SMART Training Session

Opening Remarks

Presented to: 2016 Aircraft Airworthiness and Sustainment Conference

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SMART Opening Remarks

- **Morning training session**
  - SMART|LD
    - Small Airplane Risk Technology – Linear Damage
- **Afternoon training session**
  - SMART|DT
    - Small Airplane Risk Technology – Damage Tolerance

SMART Opening Remarks

- **Conversation starter for engineers**

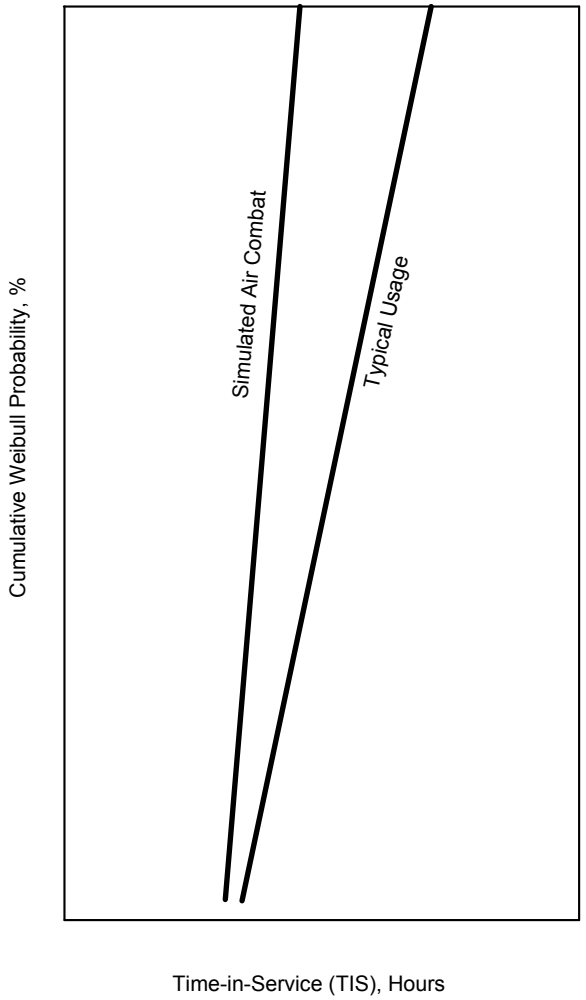
  “So how did you get interested in probabilistics?”

SMART Opening Remarks

- **Revision of AC 23-13**
  - Review historical guidance (AFS-120-73-2)
    - Why scatter factor = 4.0?
    - Why gust and maneuver spectra offset by 1.5 standard deviations?
    - ‘Deterministic’ solution to probabilistic problem
  - Used Monte Carlo simulations to validate
    - ‘Probability Basis of Safe-Life Evaluations in Small Airplanes’, 9th Joint FAA/DoD/NASA Aging Aircraft Conference

SMART Opening Remarks

- **Unique Sub-Fleets**
  - Minority sub-fleet operated with more severe stress spectrum than remainder of fleet
  - Relative risk between different stress spectra
  - Insight into how to manage risk within constraints of 14 CFR Part 39 Airworthiness Directives



SMART Opening Remarks

- **Cessna 402**
  - Spar cracking with critical crack size less than detectable crack size
  - Large percentage of fleet older than ‘life-limit’ solution, would have caused groundings
  - Used risk management to schedule modifications considering time-in-service and modification resources.

SMART Opening Remarks

- **FAA Order 8110.107A Monitor Safety/Analyze Data (MSAD) (10/1/2012)**
  - FAA will use quantitative risk analysis in making continued operational safety decisions. (Airworthiness Directives)

FAA Business

- **Rewrite of part 23**
  - NPRM published in Federal Register March 14, 2016. Also available on FAA RGL website
  - Comment period closes May 13, 2016
    - You can petition for an extension
  - Public meeting in Atlanta, May 3-4, 2016
  - Leave business card if interested

NC999E accident greatly changed the course of aviation

Technological changes: aluminum structure, icing protection

Government changes: 1938 Civil Aeronautics Act

85th anniversary on March 31st

Long-flight reading material: DOT/FAA/AR-08/39