

FAA & Industry
Rotorcraft Forum

January 31 – February 2, 2012

**CHALLENGES TO INSTALLATION OF
NEW TECHNOLOGY IN ROTORCRAFT**

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Cool City Avionics



WHO ARE WE?



- Cool City Avionics is a manufacturer of automatic flight control systems in Mineral Wells, Texas
- Staff has over 300 years experience in airplane Automatic Flight Control System certifications



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OUR GOALS AND OBJECTIVES

- Discuss problems we experienced in certifying our new products
- Offer suggestions on how the current process, as applied in the Rotorcraft Directorate and ACO, might be improved
- Foster the return to partnerships dedicated to the timely completion of certification projects

NEW TECHNOLOGY ISSUES

- Challenges associated with use of new technology in avionics applications
- Approval process can be difficult and lengthy
- New technologies may require changes or deviations to current regulations

HOW DID WE GET HERE?

- Long history of FAA support of industry
- Changes in the FAA in the last 10 to 15 years
- Discuss the concept of a partnership to certify products that improve aircraft safety – the PSP

TODAY'S SITUATION

- FAA is often not responsive to their customers
- FAA workload is greater than staff can handle efficiently
- Focus is on safety, but safety is not improved or enhanced by delays in certification projects
- Need a more knowledgeable, better-qualified FAA team that exercises good judgment

OUR PROJECTS – AN AFCS FAMILY

- Analog Stability Augmentation System (SAS)
- Digital, 2-axis, fail-passive autopilot
- Digital, 3-axis, fail-passive autopilot
- Digital, 2-axis, fail-passive autopilot/Stability & Control Augmentation System (SCAS)
- Digital, 3-axis, fail-passive Autopilot/SCAS
- Dual 3-axis, fail-passive Autopilot/SCAS



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COMPANY PROJECT AS EXAMPLE

- Significant delays and a moving target of regulation and policy changes
- Inability to jointly agree on a schedule that can be met by the FAA
- Uncertainties affect our market entry schedules and funding requirements

COMPANY PROJECT AS EXAMPLE

- April 2009 – submitted application for SAS
- May 2010 – advised by our Structures DER that our FAA Structures Engineer required us to develop a new system for the R44

COMPANY PROJECT AS EXAMPLE

- May 2011 – a year later – completed company testing and finalizing our drawings – advised the FAA we would request a TIA in June. Received first notice of FAA considering an Issue Paper on the Secondary Stop System designed a year earlier.

COMPANY PROJECT AS EXAMPLE

- Issue Paper preparation continues for months, even after explaining the EAOL system to FAA personnel
- FAA continues to restrict our involvement with the Issue Paper process

EXAMPLE OF LACK OF FAA JUDGMENT

- Our 2-axis SAS is subject to possible failure to operate, but DER flight tests concluded that the result of such failure was not a significant problem.

IN SUMMARY - COMMENT 1

The ACO does not create a product or the product's safety elements. They only determine the compliance level required and the level of tests needed to demonstrate compliance.



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IN SUMMARY – COMMENT 2

We believe the FAA certification service is understaffed for current and future certification activities.



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IN SUMMARY – COMMENT 3

FAA must improve the quality of supervision of the processes directed for use in FAA handbooks.



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IN SUMMARY – COMMENT 4

FAA needs to improve communication between its project managers and the certification project applicants.



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IN SUMMARY – COMMENT 5

There must be recognition by the ACOs that time has value in the real world.



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IN SUMMARY – COMMENT 6

Differences of opinion in the interpretation and application of FARs are expected. Both the FAA and the applicant need to discuss each issue until full understanding occurs and a mutually-acceptable solution is developed.

IN SUMMARY – COMMENT 7

FAA Policies and Procedures documents are well done, but their application varies with ACO personnel.



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IN SUMMARY – COMMENT 8

The FAA needs to add more Project Managers to provide better oversight of certification team members.



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IN SUMMARY – FINAL COMMENT

- We have a deep appreciation for the FAA aircraft certification service.
- We feel that the certification performance trends of the past 15 years, or so, must be reversed.



RECOMMENDATIONS FOR FAA

1. Hire more project managers
2. Improve the quality of supervision at all levels
3. Improve communication between FAA managers and applicants
4. Support the timely completion of certification projects



QUESTIONS?


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Automatic Flight Controls

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