



BILL CASTLEN

It Can Happen to *Anyone*

Lessons Learned from a Runway Incursion

The following story is inconceivable to me, but unfortunately, it is true. The short story is that I crossed a hold short line at Atlanta's Hartsfield-Jackson Airport — the busiest airport in the world — without a clearance. How could this have possibly happened? I am a well-experienced instrument airplane flight instructor. I was well equipped with charts, avionics, and knowledge of the environment. I am oh-so-sensitive and careful in teaching my clients not to get in a hurry. I tell clients that when you start to feel rushed, you had best recognize it as a yellow flag and perhaps a red flag with respect to safe operations. So, how could this have possibly happened?

*Atlanta Hartsfield-Jackson
International Airport*

Photo courtesy of ATO

This story includes irony upon irony. I love to fly and I enjoy teaching flying and safe operations. Thus, I have a lot of fun doing what I do. I am an FAA Safety Team Representative, so I produce and present safety seminars under the auspices of the Birmingham FAA Flight Standards District Office. When the Society of Aviation and Flight Educators (SAFE) organized a symposium on the topic, "Securing the Future of General Aviation through Pilot Training Reform" to be held near KATL, I registered to attend and volunteered to assist. Because the symposium hotel is almost within walking distance of Atlanta's GA FBO, I decided to fly into ATL and save the cost of a rental car and have the fun of experiencing ATL activity.

Flying with the Big Guys

I started preparing for the trip several days in advance by reviewing the STARs, the IAPs, the DPs, and especially the airport diagram. I paid special attention to the latter and even used a yellow marker to highlight the four airport hot spots (HS) and I knew that I would certainly be taxiing through HS 1 and perhaps HS 2 and HS 4 also (see Fig. 1).

My arrival on Tuesday, May 3, was in visual meteorological conditions (VMC) and was totally not noteworthy to all, except me in the cockpit of a Cirrus SR-22. I was pumped! I quickly responded to all instructions from Atlanta Approach, followed them to the letter and then was handed off to Tower as I was turning final on the ILS 26R behind a B-737. I was cleared to land and cautioned for wake turbulence. I stayed precisely one dot high on the glideslope to avoid the 737's turbulence, kept my speed up until just short of the runway, touched down a little beyond the glideslope touchdown point, used light braking, turned off at Taxiway Dixie as I had anticipated and Tower had advised, and taxied to the ramp. After I cleared the runway, I looked back to see how close the following traffic was. It was an air carrier jet — I couldn't tell what model from the front — and he was just short of the threshold. I felt really good that I had been able to fit in with all the "Big Dogs" and be a good aviation citizen.

I spent Tuesday evening, Wednesday, Thursday, and Friday morning being a productive helper to all the very significant participants at this conference. By the time I left the hotel, about 10 a.m. on Friday, I again felt that I had succeeded in being a good aviation citizen. I had filed for an 11:15 a.m. departure and arrived at the FBO with plenty of time. I was totally relaxed and refreshed. What could go wrong?

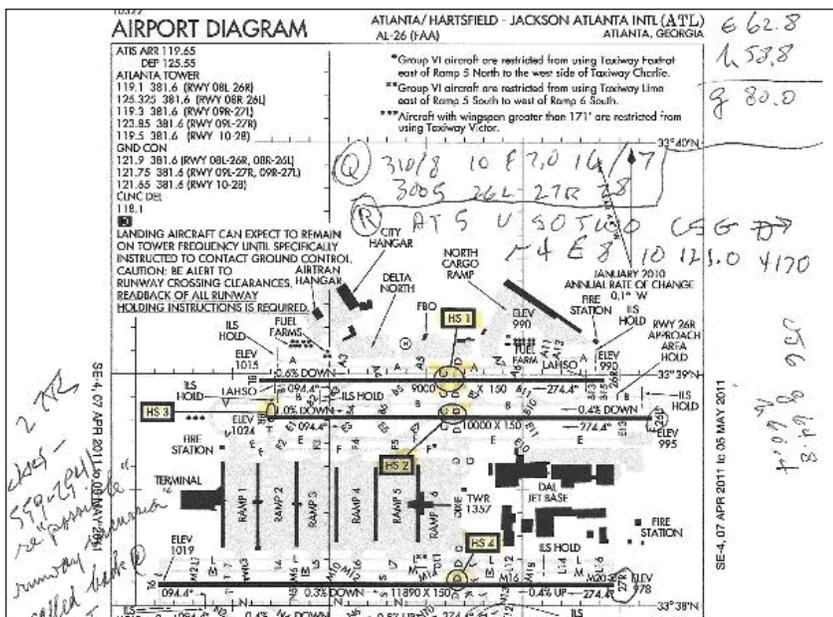


Figure 1. I had made a lot of notes on the Airport Diagram that I had in my lap.

