



Runway RISKS

Reducing Incursions, Excursions, and Confusion

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Runway Incursion—

“any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle, or person on the protected area of a surface designated for the landing and takeoff of aircraft.”



Fellow Airline Pilots:

We’ve all been there. A push for an “on time” departure, after pushback, as we begin radio calls to company and ATC for our release and clearances, complete our preflight paperwork, finish inputting our flight plan, check the weather—suddenly as we cross Runway X, we ask our crewmate: “Were we cleared to cross Runway X?” He looks over and says, “I don’t know.”

While ALPA has spent millions of dollars and countless hours dealing with safety in the air, it has also focused on safety during ground operations. The fact remains that the threat of a runway incursion, excursion, and confusion can be just as deadly as any threat we face once airborne.

ALPA has worked hard and successfully for many years to improve runway design, markings, signage, and technology that guides us. But nothing can replace the awareness of a pilot in the cockpit.

Through our new campaign, “Hold Short for Runway Safety,” ALPA will focus its efforts on preventing runway incursions, excursions, and confusion. We will provide you commonsense guidance that will help prevent operational breakdowns. Every pilot knows we have too much to do and not enough time to do it between getting in the cockpit and hitting Vr.

Through our professionalism and skills, ALPA pilots complete thousands of flights each and every day without incident. While we are accomplishing all that we do in the cockpit, we have to keep our awareness high, so we can continue to make aviation the safest form of transportation possible for our passengers and cargo.

Captain John Prater, ALPA President

Captain Terry McVenes, Executive Air Safety Chairman

Did you know...



>> Most recent pilot deviation-caused incursions have happened right after a pilot reads back a “hold short” clearance?



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Visit www.alpa.org
to learn more about runway safety and ALPA initiatives to continuously improve aviation safety.

History—What is this thing, and what has ALPA been doing about it?

In March 1977, in what remains the world’s deadliest aviation accident, two passenger jumbo jets collided on a runway at Tenerife, Canary Islands, causing the deaths of 583 passengers and crew. While CRM and some other actions were born out of that disaster, realization of the runway-incursion aspect was not directly grasped.

The deadliest U.S. runway incursion accident was a collision between a Boeing 737 and a Metroliner commuter airplane at Los Angeles

International Airport (LAX) in February 1991, which killed 34 people.

Most recently, in July 2006, at O’Hare International Airport, a B-737 passenger jet and a B-747 cargo airplane nearly collided. The 747 had been cleared to land on 14L and was taxiing on the runway toward the cargo area when the 737 was cleared to take off on the intersecting runway (now called Rwy 28) over the 747. The pilot of the B-737 passenger jet took off early to avoid a

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For Want of a Sign

By Bill Phaneuf

ALPA's Engineering and Air Safety Staff



For want of a "sign," a pilot is lost! He has landed at minimums in heavy fog, managed to clear the runway, thinks

he interpreted and followed instructions to a T, and something is wrong. The sign that he sees is not what's described by the controller. But the controller is busy moving other traffic and, in between chats with the lost crew, clears a takeoff from the runway where the lost pilot landed. The ground conversation continues, and the departing aircraft can



be heard in the background of another transmission from the lost crew. In that exchange, the lost crew sees that departing airplane cross in front of their nose. When they try to explain their plight, the controller asks them to stand by and clears another for takeoff. Finally, this second departing crew refuses the clearance, holds short of the runway, and suggests that the lost airplane be found before operations continue.

What "sign" did the lost crew need? Any sign that could ensure their position and their safety. Lighted signs properly placed are the common solution. Clear surface guidance, like painted centerlines and stop bars, fills that square as well because they serve as signs, too. But the best signs today are the painted enhancements to centerlines and stop bars that were developed as the result of the above description. Added to those enhancements are the painted red surface blocks with white runway numbers that are located at the stop bars either side of taxiway centerline. These surface-painting enhancements, tested at the location where the described incident took place, proved so successful that the FAA, at ALPA's urging, first decreed that they be copied at the 71 busiest U.S. airports. Recently, the FAA has revised that order to all Part 139 commercial locations and any other airports wishing to upgrade their facilities.

