the clearance. There was no blocked transmission; our read back was clear. I am particularly detailed on such clearances and pay attention.... I suspect the other aircraft was not yet on frequency at the time of our read back, so Tower might have interpreted our read back as being from the other aircraft which had a similar call sign.

Familiarity Breeds Expectations

Even after briefing a departure with a specific reminder about maintaining runway heading to an assigned altitude, this Air Carrier Crew was "predisposed" to turn earlier, just as they had on previous departures.

■ *Non-towered airport procedures were reviewed and thoroughly briefed to include the Obstacle Departure Procedure (ODP). The ATC clearance received at the end of the runway stated, "You are released; fly runway heading; maintain 5,000; direct your first NAVAID; as filed; expect FL340 ten minutes after departure; departure frequency...." The First Officer was flying and briefed, "Runway heading to 5,000 feet." The takeoff was uneventful with a strong crosswind out of the south and significant weather to the east and north. As Pilot Not Flying, I made the final call on CTAF (Common Traffic Advisory Frequency) that we were departing the airport airspace and would be turning west.*

I contacted Center as the First Officer entered a right bank at 2,100 feet MSL to proceed on course. Center immediately answered my check-in and asked if we were maintaining runway heading. We had turned approximately 30 degrees right and I directed the First Officer to turn immediately back to 090 degrees. I told Center we were executing the ODP and turning back to runway heading. He replied, "OK" and said we could maintain current heading which by then was back to runway heading. About 30 seconds later Center said "Radar Contact" and gave us a right turn direct, as filed....

For me, I was predisposed for the right turn on course after the ODP since that was the standard clearance we received from Departure Control on my two previous departures. So even though we had just briefed "Runway heading to 5,000 feet" per our clearance, once airborne at the minimum turn altitude for the ODP, I expected a right turn. When the Pilot Flying turned right, it didn't flag as an error like it should have.

The clearance was copied, appropriately briefed and two folks let "the standard" occur when "non-standard" was the clearance. Don't allow familiarity with a situation to set "expectation bias."

"Routine Is Never Routine"

This CRJ200 Flight Crew's expectations were influenced by a "mindset" that had both of them focusing on information that supported their expectations. The Captain's report offers another example of how easy it is for both crewmembers to succumb to expectation bias and lose the benefit of one being an "unbiased" check on the other.

■ *After engine start and the After-Start flow we called for taxi. We were given the clearance, "Taxi to Runway 26 via Taxiway A to E; cleared to cross Runway 35." I believe the First Officer read the clearance back as given. [But] we then taxied onto Taxiway A towards Runway 35 and 26 and Taxiway E. During taxi, we briefed for a Runway 35 departure. We both visually cleared Runway 26/8 before*

crossing the wrong runway and continued to taxi on Taxiway A to the Runway 35 hold-short line. While holding short of Runway 35, Ground called and said we had been cleared to taxi to Runway 26 and to cross Runway 35. It was then that we realized we had taxied to the wrong runway and crossed the wrong runway.

The primary problem was a mindset that we had landed on Runway 35 and therefore we would expect to depart on Runway 35. This was further reinforced with other airline traffic that subsequently used Runway 35 for takeoff and landing during our turnaround. I had expected Runway 35 via Taxiway A and to cross Runway 26. So, when the clearance was Taxiway A and E, I assumed Taxiway Echo was the short turn near the end of Runway 35. I also expected to cross a runway enroute to 35, so once again things seemed right in my mind.

I have to remind myself that routine is never routine. Just because you expect something doesn't mean that's what you will get regardless of what other traffic is doing. Stay on task; stay focused and pay attention. Verify runway crossings when the taxi is long; limit distractions from nonessential conversation.

"I Heard What I Was Expecting to Hear"

It would seem improbable for someone to hear "right" when he or she is told, "left," but the Pilot of a corporate jet heard what was expected, not what was said, and made a wrong turn. The incident is a clear lesson in the power of expectation bias to influence what we hear.

■ *I departed on Runway 7 and climbed on runway heading on Tower frequency.... During the climb, I was given instructions to, "Turn (left) heading 360" along with a frequency change. I was expecting a right turn when I heard the clearance... I commenced a right turn. This was a great example of how expectations can affect us. I heard what I had been expecting to hear and not what was said. With the close proximity of [another] airfield which was departing to the west, I was anticipating a right turn back over the airport on departure. I am convinced this played a role in my believing that I had heard the command for a right turn. I made the frequency change and the new Controller issued an immediate left turn to course 360. The flight was continued without further incident.*

Perhaps the best advice for avoiding the errors cited in this CALLBACK was given many centuries ago by the Chinese philosopher Lao Tzu, "Act without expectation."

ASRS Alerts Issued in September 2013	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	5
Airport Facility or Procedure	2
ATC Equipment or Procedure	1
Company Policy	1
TOTAL	9

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September 2013 Report Intake	
Air Carrier/Air Taxi Pilots	4,106
General Aviation Pilots	1,171
Controllers	739
Flight Attendants	300
Military/Other	188
Mechanics	169
Dispatchers	120
TOTAL	6,793