

# Wing Tips

Spring 2013 Des Moines Flight Standards District Office

## NTSB Issues Five Safety Alerts for GA Pilots and Mechanics



The NTSB issued five safety alerts that aim to highlight the five most frequent errors that cause general aviation accidents. "We see the same types of accidents over and over again," said NTSB Chairman Deborah Hersman. "What's especially tragic is that so many of these accidents are entirely preventable." The alerts remind pilots to develop effective risk-management strategies, pay close attention to maintenance issues and always conduct a careful diagnostic flight after leaving the shop, be vigilant when flying at night or in reduced visibility, and be sure to understand stalls and how to prevent them. One alert, aimed at mechanics, reminds them to carefully follow procedures when conducting inspections and maintaining aircraft.

The safety board is creating short videos to complement each of the alerts, which will be available online within the next few months. The videos will feature regional air safety investigators sharing what they learned from the many accident investigations they conducted, and offering advice on how pilots and mechanics can avoid tragic mistakes. "GA is essentially an airline or maintenance operation of one, which puts the responsibility for sound decision making on one person's shoulders," Hersman said. "We are promoting and distributing the alerts to reach pilots and mechanics who can benefit from these lifesaving messages." The five safety alerts issued, as well as others that have been issued since 2004, are posted online at the NTSB website. The PowerPoint presentations that investigators made to the board on Tuesday also are archived online.

The board spent more than three hours recounting a litany of flights that ended in tragedy and the chain of events and decisions that led to the outcome. Slides depicted radar tracks with a distinctive hook

pattern characteristic of pilot disorientation in low visibility, photographs of wreckage showing smoking rivets that had not been repaired before launch, and bullet points detailing missed opportunities to break the chain of events leading to an accident. The goal, board members and staff said more than once, was not to assign blame (no accident pilots were mentioned by name), or support new regulations, but simply to get the attention of pilots, and "reach the unreachable."

While commercial air transportation has virtually eliminated fatal accidents in recent years, Part 91 operators continue to come to grief at a steady pace: about 1,500 accidents a year, with about 475 fatalities each year. Board member (and pilot) Earl F. Weener said, "it's worse than that": The accident rate for personal flights has increased about 20 percent in the past decade, with a 25-percent increase in fatalities on personal flights, "and that's the wrong direction."

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These words came from a fixed-wing pilot...  
"If the wings are traveling faster than the fuselage, it has to be a helicopter and therefore, unsafe"

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## FCC Wants to Phase Out 121.5 ELTs



The FCC says it wants to get on with the process of phasing out 121.4 MHz emergency locator transmitters. On January 7, the commission issued its third Notice of Proposed Rulemaking (PDF) on the topic calling for an end to the import, manufacture or sale of 121.5 ELTs a year after the rule becomes effective. In 2009, the FCC amended its rules to ban the ELTs immediately. Since ELTs are required equipment, that would have left hundreds of thousands of aircraft owners with illegal devices on their aircraft. After hearing from the FAA and various groups about the

impracticality of such a move, the FCC backed off. The phased approach appears to be causing little concert among the groups or authorities.

Many organizations, including the Civil Air Patrol and Coast Guard, are strongly in favor of the elimination of 121.5 ELTs. Search and rescue satellites stopped listening to 121.5 signals in 2009 and now the only way to detect one is from airborne or ground-based radio receivers. The receipt of a 121/5 signal triggers a search even though most are the result of accidental triggering. New 406 MHz ELTs embed contact information for the aircraft owner in their signals and authorities can usually verify if there is a true emergency by phone.

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“An optimist stays up until midnight to see the new year in. A pessimist stays up to make sure the old one leaves.”

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### Thunderstorms

Tis the season....As spring and summer approaches, it is a good time to review some of the basics of Thunderstorms.

- a. Turbulence, hail, rain, snow, lightning, sustained updrafts and downdrafts, icing conditions – all are present in thunderstorms. While there is some evidence that maximum turbulence exists at the middle level of a thunderstorm, recent studies show little variation of turbulence intensity with altitude.
- b. There is no useful correlation between the external visual appearance of thunderstorms and the severity of amount of turbulence of hail within them. The visible thunderstorm cloud is

only a portion of a turbulent system whose updrafts and downdrafts often extend far beyond the visible storm cloud. Severe turbulence can be expected up to 20 miles from severe thunderstorms. This distance decreases to about 10 miles in less severe storms.

- c. Weather radar, airborne or ground based, will normally reflect the areas of moderate to heavy precipitation (radar does not detect turbulence.) The frequency and severity of turbulence generally increases with the radar reflectivity which is closely associated with the areas of highest liquid water content of the storm. **NO FLIGHT PATH THROUGH AN AREA OF STRONG OR VERY STRONG RADAR ECHOES SEPARATED BY 20-30 MILES OR LESS MAY BE CONSIDERED FREE OF SEVERE TURBULENCE.**
- d. Turbulence beneath a thunderstorm should not be minimized. This is especially true when the relative humidity is low in any layer between the surface and 15,000 feet. Then the lower altitudes may be characterized by strong winds and severe turbulence.
- e. The probability of lightning strikes occurring to aircraft is greatest when operating at altitudes where temperatures are between minus 5 degrees Celsius and plus 5 degrees Celsius. Lightning can strike aircraft flying in the clear in the vicinity of a thunderstorm.
- f. METAR reports do not include a descriptor for severe thunderstorms. However, by understanding severe thunderstorm criteria, i.e., 50 knot winds or 3/4 inch hail, the information is available in the report to know that one is occurring.
- g. Current weather radar systems are able to objectively determine precipitation

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“A professional is a person who can do their best at a time when they don’t particularly feel like it.”