The risk for similar incidents elsewhere was high; the regulators responded, and a need for a "sign" is being satisfied.

History—What is this thing
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collision with the 747. This collision was avoided by about 35 feet.

The runway incursion issue has been on the National Transportation Safety Board's Most-Wanted List since its inception in 1990 and is one of only two issues that still remain from that original list. ALPA was pursuing the issue in several venues even before this list was created.

Overall, the runway incursion issue is one of the best studied, quantified, and documented, and the industry readily knows what needs to be done. ALPA's March 2007 white paper, entitled *Runway Incursions—A Call to Action* served to catalyze the action currently being undertaken. The Association has played an active role for a long time and is continuing to push this issue forward for the benefit of the membership and the traveling public.

Did you know...

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- » **Most Common Factors in Runway Incursions:**
 - » *Memory errors*
 - » *Inattention*
 - » *Communication errors*
 - » *Fatigue*
 - » *Lack of teamwork*

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- » **According to FAA statistics, during the last 3 months of 2007, there was an average of 2.5 runway incursions every day in the United States.**

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- » **Of the 370 runway incursions in FY 2007, more than 56 percent were classified as Pilot Deviations.**

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- » **The national airspace system in the United States now handles 768 million passengers annually, and the FAA projects this number to reach 1 billion by 2015—just seven years away.**

Horseshoes and Hand Grenades

By F/O Kent Lewis (DAL)

ALPA's Runway Safety Action Team Member

Runway collisions continue to be one of the greatest threats to the safety of the flying public. As pilots, we are the primary operators within the National Airspace System and thereby most familiar with the weaknesses and strengths of that system. As tactical risk managers, we make daily assessments of the health of the NAS and are especially cognizant of the hazards associated with runway incursions. We know that the potential consequences of a runway collision are catastrophic. We are also aware of the frequency of exposure to this hazard. Utilizing safety risk assessment methodologies, ALPA Engineering and Air Safety has classified this risk as unacceptable, which requires implementation of mitigation strategies and action by all ALPA members.

The first step in our plan is to define the scope of this hazard. It affects everyone, everywhere, 24 hours a day. At some airports the risk may be greater because of its frequent occurrence, other airports because of poor airport design, increased capacity, poor markings, or lack of advanced warning systems. The hazards are also resident on the flight deck and at the regulatory, organizational, and supervisory level. When it comes to moving people to and from the runway, production is competing with safety, and we have to pick our way through this confluence of hazards. Some have been eliminated or reduced to an acceptable level. Many have not.

We need to know everything we can about the problem in order to deal with it. The current system is growing faster than we can defend against, so what might be "safe" or at an acceptable risk level today, will require additional awareness, new strategies,

and solid procedures to navigate tomorrow. Many people are working on system solutions to reduce and eliminate runway incursions, but in the meantime, the system continues to drift toward failure. There were several close calls last year where the distance between aircraft was too close for the computer to measure, within 30–50 feet. The NAS is being tasked with increased production before we have implemented a robust defense against incursions. Has the airport increased operations lately with bigger planes or frequency? Opened or closed a runway? Are there new pilots or controllers in the mix? Have we been to the same airport so many times that we taxi, take off, and land on "autopilot"? Have we become so used to an increased ops tempo that it has become the new norm? Are we still waiting for flight deck awareness, warning, and avoidance technologies? If you answered yes to any of the above, you realize there is an increasing exposure to the threat. We cannot reduce the consequence, but we can reduce the exposure.

