

# CALLBACK



From NASA's Aviation Safety Reporting System

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## ASRS Runway IncurSION Incidents



According to the FAA's Runway Safety Report: September 2007, pilot deviations accounted for 54% of runway incursions that occurred over a four-year period from 2003-2006. During this same period, controller operational errors accounted for 29% of incursions, while vehicle/pedestrian deviations accounted for the remaining 17% of incursions.

A review of recent ASRS runway incursion incidents revealed that some of the following factors may contribute to runway incursion events. These include:

- Low visibility conditions
- Complex airport configuration
- Cockpit management issues
- Non-Tower airport operations

In this month's selection of ASRS reports, we will see how some of these factors play out.

### Low Visibility Conditions

A PA28 student pilot reported that poor lighting, approaching darkness, and low visibility conditions contributed to a runway incursion.

*I was holding short of Runway 12 on taxiway A when ATC directed me to 'Cross Runway 12.' Taxiway A continues for a short distance on the far side of the runway. The area was poorly lit, it was getting dark, there was some ground fog, and the signage was unclear to me that the taxiway continued on the other side of the runway....When I taxied onto the runway I looked and saw the end of the runway which was lit up but I couldn't see the taxiway, so I thought I was to back-taxi to the runway end, which is normally what I do at my home airport. When the controller saw I was on the runway he told the approaching commuter flight to go around and told me to clear the runway. Contributing factors to this incident were my inexperience, confusion, and the fact that I did not ask the controller for clarification prior to back-taxiing....*

At a major international airport, low visibility and weather conditions played a role in an air carrier's runway incursion. More from a Captain's report to the ASRS:

*...We received a clearance to hold short of the new Runway 04L approach hold point. While holding at this point, we observed air carrier Y holding just past the Runway 04L approach hold point on Taxiway J. The crew moved down Taxiway J as instructed and held short of the Runway 14 departure hold short line...At this time ATC cleared our aircraft to hold further down on Taxiway J. We continued down and held abeam the Taxiway J holding bays. The markings on the holding bays were hard to discern because of the lower visibility and fog with drizzle. Ground then requested air carrier Y to turn left and*

*pull forward and onto one of the holding positions. They complied, however, they were too far forward and crossed the Runway 14 hold short line. We keyed up on the radio as soon as possible, 'Air carrier Y, stop moving.' The crew of air carrier Y then discovered their position and started to turn away from Runway 14. ATC then cleared air carrier Y to join Runway 14 and continue their taxi....*

*We believe Ground may either have mistaken our flight's position with the position of air carrier Y, combined with the...wet foggy conditions which made the ground markings (painted type) difficult to see.*

### Complex Airport Configuration

A complex airport configuration with multiple runways in use was a factor in an air carrier's inadvertent penetration of an active runway after landing.

*Landed on Runway 30 after being cleared to land by Tower, I had planned on exiting the Runway 30 at Taxiway K to go to the air carrier ramp. The Pilot Flying (First Officer) landed a little long and we could not make Taxiway K, which is a reverse turn kind of exit. We exited on Runway 34L/K area but in the runway area of Runway 25R. With no place to go, we contacted Ground Control while stopped at runways 34L/25R/30/K area. [Tower] instructed...us that we were on an active runway and an aircraft was going around because of that. I think the aircraft was on an approach to Runway 25, but I am not sure...This airport is very confusing and with multiple runways in use with numerous aircraft types, the potential for unsafe situation is very high with regard to runway incursions.*

*Suggestions: 1) Better brief of planned runway exit after landing. 2) More communication with Tower—planned exit, not just a 'contact Ground when clear.' 3) Be aware of landing traffic on intersecting runways without LAHSO [Land and Hold Short] clearance....*

A controller, preoccupied with runway change operations at an international airport, cleared an aircraft for takeoff on a runway occupied by an airport operations vehicle.

*In the middle of a very difficult...runway change, I, as the Ground Controller, instructed an [airport] vehicle to enter Runway 4L for a runway inspection and to hold short of Runway 31L (intersecting runway). I copied down the airport vehicle number on a blank progress strip, but was so busy I did not put the runway ownership strip next to it like I usually do. I had approximately 20-25 aircraft on the frequency at the time and was making a change from 31's a pair to 4's a pair with an overflow from Runway 31L at an intersection. The Local Controller and I coordinated numerous aircraft crossings...Due to my workload I forgot about the airport vehicle. When Local Control asked for*

#### ASRS Report Intake Is Growing (12 Month Rolling Count)

|                                |              |
|--------------------------------|--------------|
| Air Carrier/Air Taxi Pilots    | 32956        |
| General Aviation Pilots        | 10579        |
| Controllers                    | 1238         |
| Cabin/Mechanics/Military/Other | 3057         |
| <b>TOTAL</b>                   | <b>47830</b> |

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#### April 2008 Report Intake

|                                |             |
|--------------------------------|-------------|
| Air Carrier/Air Taxi Pilots    | 2753        |
| General Aviation Pilots        | 902         |
| Controllers                    | 110         |
| Cabin/Mechanics/Military/Other | 411         |
| <b>TOTAL</b>                   | <b>4176</b> |

ownership of Runway 4L, I assumed that the vehicle was clear (it had been about 15 minutes) and the vehicle never called or prompted me that he was still on the runway. Local Control cleared a B757 for takeoff on Runway 4L, but the B757 had the common sense to realize that there was a vehicle only a couple of thousand feet in front of him on the runway and advised the Tower...

