

# 'You Shouldn't Be Anywhere Near Kilo'

**An FAA slide presentation includes animations of actual incidents demonstrating how pilot deviations can lead to runway incursions.**

## WEB SITES

**Reducing Pilot Deviations,** <[www.faa.gov/safety/programs\\_initiatives/pilot\\_safety/deviations/reducingpds/](http://www.faa.gov/safety/programs_initiatives/pilot_safety/deviations/reducingpds/)>

“United 1448, you shouldn't be anywhere near [Taxiway] Kilo, hold your position please, just stop.”

“Ah, this is United 1448, we are currently on a runway, I am looking out to the right with a Kilo ... ah, we need to go on the Kilo taxiway.”

“United 1448, you were supposed to taxi November and Tango, I need to know what runway you're on, I can't see anything from the tower.”

“We are by Kilo to our right and we just overshot Kilo, we did not see it.”

“United, stand by please. USAir 2998, Runway 5R, fly runway heading, cleared for takeoff.”

“Ma'am, I'm trying to advise you, we're on an active runway, United 1448.”

That is part of a dialogue between an air traffic controller and a flight crew who had inadvertently strayed onto the runway as communication

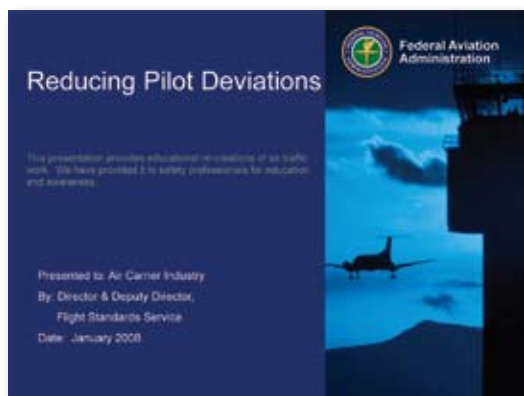
one of several animated files in the U.S. Federal Aviation Administration (FAA) Flight Standards Service (AFS) “Roadshow Presentation: Reducing Pilot Deviations,” a slide presentation released to the air carrier industry in January 2008, now on the FAA Web site.

The opening slide says, “This presentation provides educational re-creations of air traffic work ... provided to safety professionals for education and awareness.” The “Roadshow” reviews the FAA's August 2007 “call to action” to the industry to re-energize and re-focus on the issue of runway safety efforts; describes expected air carrier short-term actions to improve runway safety — for example, improving pilot training on airport surface operations, reviewing cockpit procedures to identify and eliminate distractions, enhancing training for non-pilot employees who move aircraft at airports; and identifies resources such as booklets, online courses, seminars and information tools the FAA has made available to pilots.

The presentation says that, in investigations, the FAA classifies runway incursions as air traffic controller operational errors, pilot deviations and vehicle/pedestrian deviations. Several slides chart data on pilot deviations, numbers and causes of runway incursions, and numbers and types of vehicle/pedestrian deviations. Examples of occurrences of pilot deviations and air traffic control errors are given.

The videos show aircraft movements and illustrate deviations and errors made during taxiing, takeoff and landing of several commercial

broke down during a foggy night at Providence, Rhode Island, U.S. The situation, an actual occurrence, is illustrated with a sound recording, an audio transcript and an animation showing the aircraft's movement on an airport diagram. It's



flights at U.S. airports. Communications between pilots and air traffic controllers are audible and may also appear in closed captions. Supporting files contain airport diagrams, event descriptions, personnel statements and other information.

An interactive “taxi to . . .” quiz by FAA’s Alaskan Region Runway Safety Office for U.S. Federal Aviation Regulations Part 91 operators is included in the video collection.

The “Roadshow” contains large compressed zip files. The Web site provides instructions for downloading the presentation and video files. Handouts, brochures for pilots, U.S. National Transportation Safety Board recommendations and other materials can also be downloaded, printed or viewed online. All materials, including the presentation and videos, are free.

**“Assessing Fitness to Fly,” <[www.caa.co.uk/docs/923/FitnessToFlyPDF\\_FitnesstoFlyPDF.pdf](http://www.caa.co.uk/docs/923/FitnessToFlyPDF_FitnesstoFlyPDF.pdf)>**

A U.K. Civil Aviation Authority (CAA) announcement, “CAA Launches Fitness to Fly Patient Assessment Guide,” said, “There were 514 emergency calls made by U.K. airlines in 2007 due to medical emergencies, resulting in 58 diversions — a 26 percent increase since 2003. Many diversions are caused by passengers who are not fit to fly or do not make their medical condition known to their airline before traveling.”

The top three causes of in-flight emergencies were neurological, cardiological and respiratory conditions, the announcement said.

