

Changes Recommended in MSAW System Design

The U.S. National Transportation Safety Board (NTSB) has recommended changes in the minimum safe altitude warning (MSAW) system and the conflict alert system, which direct the attention of air traffic controllers to impending collisions or ground contact.

NTSB on July 12, 2006, issued four safety recommendations to the U.S. Federal Aviation Administration (FAA):

- “Redesign the [MSAW] and conflict alert systems and alerting methods such that they reliably capture and

direct controller attention to potentially hazardous situations detected by the systems. Implement software changes at all air traffic control facilities providing MSAW and conflict alert services;

- “Implement any software and adaptation modifications needed to minimize or eliminate unwarranted [MSAW] alerts;
- “Perform a technical and procedural review at all air traffic facilities with [MSAW] or conflict alert capability to verify that software configuration and parameters are consistent with local air traffic procedures. Ensure that MSAW and conflict alert warnings are provided to the relevant controllers; [and,]
- “Amend FAA Order 3120.4L, *Air Traffic Technical Training*, to require that all controllers study and demonstrate an understanding of the relationship between charted minimum instrument flight rules altitudes and the underlying topography for their areas. Emphasize that controllers should maintain awareness of aircraft altitudes to detect and effectively react to situations in which a safety alert may prevent an accident (especially aircraft operating in remote areas at night).”

The recommendations followed the investigation of 11 aircraft accidents that caused “serious concern about the effectiveness of [FAA’s] methods of ensuring that air traffic controllers detect and properly respond to imminently hazardous situations,” NTSB said. Of the 11 accidents, 10 involved apparent controlled flight into terrain (CFIT) and one involved a midair collision.



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EMAS Halts Falcon 900 in Runway Overrun

A Dassault Falcon 900 business jet that overran the runway after a brake system malfunction during landing at Greenville, South Carolina, U.S., was brought to a controlled stop after entering an engineered materials arresting system (EMAS) arrestor bed at the end of the runway (see *Aviation Safety World*, August 2006, p. 13).

Five people in the airplane were not injured, and the airplane received

no significant damage, according to Engineered Arresting Systems Corp. (ESCO), the developer of EMAS.

ESCO said that this was the fourth time an EMAS arrestor bed has safely stopped a commercial aircraft following a runway overrun. EMAS was installed in 2003 at Greenville Downtown Airport — the first installation of an arrestor bed designed specifically for small business jets and other general aviation aircraft.



Port Authority of New York and New Jersey

Bulletin Identifies Atlantic Navigation Errors

International aviation specialists monitoring flights over the Atlantic Ocean have observed significant errors in navigation, altitude deviations and loss of longitudinal separation, the International Federation of Air Line Pilots' Associations (IFALPA) says.

In its June 15, 2006, *Safety Bulletin*, IFALPA said that International Civil Aviation Organization (ICAO) North Atlantic Working Groups had identified "repetitive" navigation errors of as much as 25 nm (46 km) and altitude deviations of 300 ft or more. Most navigation errors have occurred after issuance of a re-clearance, the working groups said.

The working groups issued an oceanic errors safety bulletin (OESB) containing recommendations to reduce errors.

The recommendations, intended to be discussed during initial and recurrent ground training, said that flight crews "must ensure they correctly copy the re-clearance, reprogram (and execute) the FMS [flight management system], ... update the master computer flight plan (CFP) and update the plotting chart. ... Crews must follow a re-clearance (and not the previous flight plan)."

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CASA Warns of Turbulence Risks

The Civil Aviation Safety Authority of Australia (CASA) has issued a reminder to airline flight crews to "be vigilant about the dangers to passengers and cabin crew of in-flight turbulence."

CASA's warning was issued after occurrences in which two cabin crewmembers were injured when they were thrown to the floor when a Boeing 767 encountered moderate to severe clear air turbulence during a flight from Adelaide to Perth, a crewmember on another 767 was injured when she fell backward onto a bench during light turbulence and two Bombardier Dash 8 crewmembers were thrown to the floor by moderate turbulence during landing.