I checked the ATIS: "Information Q, wind 310/8 visibility 10 few at 7,000, temp 16, DP 7, altimeter 3005 departing runways 26L, 27R, and 28 . . ." I called Clearance Delivery and was "cleared to 0J6 via the Atlanta 5 DP, vectors to SOTWO, CSG, direct, climb and maintain 4 expect 8 within 10, Departure on 121.0, squawk 4170." I read it back and then changed to Ground. He cleared me to 27R "via Taxiway Dixie, hold short of Runway 26R." I read that back including the hold short requirement and started moving out of the North Ramp on Dixie. The following is part of what I wrote in the ASRS (Aviation Safety Reporting System) report.

It Only Takes A Moment's Lapse

As I approached 26R, Ground instructed me to monitor Tower on 119.1. I changed to 119.1 and, for some reason, the instruction to change to the tower frequency got translated in my mind as a clearance to cross the runway. I heard the Tower give an air carrier a go-around due to someone on the runway and I immediately knew I had blown the clearance; I did an immediate 180 and crossed back to the north side of the hold short line.

This was an absolutely stupid mental lapse. I had the airport diagram in my lap. I knew exactly where I was; in fact, I had previously used a yellow marker to mark the hot spots (I was at HS 1). I only go into KATL about once every year or so. I know it is a hyper-busy air carrier airport, thus I had thoroughly reviewed the charts before the flight. My goal was to be a good aviation citizen and work smoothly in the system. I was alert and spring loaded to move quickly and not delay the air carrier traffic. That mindset was my downfall. As I approached the hold

short line, I saw the landing traffic and it appeared to me to be quite far out so I half expected the Tower to ask me to expedite across 26R. As I said above, when Ground told me to change to tower frequency, that message somehow got translated in my mind as “cleared to cross.”

Best Practices and Lessons Learned

How could this have possibly happened? And, what have I learned? Although I studied the airport diagram, I did not capture the implicit as well as the explicit information. If I had done so, I would have been prepared for multiple frequency changes on my taxi route. The airport diagram clearly shows a separate tower frequency for each runway and a different ground control frequency for each runway pairing. In my case, that would have meant starting with Ground on 121.9, then Tower on 119.1, then perhaps back to Ground on 121.9 or Tower on 125.32, then perhaps back to Ground on 121.9 or straight to the last Ground on 121.75, and then finally to Tower on 123.85.

In retrospect, it should have been clear to me that each runway crossing would be handled by its own Tower frequency, and thus multiple frequency changes and some amount of pause at each hold short line should have been expected. It would have been easy to write down the sequence of frequencies in the order they might occur in advance—as I just did above. So, I offer the following “score sheet” in Figure 2 for use as an aid in raising awareness on the potential for runway incursions.

If I had used such a score sheet, two things would have happened. First, just filling out the sheet would have led me through a structured approach to internalizing what the taxi situation was likely to be at KATL. Second, my score would have been an 11! (See Fig. 3.)

I could have developed this quantified understanding before I ever left home, and thus would have had a much clearer picture of what to expect during my taxi for departure. Just listing the ground and tower frequencies in the order that I could expect them to be issued would have been a great help in “putting my head in the game.” In my post-event self-critique, I used this score sheet on other airports I go into, both in the Atlanta area and elsewhere with the following results:

PDK: 5; FTY: 2; TPA: 4; TLH: 2; PNS: 3

So, with this metric, the second highest score of the airports I use regularly is less than half that of KATL. Oh, how I wish I had done this analysis prior to leaving home!

I close with a final irony and suggestion. On page 4 of the May/June 2011 issue of *FAA Safety Briefing* there is an article on runway incursions, “If You Cross the Line, You’ve Crossed the Line.” It contains four specific good recommendations, one of which is: “Review procedures for airport surface operations at your local airport and the airports you frequent . . .” I would add that we have a special obligation to review the surface operation procedures at airports that we visit less frequently, and even more so at airports with complex runway and taxiway configurations and multiple radio frequency requirements. As a part of this airport review, I suggest looking at the FAA’s Runway Hot Spot Safety List at www.faa.gov/airports/runway_safety/hotspots/hotspots_list/.

What I did in this incident was contrary to what I teach as a CFI and to the way I have lived and performed in my aviation career. How could this have possibly happened? I will be asking that question for some time... but please learn from my mistake and don’t repeat it! 

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Complexity Factors	Tally
Number of runways to be crossed while taxiing	
Number of charted Hot Spots along taxi route	
Number of Tower/Ground frequency changes expected	
Multipliers	
IMC	
Night	
High airport traffic count	
Unfamiliar airport	
Total	
1 to 2: Low Vulnerability	
3 to 5: Medium Vulnerability	
6 and Greater: High Vulnerability	

Figure 2. A score sheet for systematically evaluating airport complexity.

Complexity Factors	Tally
Number of runways to be crossed while taxiing	2
Number of charted Hot Spots along taxi route	2
Number of Tower/Ground frequency changes expected	5
Multipliers	
IMC	
Night	
High airport traffic count	1
Unfamiliar airport	1
Total	11
1 to 2: Low Vulnerability	
3 to 5: Medium Vulnerability	
6 and Greater: High Vulnerability	X

Figure 3. KATL ground operations are very complex! Duh!