In response to an increase in emergency diversions due to medical incidents experienced by passengers, the CAA Aviation Health Unit developed a guide to help medical professionals assess and advise patients regarding their fitness to fly.

An introduction to the four-page guide says it gives “an understanding of the physics and physiology of flying and how this may interact with pathology.” The guide briefly describes what the human body may experience in some medical situations due to changes in oxygen and other gas levels in the body and barometric pressure in an airplane.

The guidelines highlight physiological changes that occur at altitude for medical conditions including pregnancy, cardiovascular

disease, respiratory disease, post-surgical condition, diabetes, hematological disorders, orthopedic disorders, and deep vein thrombosis.

For example, passengers who had recent surgical intervention, such as an ophthalmological procedure for retinal detachment, may experience difficulties when flying because of oxygen that was introduced into the surgical site. Cardiovascular contraindications to flying include complicated myocardial infarctions within the previous four to six weeks and uncontrolled hypertension, or high blood pressure.

Additional medical and passenger resources are listed. The guide may be printed or downloaded at no cost.

**Helicopter Safety.org, <[www.helicoptersafety.org.uk](http://www.helicoptersafety.org.uk)>**

The Web site’s organizer, Helicopter Safety UK, says that the site “exists to promote helicopter safety around the world, primarily in the [United Kingdom].” The site, produced by a group of pilots, contains a significant amount of accident and safety informa-

tion. The British Helicopter Advisory Board, the U.K. Civil Aviation Authority, the General Aviation Safety Council and the air traffic services provider, NATS, have offered support.

The Web site describes its U.K. helicopter accident and incident database as comprehensive, containing data from 1997 to the present. There are several ways to access the database. Using a detailed search form, a researcher can search by a number of criteria (e.g., manufacturer, helicopter type, date or causal factor) to locate a specific accident or incident, or to create a list of events matching the search criteria.

Another way to search is to select from prepared lists with category titles such as date,



accident type, model, mechanical failure, weather, pilot experience, and causal factor.

Once an accident or incident is identified, the researcher can review a synopsis of the accident or incident and link to full investigative reports, full-text sources, regulatory documents, related safety information and other accompanying information.

Photographs and videos of actual events accompany many entries in the database. Database records are linked to the U.K. Civil Aviation Authority aircraft registration Web site that provides additional helicopter details, photographs and statistics.

The site reports results of a study of 366 helicopter accidents, ranked by “factors in accidents,” “fatal accident causes,” “accident pilot experience,” “manufacturer,” “model” and the aircraft’s “role,” with accident dates. For example, “mishandled controls” is first in the “factors in accidents” list. “Loss of control” is first under the heading, “fatal accident causes.”

## REPORTS

### Laser Illumination of Aircraft by Geographic Location for a 3-Year Period (2004–2006)

Nakagawara, Van B.; Montgomery, Ron W.; Wood, Kathryn J. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-08/14. Final report. June 2008. 13 pp. Figures, references, appendix. Available via the Internet at <[www.faa.gov/library/reports/medical/oamtechreports/2000s/media/200814.pdf](http://www.faa.gov/library/reports/medical/oamtechreports/2000s/media/200814.pdf)> or from the National Technical Information Service.\*

Incidents involving laser illumination of aircraft are a concern primarily because of their possible performance impairment of flight crews during critical operations, especially approach and landing. Laser exposure can cause temporary visual interference — called “flash-blindness” — as well as distraction, which can disrupt cockpit procedures, crew coordination and communication with air traffic control.

This study uses information contained in a database of laser exposure incidents maintained at the Civil Aerospace Medical Institute, and examines the frequency and rate of incidents for the 2004–2006 period. “Analysis involved stratification of incident data by location ... for each

year of the study and calculating incident rates per 100,000 flight operations,” the report says. “In addition, other operational and visual effect data contained in the laser incident reports were collated and analyzed to provide a better understanding of the safety issues associated with the illumination of aircrew personnel by lasers during critical phases of flight.”

A total of 845 incident reports were collected for the study period. Of those, 467, or 55 percent, involved laser illumination of the cockpit. Only the 832 incidents, or 99 percent, that took place within the United States were included in the analysis.

“For the period, total laser incident rates ranged from 0.00 in the Alaskan Region to 0.86 in the Western Pacific Region,” the report said. Among the 202 airports where laser incidents occurred, 20 reported 10 or more incidents during the study period, although one was omitted from the analysis because flight operations data were unavailable. For 53 percent of the airports, laser incidents were most frequent in 2005. The total number of incidents for 2006 — 240 — outnumbered those for 2004 and 2005 — 18 and 186, respectively — principally because the Mineta San Jose (California) International Airport had a disproportionately high number in that year.

