The Impact of New Technology on Aircraft Maintenance

Workshop | 26 February 2013

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**Scope and Content**

**The SAFE Symposium: focus and ambitions**
In the aircraft industry a key design parameter is efficiency. Currently the main focus is on fuel efficiency, increasing the demand for lighter aircraft. Therefore, in the past years there has been a search for new materials and technologies with enhanced properties. For this reason the Boeing 787 and Airbus 350 are mainly built out of composite materials. And the Boeing 787 introduces the use of an all-electric system for amongst others actuation and ECS. However, the application of new materials and maintenance programs requires extensive research and development. With safety as top priority, the symposium will discuss these new developments in the world of aviation. In particular, this symposium will highlight that safety should not be taken for granted.

**Scope Workshop**
The workshop to be held together with the Symposium focusses on one of the key questions regarding the future of aviation addressed during the symposium: “what are the challenges in the application of new materials like composites for aircraft structures regarding maintenance”. The workshop gives insight into the aircraft maintenance (including repair) process, the way maintenance is addressed during design, to illustrate what is required to introduce new developments such as innovative materials into an aircraft from a maintenance perspective. The workshop aims to prove that safety should not be taken for granted, and there is a delicate balance between innovation, safety, and efficiency.

**Topics**
The workshop will:

- Illustrate the *importance* of maintenance for commercial aircraft (from a safety, economical and operational point of view)
- Highlight the aircraft *maintenance process* performed at the airline, and the required customer (product) support process provided by aircraft manufacturers
- Discuss how maintenance is addressed during the *design and development* process of new aircraft to guarantee airworthiness and safety (RAMS Driven Design)
- Define how *maintenance programs* are developed for commercial aircraft (MSG, MRB, MPD, maintenance manuals), highlighting the role of the OEM, operator and authorities in this process, each with their specific requirements
- Illustrate the strong relationship between *safety and maintenance*, not only during design and development but also during the operation and maintenance over the total life cycle.
- Give illustrative examples related to aircraft structure and the introduction of new materials
Schedule and Topics

18:00 – 18:30  Inloop

18:30 – 18:45  Welcome and Introduction
  • Introduction ADSE
  • Introduction attendees
  • Workshop goal, scope, topics, schedule

18:45 – 19:30  Workshop 1 “IMPORTANCE’
  • Interactive Discussion “The 7 Questions” (15 minutes)
  • The Importance of Maintenance (15 minutes)

19:30 – 20:00  Workshop 2 “DESIGN FOR MAINTENANCE”
  • Exercise: Maintenance of Aircraft Tires (15 minutes)
    o Repair or replace strategy
    o Impact on maintenance cost and aircraft dispatch reliability
  • Design for Maintenance (RAMS Driven Design) (15 minutes)

20:00 – 20:15  Break

20:15 – 20:45  Workshop 3 “MAINTENANCE PROGRAM DEVELOPMENT”
  • Interactive Discussion “The 7 Questions”
  • Maintenance program Development
  • The relation between safety and maintenance

20:45 – 21:15  Workshop part 4 “NEW TECHNOLOGY INTRODUCTION”
  • Interactive Discussion “The 7 Questions”
  • The introduction of New technology / innovation vs safety
  • Example: Aircraft Structure and Materials

21:15 – 21:30  Summary and conclusions
  • Interactive Discussion “The 787 case”
  • The Dilemma “innovation, certification, value and safety”
  • Questions and Answers

21:30  End
Handouts

Workshop 1: IMPORTANCE

Workshop 2: DESIGN FOR MAINTENANCE

Workshop 3: MAINTENANCE PROGRAM DEVELOPMENT

Workshop 4: NEW TECHNOLOGY INTRODUCTION