"While turbulence is normal and happens often, it can be dangerous,"

CASA said. "Its roller coaster ride can cause passengers and cabin crew who are not wearing their seat belts to be thrown about without warning."

About one dozen serious turbulence incidents are reported annually in Australia, CASA said.

"The best defense airlines can deploy against the dangers of turbulence is quick action to ensure passengers and crew are seated and fasten their seat belts," CASA said. "To do this, airlines need to have effective training for pilots and cabin crew on turbulence-related issues, to promote good communication between all crew on board aircraft and strategies to ensure compliance with directions to fasten seat belts."



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DNA Testing Aids in Bird-Strike Identification

Forensic DNA testing can be used to identify species killed in bird strikes, according to research conducted for the Australian Transport Safety Bureau (ATSB).

The research involved animal tissues collected using 250 DNA-sampling kits sent to airports across Australia. The tissues that were tested were exposed to damaging conditions, and researchers found that the conditions most damaging to DNA occur when bird samples are left at room temperature for seven days or longer. If DNA is to be used routinely to identify strike samples, procedures must be developed to limit the time of non-refrigerated storage, according to a report on the research.

The researchers also found that, although they had expected ATSB's top eight highest risk species to be the animals most frequently involved in strikes, only 27 percent of the samples used in their tests were found to be species from that list.

The DNA tests identified three bat species and 17 bird species — a greater diversity than was expected. The report recommended that airport personnel be given additional assistance in species identification to "ensure that the correct species are being managed in habitats surrounding civilian aerodromes."

Council Urges Increase in Aeronautical Research

The U.S. National Aeronautics and Space Administration (NASA) is being encouraged to intensify its aeronautical research efforts to make the air transportation system more efficient, safer and environmentally friendly.

The National Research Council, a nonprofit institution that advises the U.S. government on research and technology, says the United States can maintain global leadership in aviation only by continuing to invest in research and technology projects conducted by NASA, industry, universities and other government agencies.

“The air transportation system will need to double its capacity over the next 10 to 35 years, develop new technologies to reduce noise and emissions, and decrease the number of accidents even though the number of flights will increase substantially,” said Paul Kaminski, chairman of a council committee that made the recommendations.

The recommendations — included in a report, *Decadal Survey of Civil Aeronautics — Foundation for the Future* — call for the development of aircraft that are quieter, more efficient and less polluting than today’s aircraft; and for new technologies that can “quickly detect and respond to anomalies outside or inside a plane” and reduce delays during periods of peak travel.

Research projects that ultimately are selected should receive stable funding for at least a decade, the report said. Funding for the NASA aeronautics program has been cut from more than US\$1 billion in fiscal 2004 to \$724 million in fiscal 2007, which will begin Oct. 1, 2006. Additional

funding cuts would prevent completion of vital research, the report said.

The report will be available in fall 2006 from the National Academies Press.



U.S. National Aeronautics and Space Administration

In Other News ...

The International Civil Aviation Organization has identified 29 high-risk areas at the new Bangkok Suvarnabhumi Airport, scheduled to open in September. Airport

officials say all of the problems — some of which involve signs on the taxiways, apron (ramp) and airside roads; lights; and markings — will be corrected before the airport opens. ... A study by the U.S. Federal Aviation Administration has found that the use of flameless ration heaters — used to heat prepackaged ready-to-eat meals used by the military, disaster-response teams and others — in an aircraft cabin presents a potential hazard in the form of high temperatures and “violent ignition events.” ... The U.S. Federal Aviation Administration has begun implementing a program designed to reduce flight delays resulting from severe thunderstorms and other severe weather. The Airspace Flow Program will allow air traffic control to delay aircraft that are likely to encounter extremely bad weather and issue expected departure times to their crews; aircraft unaffected by the bad weather will proceed without delay.



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