The amount of volume and complexity caused the Ground Controller to not follow his usual routine...The Local Controller scanned the runway prior to issuing takeoff instructions, but a combination of sun glare, filthy shades and dirty windows made it very difficult to see such a small vehicle.

## Cockpit Management Issues

In two-pilot cockpit operations, it's important for each pilot to know his/her role, and for one pilot to keep "eyes outside." When these precepts are ignored, a runway incursion may result. More from an air carrier First Officer's report.

■ *This event occurred because of several reasons. The first being my complacency in studying the airport diagram while trying to complete our lengthy taxi flow. The second being my inexperience...I think that if I had a little more time in the aircraft I would have been done with my flows and checklists and been able to pay more attention to my surroundings....After we had pushed back, we received clearance from Ground Control to 'taxi to Runway 17R.' The Captain proceeded to accelerate the aircraft forward. The intersection of the incident is very near the gate we were parked at, and that combined with my experience level led to us approaching the runway before I had finished my taxi flow. When I looked up to regain orientation on the airport grounds, we were crossing Runway 17R. About 3/4 of the way across I had studied my airport diagram chart and stated to the Captain, 'I don't think we were supposed to cross that runway.' Too little, too late. An aircraft on final approach proceeded to conduct a go-around approximately 20 seconds later. Ground Control promptly advised us of our mistake and gave appropriate taxi instructions to the end of Runway 17R....*

*I...take full responsibility for my incorrect actions that led up to this event. Next time I will make sure not to be so involved that I cannot maintain full awareness of the airport set-up....*

CRM issues and night-time operations were factors in a corporate aircraft's runway incursion.

■ *...I was performing the duties of Pilot Flying of a Lear 35. As First Officer, I was seated in the right seat during a night operation in VFR conditions. The Captain contacted Ground Control and our aircraft was cleared to taxi to Runway 18 via Taxiway C and was instructed to hold short of the intersection of Runway 18. The Captain (who was involved only in reading the taxi checklist) turned off the aircraft taxi lights. This prevented me from seeing the painted runway markings and runway/taxiway sign which was posted to the left side of the aircraft. As I continued to taxi in darkness and recognized the painted runway markings and runway lights, I realized that I had taxied onto the runway. I immediately performed a 180 degree turn to the left and exited the runway back onto the taxiway. The Tower ordered a B727 on a 3-mile final to that runway to go around.*

*This was a failure of CRM. I was not familiar with this airport or the runway and taxiway configuration. In retrospect, I should have requested that the Captain not turn off the taxi lights and read the airport diagram and follow along our progress to the runway....*

For a C310 air taxi pilot, a distracting "puff of smoke" in the cockpit was the precursor to a runway incursion event.

■ *I was cleared to taxi from the ramp to Runway 32 via taxiway S on the ramp Runway 27L to Runway 32. As I was taxiing on Runway 27L, I became distracted by a puff of smoke in the cockpit. Rather than stop taxiing, I continued down the runway while investigating the source of the smoke and attempting to open the door and windows. While taxiing, I crossed Runway 32. When I looked up, I realized that I had crossed the runway and received a call from Ground, also informing me that I had crossed the runway. The smoke was coming from a DC to AC inverter that was plugged into the cigarette lighter. I believe that the cause of this indiscretion was my inattention to taxiing and my concentration on the smoke in the cockpit. It was a foolish choice to continue taxiing rather than stop and investigate the source of the smoke.*

## Non-Tower Airport Operations

In one incident reported to the ASRS, three aircraft occupied a runway at a non-Tower airport. As the reporter's narrative makes clear, "three's a crowd" on any runway—especially when the third aircraft landing had the option to go around. Lack of position reporting and frequency congestion also contributed to this event.

■ *There was a lot of uncontrolled traffic trying to land at [airport]. We entered the traffic pattern on the downwind having made position reports from at least 30 miles to the west of the field on the CTAF. We observed on the TCAS II, from about 15 miles out on the downwind, an airplane at our 8 o'clock position, which maintained very close proximity up to and including landing. On short final for Runway 27 we received a TCAS II traffic warning from this same aircraft from behind us but we decided that landing and not going missed would be the safest course of action since the runway was clear. Due to high volume in the vicinity using the CTAF, many airplanes were not making position reports or [were] being stepped on or blocked on the frequency. After announcing our position on short final, we proceeded to land.*

*Upon announcing our back-taxi to the ramp, and while still in a 180 degree turn, we realized a C210 had landed directly behind us, while we were still on the runway. Even more alarming was the transmission over CTAF that a Beech King Air was on short final to land. The pilot whose voice would later be recognized as the Captain for the King Air instructed us to remain at the end of the runway so he could land. I told him that he should not land, that there was a Cessna in the middle of the runway already, and that it was a very unsafe situation...The King Air refused to agree and landed while we prepared to exit the runway into the sand, gravel, and non-paved area adjacent to the runway, if warranted. All of these aircraft then proceeded to back-taxi to the ramp without further incident. Several other pilots witnessed the event.*

### Editor's Note:

The AOPA Air Safety Foundation originally developed an interactive Runway Safety course as a free resource for GA pilots.

The original course (for general aviation pilots) is available at <http://www.asf.org/runwaysafety>.

Based on the success of that course, AOPA later partnered with ALPA to develop a version for airline pilots, available at [http://flash.aopa.org/asf/runway\\_safety\\_alpa/](http://flash.aopa.org/asf/runway_safety_alpa/).