

BY FSF INTERNATIONAL ADVISORY COMMITTEE

Pursuing

Introduction to a series focusing on the development and safety benefits of precision-like approaches.

Precision



A lack of modern infrastructure and precision approach guidance in many areas of the world often are blamed for approach and landing accidents, yet most aircraft and flight crews in these areas are capable of conducting “precision-like” approaches.

The following article is the first in a series of four written to improve knowledge and awareness of precision-like approaches. These nonprecision approach procedures with constant-angle descent guidance are less complex than traditional nonprecision approaches and are more likely to produce a stabilized final approach, improving operational safety and efficiency.

These articles on the development and benefits of precision-like approaches are the products of the Precision-Like Approach Project, launched by the Flight Safety Foundation International Advisory Committee (IAC) three years ago.

The Foundation documented the risks of nonprecision approaches in the *Approach and Landing Accident Reduction (ALAR) Tool Kit* and other publications.¹ The FSF ALAR Task Force found, for example, that more than half of the accidents and serious incidents involving controlled flight into terrain (CFIT) occur during step-down nonprecision approaches. Other data showed that nonprecision approaches are five times more hazardous than precision approaches. These findings led to a call for expediting the worldwide implementation of precision-like approaches and for training pilots to use these procedures.

While some areas of the world have adopted new technologies to manage the threat of CFIT during approach and landing, other areas essentially are “frozen in time,” using navigational techniques developed in the 1940s and 1950s. The IAC has found a lack of knowledge about precision-like approaches — how to fly them and how to design and approve them — despite the fact that most aircraft and flight crews are capable of using them.

In this first article, Capt. Tom Imrich, senior engineering test pilot for Boeing Commercial Airplanes, details the many terms used to describe instrument approach procedures, reviews

the evolution of vertical guidance and describes likely future developments.

Capt. Etienne Tarnowski, an experimental test pilot for Airbus, in the second story will discuss methods and procedures currently in place to fly safe non-ILS (instrument landing system) approaches. He looks at the entire spectrum of navaid-based instrument approaches and discusses how the evolution of procedures has been dictated by the way approaches have been defined, the navigation sensors available and the instruments provided to fly and monitor the approaches.

Co-authors Don Bateman, corporate fellow at Honeywell, and Capt. Dick McKinney, who flew for American Airlines, in the third article will discuss the risks of the “dive-and-drive” way of conducting step-down nonprecision approaches and the tools available to reduce the risks.

Capt. Dave Carbaugh, chief pilot for flight operations safety at Boeing, will conclude the series with a discussion of the benefits of precision-like approach procedures, including reduced risk of CFIT and approach-and-landing accidents, lower approach minimums, less noise, decreased fuel burn and exhaust emissions, reduced training costs, increased payload and range, and fewer regulation and infrastructure requirements.

The IAC believes that precision-like approach procedures are a safety improvement that we all should advocate and employ. ●

Note

1. Information about the *FSF ALAR Tool Kit* is available on the Foundation's Web site at flightsafety.org/ecommerce/default.cfm?Action=Detail&ItemID=897.

Further Reading From FSF Publications

FSF Approach and Landing Accident Reduction (ALAR) Task Force. “ALAR Briefing Notes.” *Flight Safety Digest* Volume 19 (August–November 2000).

FSF ALAR Task Force. “Killers in Aviation: FSF Task Force Presents Facts About Approach-and-landing and Controlled-flight-into-terrain Accidents.” *Flight Safety Digest* Volume 17 (November–December 1998) and Volume 18 (January–February 1999).