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## Manual Flight Operations

**Background:** A recent analysis of flight operations data (including normal flight operations, incidents, and accidents) identified an increase in manual handling errors. The Federal Aviation Administration (FAA) believes maintaining and improving the knowledge and skills for manual flight operations is necessary for safe flight operations.

**Discussion:** Modern aircraft are commonly operated using autoflight systems (e.g., autopilot or autothrottle/autothrust). Unfortunately, continuous use of those systems does not reinforce a pilot's knowledge and skills in manual flight operations. Autoflight systems are useful tools for pilots and have improved safety and workload management, and thus enabled more precise operations. However, continuous use of autoflight systems could lead to degradation of the pilot's ability to quickly recover the aircraft from an undesired state.

Operators are encouraged to take an integrated approach by incorporating emphasis of manual flight operations into both line operations and training (initial/upgrade and recurrent). Operational policies should be developed or reviewed to ensure there are appropriate opportunities for pilots to exercise manual flying skills, such as in non-RVSM airspace and during low workload conditions. In addition, policies should be developed or reviewed to ensure that pilots understand when to use the automated systems, such as during high workload conditions or airspace procedures that require use of autopilot for precise operations. Augmented crew operations may also limit the ability of some pilots to obtain practice in manual flight operations. Airline operational policies should ensure that all pilots have the appropriate opportunities to exercise the aforementioned knowledge and skills in flight operations.

**Recommended Action:** Directors of Operations, Program Managers, Directors of Training, Training Center Managers, Check Pilots, Training Pilots, and flightcrews should be familiar with the content of this SAFO. They should work together to ensure that the content of this SAFO is incorporated into operational policy, provided to pilots during ground training, and reinforced in flight training and proficiency checks.

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## FAA Approves ADS-B in Avionics Pilot Program

The FAA has approved avionics that will enable 20 US Airways Airbus A330 aircraft to improve the safety and efficiency of their operations through the use of Automatic Dependent Surveillance-Broadcast (ADS-B).

The avionics, which received a supplemental type certificate from the FAA, were developed by Aviation Communications & Surveillance Systems (ACSS) under a January 2009 agreement, between the three parties in which the agency awarded ACSS \$6.3 million to equip the 20 aircraft with ADS-B In and ADS-B Out.

ADS-B In, which is not currently mandated, provides pilots with a cockpit display showing the location of other aircraft. ADS-B Out, which will be required for all aircraft operating in transponder airspace in 2020, broadcasts aircraft position to air traffic controllers and aircraft equipped with ADS-B In. Nine of the 20 US Airways A330s are equipped with ADS-B Out. ADS-B is the cornerstone of the agency's NextGen program to transform the air traffic control system.

The ADS-B In avionics will significantly improve the situational awareness for pilots of the 20 aircraft by allowing them to see — with satellite precision — other planes flying nearby. This, in turn, will

allow pilots to take advantage of airspace procedures, such as enhanced merging and spacing, that will let them fly more directly from point A to point B, and to fly at more efficient altitudes using in-trail procedures. As with other NextGen technologies and procedures, this measure is expected to save time and money while reducing fuel burn.

## ACCIDENTS

The pilot and two medical crew members were fatally injured when their Bell Helicopter impacted the ground. The medical team was en route to pick up a patient when the accident occurred. The aircraft was destroyed by fire on impact. The accident is still under investigation to determine the cause of the accident.

The private pilot in a Grumman Tiger was not injured during an accident while on a night visual approach. The aircraft descended below the VASI lights on final and the left wing struck a tree. The

pilot managed to do a go around and return for landing. The aircraft sustained substantial damage.

## INCIDENTS

An EMB-135 with 50 passengers aboard had to return for landing shortly after takeoff when the “Smoke Warning” light came on. The crew reported an odor but did not see any smoke. The aircraft landed without incident and no injuries.

The commercial pilot in a Lear Jet was involved in an emergency descent due to a cabin pressure warning. The pilot was able to continue to an airport and land without incident. Post investigation revealed a faulty pressure valve.

The commercial pilot in a BE-35 made an emergency landing in a farm field short of the runway. The pilot reported the engine quit on a 4-mile final and was unable to make the airport. The aircraft sustained minor damage. Cause of the engine failure is still under investigation.

**Until Next Time! Have a Safe Flight!**



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HOURS OF OPERATION  
MONDAY THROUGH FRIDAY  
7:45 a.m. – 4:15 p.m.

*Visitors are requested to make appointments.*

**The DSM FSDO will be closed on the following date  
in observance of a national holiday:**

**Memorial Day**

**May 27, 2013**

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