The total number of reported incidents increased from 46 to 451 during the study period, an 880 percent increase. In addition, the rate of incidents increased by 957 percent during the three years. The largest increase in the number of reported incidents, 517 percent, occurred between 2004 and 2005, compared with 45 percent between 2005 and 2006. The report hypothesized that much of the difference was caused by the issuance on Jan. 12, 2005, of FAA Advisory Circular 70-2, “Reporting of Laser Illumination of Aircraft,” which heightened sensitivity to the issue and provided a format for reporting incidents.

The study found that, in a particular region, “an increase in operations does not necessarily result in a proportional increase in laser illuminations.” It said that the considerable discrepancy in rates among regions was “not entirely clear,” but noted that in some cases, incidents



“spiked” over brief periods — for instance, 81 during three days at San Jose. Such clusters occurred during time spans ranging from one day to several months.

“The most serious consequences found in this study included the closing of a runway, a missed approach and the pilot-in-command relinquishing control of the aircraft,” the report says. “Incidents that resulted in potential ocular injury were rare (3.4 percent of all incidents), and no evidence of serious, long-term injuries was found. As laser technologies improve and become more available, the hazard to aviators may also increase. At present, prompt reporting of [laser] incidents by aviators and the public, as well as quick action by local air traffic and law enforcement authorities, is the most effective deterrent against this threat to aviation safety.”

### Screening Air Traffic Control Specialists for Psychopathology Using the Minnesota Multiphasic Personality Inventory-2

King, Raymond E.; Schroeder, David J.; Manning, Carol A.; Retzlaff, Paul D.; Williams, Clara A. U.S. Federal Aviation Administration (FAA) Office of Aerospace Medicine. DOT/FAA/AM-08/13. Final report. June 2008. 16 pp. Figures, tables, references, appendix. Available via the Internet at <[www.faa.gov/library/reports/medical/oamtechreports/2000s/media/200813.pdf](http://www.faa.gov/library/reports/medical/oamtechreports/2000s/media/200813.pdf)> or from the National Technical Information Service.\*

FAA Order 3930.3A, “Air Traffic Control Specialist Health Program,” says that an applicant for an air traffic control specialist (ATCS) position must have no established history of “a psychosis; a neurosis; [or] any personality or mental disorder that the Federal Air Surgeon determines clearly indicates a potential hazard to safety in the air traffic control system.”

Presumably, a person falling into one of the prohibited categories who applied to become an air traffic controller would be either ignorant of having a disorder or would choose not to share the knowledge with the FAA. Traditionally, the FAA has used the 16 Personality Factor (16 PF) test, whose present version dates from 1968, to screen applicants for mental and emotional disorders. In a 1996 paper written under contract to the FAA, researchers urged that the Minnesota Multiphasic Personality

Inventory (MMPI-2) be considered as an alternative means of identifying controller candidates with symptoms that suggest emotional instability and require additional assessment.

“This study was designed to explore the feasibility of utilizing the MMPI-2 to replace the 16 PF as the initial screen,” the report says. A sample of 1,014 ATCSs in training voluntarily completed the MMPI-2 for the research.

The MMPI-2 consists of 13 scales. The first three are “validity scales,” which attempt to determine, based on the subject’s answers to certain questions, how honestly he or she answers all the questions on the test. The rest of the questions are the basis for “clinical scales” designed to measure various dimensions of psychopathology.

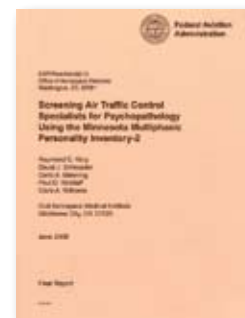
“The clinical scales [of the ATCSs tested] are remarkably similar to the general population normative group published in the MMPI-2 manual,” the report says. But the values found on certain scales that might be acceptable in the general population could be a problem in ATCSs. There is no hard rule about where to draw the line, or “cut score,” above which a candidate would undergo further scrutiny. At a relatively low threshold, the 65T cut score, about 15 percent of subjects had one or more scales above the cut score.

Scale 1 had the lowest percentage of subjects identified across all four cut scores calculated. It measures “hypochondriasis,” an excess of vague, generalized health concerns. The scale with the highest percentage of subjects identified across all cut scores was scale 9, “hypomania,” overactivity, poor impulse control and irritability.

The report discusses what combination of cut scores would be most useful for testing and the percentage of candidates it would be likely to identify for further testing. ➔

#### Source

\* National Technical Information Service  
5385 Port Royal Road  
Springfield, VA 22161 USA  
Internet: <[www.ntis.gov](http://www.ntis.gov)>



— Rick Darby and Patricia Setze