Lessons Learned From Aviation Accident Investigations

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Abstract
The investigation of aircraft accidents provides engineers with considerable data and experience that can be applied for the prevention of similar accidents. Air travel is extremely safe and aircraft are designed for failure rates of less than one in a billion. Yet, accidents do occur and some of these accidents are the result of engineering and design issues. The investigation of aviation accidents requires expertise in the areas of aircraft performance, powerplants, systems and systems integration, structures, human factors engineering, safety analysis, computer programming, and metallurgical analysis. The very occurrence of an accident indicates a situation has taken place that was outside of the original designers’ assumptions. Often an accident investigation requires innovative and complex engineering analysis involving computer simulations and test protocols to simulate or safely recreate the conditions, which sometimes exceed those that were required for the original certification of the aircraft. It is imperative that the data from these accidents be carefully examined so that the underlying design assumptions can be reassessed and necessary hazard mitigations put in place up to and including design modifications, new/revised operational procedures, and enhanced certification requirements.

Bio
Mr. Haueter is the Director of the National Transportation Safety Board’s Office of Aviation Safety and has over 26 years experience in aircraft accident investigation. Mr. Haueter joined the Safety Board as an aircraft structures investigator, then became an Investigator-in-Charge (IIC) of domestic air carrier accident investigations and as the U.S. Accredited Representative for foreign aviation accidents. Subsequently, Mr. Haueter served as the Chief of the Major Investigations Division and as the Deputy Director. In these roles, he provided management oversight of major aviation investigations such as the TWA Flight 800 and American Airlines Flight 587 and was responsible for the Safety Board’s support of the FBI’s investigation of the September 11, 2001 terrorist attacks. He was the IIC for the investigation of September 8, 1994 accident involving USAir flight 427, which resulted in the redesign of the rudder system on Boeing 737 series. Additionally, Mr. Haueter was an advisor to the space shuttle Columbia accident investigation Board. As the Director of the Office of Aviation Safety, he is responsible for the investigation of all domestic civilian aviation accidents and the Safety Board’s response to major foreign aviation accidents.

Mr. Haueter’s previous employment includes: Tracor Inc. as a program manager for research and development; Telcom Inc. as composite aircraft structures design engineer, and Pratt & Whitney Aircraft as a structures engineer.

Mr. Haueter is an alumnus of Purdue University where he received a BS in Aeronautical and Astronautical Engineering in 1974; he received an MBA in Operations Research and International Business from George Mason University in 1979. Mr. Haueter holds a commercial pilot’s license with multi-engine and instrument ratings and regularly flies a 1943 Stearman airplane that he restored. He is currently building a 1931 Lockheed Altair.

An informal coffee & cookie reception will be held prior to the lecture at 2:30 p.m. in the AAE/ARMS undergraduate lounge (directly in front of ARMS 3rd floor elevators)