Federal Aviation Administration

Fact Sheet – Runway Safety

For Immediate Release

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The reduction in the number and severity of runway incursions is one of the FAA's top priorities. The number of serious runway incursions — classified as Categories A and B — dropped by more than 90 percent from fiscal year 2000 through fiscal year 2010. In fiscal year 2010 – which ended Sept. 30, 2010– there were 6 serious runway incursions, 50 percent fewer than the previous fiscal year, and the second consecutive year with a 50 percent drop in serious incursions. Three of the serious incursions involved commercial aircraft.

Total A and B Incursions	# Involving Commercial Aircraft	Fiscal Year
67	34	2000
53	26	2001
37	11	2002
32	10	2003
28	9	2004
29	9	2005
31	10	2006
24	8	2007
25	9	2008
12	2	2009
6	3	2010

What is a Runway Incursion?

A runway incursion is any unauthorized presence on a runway, regardless of whether or not an aircraft, vehicle or pedestrian presents a potential conflict to an aircraft authorized to land, take off, or taxi on a runway. This is the international standard, as defined by the International Civil Aviation Organization and adopted by the FAA in fiscal year 2008.

There are four categories of runway incursions:

Category A is a serious incident in which a collision was narrowly avoided
Category B is an incident in which separation decreases and there is a significant potential for collision, which may result in a time critical corrective/evasive response to avoid a collision.
Category C is an incident characterized by ample time and/or distance to avoid a collision.
Category D is an incident that meets the definition of runway incursion such as incorrect presence of a single vehicle/person/aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.

The entire aviation community can be credited with the remarkable success achieved in runway safety. The FAA held a Call to Action Safety Summit in 2007 with aviation leaders from the FAA, airlines, airports, aerospace manufacturers and air traffic control and pilot unions – who joined forces to address runway incursions. Following that forum, an intense effort was launched to expedite the installation of new technologies at airports, conduct outreach, retrain pilots and improve airport infrastructure such as lighting, signage and markings. The FAA conducted outreach to pilots, developed numerous training materials and conducted safety seminars for pilots. The agency improved air traffic procedures for controllers and adopted international surface phraseology. This heightened awareness, domestic and international cooperation, and the development of runway technologies are making a difference. Each year, runway safety continues to improve.

RUNWAY SAFETY TECHNOLOGY

Runway Status Lights(RWSL)

The FAA has developed RWSL technology to increase situational awareness for aircrews and airport vehicle drivers and thus serve as an added layer of runway safety. A RWSL system derives traffic information from surface and approach surveillance systems and illuminates red in-pavement airport lights to signal a potentially unsafe situation. Runway Entrance Lights (REL) are deployed at taxiway/runway crossings and illuminate if it is unsafe to enter or cross a runway. Takeoff Hold Lights (THL) are deployed in the runway by the departure hold zone and illuminate red when there is an aircraft in position for departure and the runway is occupied by another aircraft or vehicle and is unsafe for takeoff. Runway Intersection Lights (RIL) (currently undergoing operational evaluation at BOS) are deployed at a runway/runway intersection and illuminate when it is unsafe to enter a runway intersection. Prototype RWSL technology is currently under evaluation at Boston-Logan, Dallas-Ft. Worth, San Diego and Los Angeles airports. The FAA is currently deploying production RWSL systems consisting of REL's and THL's at the following airports over the next five years: Atlanta; Boston; Charlotte; Chicago (O'Hare); Dallas-Ft. Worth; Denver; Detroit; Ft. Lauderdale; Houston (George Bush); Las Vegas; Los Angeles; Minneapolis; New York (JFK, LaGuardia and Newark); Orlando; Philadelphia; Phoenix; San Diego; San Francisco; Seattle; and Washington (BWI and Dulles).

Airport Surface Detection Equipment, Model 3 (ASDE-3)/Airport Movement Area Safety System (AMASS)

ASDE-3/AMASS is a radar-based system that tracks ground movements and provides an automatic visual and audio alert to controllers when it detects potential collisions on airport runways. The system is usually referred to as ASDE-3/AMASS. ASDE-3 is the radar. AMASS is the software and hardware

enhancement to the ASDE-3 radar that provides automated alerts and warnings to controllers. The FAA installed ASDE-3/AMASS at the nation's top 34 airports.

Airport Surface Detection Equipment, Model X(ASDE-X)

ASDE-X provides more precise surface detection technology. While the ASDE-3/AMASS is based on non-cooperative sensor technology, ASDE-X integrates data from a variety of sources, including radars, transponder multilateration systems and Automatic Dependent Surveillance – Broadcast (ADS-B) to provide accurate target position and identification information and thus give controllers a more reliable view of airport operations. ASDE-X provides tower controllers a surface traffic situation display with visual and audible alerting of traffic conflicts and potential collisions. ASDE-X is currently installed at 34 of the planned 35 airports in the U.S. For more information, see the ASDE-X fact sheet (http://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=6296) on the FAA website.

Final Approach Runway Occupancy Signal(FAROS)

FAROS is designed to provide a visual alert of runway occupancy status to pilots intending to use a runway. Arriving aircraft approaching a runway for landing are provided runway occupancy alerting by flashing the Precision Approach Path Indicator (PAPI) lights. The system derives traffic information from approach and surface surveillance systems and uses safety logic to activate the alerting signal (flashing the PAPI) when appropriate. The prototype systems have been tested at both Dallas-Ft. Worth and Long Beach/Daugherty Field Airports in California. Further testing will resume in 2011.

Electronic Flight Bag (EFB) with Moving Map Displays

Pilots use Moving Map Displays and Own-Ship Position to see exactly where their aircraft is on the airfield, thus reducing the chances of losing situational awareness and being in the wrong place. The FAA reached agreements with several U.S. airlines to fund in-cockpit runway safety systems in exchange for critical operational data. The data will help the FAA evaluate the safety impact of the technology and is expected to accelerate key safety capabilities necessary for the transition to NextGen. FAA will publish initial analysis of data obtained from the participating airlines (U.S. Airways, Atlas Air, Shuttle America and CommutAir) by the fall of 2011.

Low Cost Ground Surveillance (LCGS) Systems

The agency is moving forward with the evaluation of low-cost, commercially available radar surveillance systems. A low-cost system would further reduce the risk of ground incidents or accidents, especially during periods of low visibility by providing surface situational awareness to Air Traffic Controllers. It would be installed at airports that do not have either ASDE-3 or ASDE-X. Spokane International Airport was the initial test bed for the evaluation of potential LCGS technology. Additionally the FAA awarded four contracts for pilot systems to evaluate and test to determine potential for wider deployment. The pilot systems are being installed at four facilities: Manchester Boston Regional, San Jose International, Reno/Tahoe International and Long Beach International airports. Testing is expected to continue through 2012.

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