It's time to recalibrate the compass and acknowledge the increasing challenge of airport operations. We as a pilot group have to be right 100 percent of the time when it comes to safely negotiating the protected area. When the rubber meets the runway, we have to be right regardless of whether someone is tired, hurried, distracted, or having a bad day. So take time to communicate as you navigate around the airport, continue self-improvement through professional education, and share your best practices with our pilot group. We need everyone's best effort in this fight. We are getting closer to system solutions that prevent runway incursions, but, as the saying goes, close only counts in "horseshoes and hand grenades."

Did you know...

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» According to the Commercial Aviation Safety Team (CAST), runway incursions can be reduced by as much as 95 percent with the implementation of new technologies, training, and operational techniques that increase pilots' and controllers' situational awareness.

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» ASRS Study: In a 2004 study of runway incursion events reported through the ASRS program, NASA came to the following conclusions:

1. The majority of incidents involved runway or hold line presentations.
2. Almost three-fourths of all conflicts involved at least one jet transport aircraft.
3. Fifty-six percent of incidents occurred during the taxi-out phase of flight.
4. The majority of incidents occurred during daylight operations, but one-fourth occurred at night.

Traveling Abroad

By Captain Bob Perkins (ACJ)

ALPA Airport and Ground Environment (AGE) Group Chairman



One of the prime causes of runway incursions is noncompliance with the ATC clearance that you were given. There are many reasons that this might happen including: loss of situational awareness, poor signage, language comprehension, or just plain old phraseology.

In the United States, we are all used to certain ATC phrases: "Taxi into position and hold," "Hold short," etc. But not all the world uses the same concepts or phrases. In fact, most of the world is different. For example, in Canada, the phraseology is pretty much the same as in the United States, but there is a major difference. You will need a clearance to cross any runway. In other words, if you are cleared to taxi to Runway "06" (yes, Canada and the rest of the world uses the "0"), and you have to cross Runway 01 to get there, then you will need a specific clearance to cross Runway 01, and you will need another clearance to cross any other runway, active or not, along the way. Oh, yes, and you are expected to "hold short" of Runway 06.

Most ICAO states (the rest of the world) use "Taxi to holding position." This means up to, but holding short of, the runway hold marking. The United States uses "Taxi to position and hold"—very similar, but completely different meaning that could easily result in an incursion.

The FAA is currently studying the feasibility of incorporating the ICAO phraseology into the

U.S. ATC system, but has made no decision yet. It is also considering the adoption of a positive clearance to cross all runways, a recommendation of the NTSB after the Lexington, Kentucky, crash of Comair 5191.

In the meantime, when traveling around the system, be very aware of the differences that you will encounter. Know those differences and be safe, whether in the United States, in Canada, or around the world.

There are several things you can watch to help you scope the problem and your role in it.

- » Take the **Online Runway Safety Training Aid** and print out a certificate at the end. This will help you if you get involved in an event, since it satisfies the FAA "seminar" requirement for participation in the Runway Incursion Information Evaluation Program (RIIEP).
- » Watch the video production [cable/DSL] **"Was that for us?"** which focuses on one key part of the runway incursion issue—ATC communications. The 2001 Air Safety Award recipient, Capt. Mack Moore (UAL, Ret.), was the author/director of this excellent work.
- » The Association, through its safety volunteers, was involved in all aspects of developing these tools.

ALPA has developed a special website dedicated solely to runway safety. There you will find links to runway safety educational material and video recreations of several high-profile incidents. Material on this website is being added on a regular basis, so stop by for the latest information on runway safety. Previous issues of this newsletter can also be found there. The website address is holdshort.alpa.org.

Our Goals

While our main goal of distributing this newsletter is to increase your education and awareness of runway safety hazards, ALPA is also committed to providing access to educational resources on our website. In addition, we strive to:

1. Immediately provide you with awareness tools
2. Conduct this educational campaign to provide information to line pilots
3. Continue the pursuit of long-term system mitigations of runway collision hazard

Thank you for taking the time to read this edition of ALPA's runway safety newsletter. In future issues, you will read about other runway incursion accidents and incidents, where runway incursions occur, and some suggestions to help you avoid runway incursions.