



NTSB National Transportation Safety Board

Federal Most Wanted Transportation Safety Improvements

**Reduce Dangers to Aircraft
Flying in Icing Conditions**

Safety Improvements Wanted

- Revise icing certification criteria to include, freezing rain, freezing drizzle **A-96-54**
- Upgrade aircraft certification standards and deice boot operational procedures **A-96-56, A-07-14**
- Apply upgraded icing certification standards to in-service airplanes **A-07-16**



FAA - Recent Actions

Activation of Ice Protection (Part 25)

- Require ice protection system activation as soon as airplane enters icing conditions
- Final Rule issued August 2009



FAA - Recent Actions

Activation of Ice Protection (Part 121)

- Require means to ensure timely activation of airframe ice protection*
- FAA issued NPRM – December 2009
- Safety Board provided comments to FAA
- NPRM covers Part 121, excludes Part 91, 135



Recommendation A-96-54

- Full range of icing conditions, including supercooled large droplets (SLD), are used in icing certification testing
- Including freezing rain, freezing drizzle, and freezing mist



NTSB **MOST WANTED**

Transportation Safety Improvements

Empire Airways flight 8284

- January 27, 2009
- Lubbock, TX
- FedEx Feeder Flight
- Light freezing drizzle and mist



NTSB **MOST WANTED**

Transportation Safety Improvements



Accident Sequence

- Airframe icing was noted by flightcrew, and hearing testimony indicated it affected the Captain's go-around decision
- At this stage of the investigation, aircraft icing does not appear to have a large influence on the performance of the aircraft
- Performance calculations show a worsening situation during freezing drizzle icing encounter



Freezing drizzle / rain / SLD

- Flightcrews are encountering icing conditions for which they are not certified
- FAA received a proposal from the ARAC for an expanded icing envelope to include SLD in 2005
- NPRM expected 1st quarter 2010



Reduce Dangers to Aircraft Flying in Icing Conditions

Proposed Safety Board Action

- Keep issue area on Most Wanted List
- Retain red classification: Unacceptable response

Timeliness Designation

Red





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Federal Most Wanted Transportation Safety Improvements

Improve Crew Resource Management

Safety Improvements Wanted

Require on-demand charter operators that conduct dual-pilot operations to establish and implement a FAA-approved crew resource management training program for their flight crews.

A-03-52



Crew Resource Management Training

- Techniques for improved crew coordination, workload management, and error reduction



Minnesota Accident

- Eveleth, MN
- 8 fatal



Continued Crew-Involved Accidents



- Montrose, CO
 - 3 fatal, 3 seriously injured
- Houston, TX
 - 3 fatal
- Teterboro, NJ
 - 4 seriously injured
- Lake Michigan, WI
 - 6 fatal

FAA Actions

- **April 2004** – Aviation rulemaking committee reviewing Part 135 changes. NPRM anticipated in 2005-2008.
- **May 2009** – NPRM issued
 - CRM training for single and dual pilot operations
 - Specifies minimum course content
 - Exempts pilots with previous CRM training



FAA Actions Remaining

- Complete rulemaking to establish requirement for Part 135 on-demand operators to implement CRM training in accordance with Part 121 standards



Improve Crew Resource Management

Proposed Safety Board Action

- Keep issue area on Most Wanted List
- Change designation to yellow:
Acceptable response, progressing slowly

Timeliness Designation

Yellow





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Federal Most Wanted Transportation Safety Improvements

**Reduce Aviation Accidents
Caused by Human Fatigue**

Aviation (Flight Crew)

- **A-94-194, A-95-113, A-06-10**
- Flight/duty time limits set in 1938 and 1958
- Recent fatigue-related accidents and incidents
 - Pinnacle Airlines, Traverse City, MI
 - Shuttle America, Cleveland, OH
 - Go!, Hilo, HI
 - Colgan Air, Buffalo, NY
- 2009 - Aviation Rulemaking Committee formed



Aviation (Maintenance)

- **A-97-71**
- FAA has conducted research on fatigue in maintenance, but no rulemaking proposed
- FAA stated it plans to address fatigue through education and training



Aviation (Air Traffic Controllers)

- **A-07-30, A-07-32**
- FAA working group formed in 2007
- Fatigue Risk Management Office established in 2009
 - NASA controller fatigue study



Fatigue Management Systems

- **A-08-44, A-08-45**
- Fatigue management systems typically include:
 - Scheduling practices that foster alertness
 - Sleep disorder screening and treatment
 - Attendance policies
 - Commuting policies
 - Education and training about fatigue



Fatigue Management Systems

- 2008 FAA Fatigue Symposium
- Operations Specification for ultra long range flights
- SAFO directed to short haul operators
- Developing an Advisory Circular



Aviation Fatigue

Proposed Safety Board Action

- Keep issue area on Most Wanted List
- Keep red timeliness designation:
Unacceptable Response
- Add two new recommendations

Timeliness Designation

Red

