Overview

• Rotorcraft Safety Challenge
• FAA Rotorcraft Directorate (RD) Organization & Responsibilities
• Status of Rotorcraft Advisory Circulars (ACs) & Policies
Rotorcraft Accidents by NTSB Classification

10 Years from CY01 to CY10 – 1,672 Accidents

- Personal/Private 20.0%
- Instruction/Training 21.7%
- Aerial Application 8.2%
- EMS 7.8%
- Public Use 7.8%
- Aerial Observation 3.3%
- Business 4.7%
- Positioning 4.9%
- Other Work 7.4%
- Not Categorized 9.3%
- External Load 1.9%
- Flight Test 1.4%
- 6 Other Categories 1.5%
Summary of Accident Contributing Categories

- **Personal/Private:**
  - Account for approximately 20 - 25% of helicopter accidents.
  - Based on estimated operating hours, contribute roughly 6 times their “fair share.”

- **Instruction/Training:**
  - Account for approximately 20% of helicopter accidents.
  - Contribute roughly 1 - 2 times their fair share.

- **Aerial Application:**
  - Thru 2007, approximately 8% of helicopter accidents.
  - Thru 2007, contributed roughly their fair share.
  - An alarming increase in recent years: 18% in 2010, 22% in 2011, 14% in 2012.
  - Now contribute approximately 3 - 5 times their fair share.
Top Accident Causes and Contributing Factors

• **Loss of Control:**
  – 41% of Personal/Private
  – 61% of Instructional/Training
  – 32% of Aerial Applications

• **Pilot Judgment and Actions:**
  – 90% of Personal/Private
  – 93% of Instructional/Training
  – 67% of Aerial Applications

• **Most Common Errors:**
  – Performance management, i.e. insufficient power
  – Exceeding published aircraft operating limits
  – Loss of tail rotor authority
  – Interference with controls
Where are the Safety Opportunities?

• Three types of operations account for 50 to 60% of the rotorcraft accidents.
  – Personal/private
  – Instruction/training
  – Aerial applications

• Each of these operations contributes more than its “fair share” to the number of accidents.

• For these “high offender” categories, the following are the most significant contributors –
  – Loss of Control
  – Pilot Judgment/Action

• Conclusion: We must enable the pilot to make better decisions
What Role Will Technology Play in Rotorcraft Safety?

• Improve Safety?
  – Improved situation awareness
  – Training enhancements
  – Smart power management
  – Smart cockpit

• Diminish Safety?
  – Distracting or misleading information
  – Snow tire syndrome
The Rotorcraft Safety Challenge

• Recognize that rotorcraft are unique aircraft, with unique safety challenges that may not lend themselves to fixed-wing solutions.

• Determine how to use technology to improve rotorcraft safety, particularly in “high offender” operations.

• Find means to encourage practical and economical installations of safety enhancing systems – which may require that we broaden our concept of “safety” to include an evaluation of both risks and benefits.
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RD Standards Staff Responsibilities, ASW-110

- Support Safety Initiatives (e.g. IHST)
- Rulemaking & Advisory Circular (AC)
  - Parts 27 (Normal) & 29 (Transport)
  - ACs 27 & 29
- Part 27/29 Certification Standardization Among Aircraft Certification Offices (ACO)
  - e.g. Boston, Los Angeles, Alaska ACOs
- Support Major Domestic Certification Projects
  - Process Issue Papers
  - Equivalent Level of Safety Findings (ELOS)
  - Special Conditions (e.g. Search & Rescue, Fly-By-Wire)
- Validation of All TC/ATC Import Rotorcraft
  - Boston ACO (TSOs)
  - NY ACO (STCs)
RD Standards Staff Responsibilities, ASW-110

- **Rotorcraft Continued Operational Safety (COS)**
  - Airworthiness Directives (ADs)
  - Special Airworthiness Information Bulletins (SAIBs)
  - NTSB/FAA Safety Recommendations
  - Accident Investigation Technical Support

- **Rotorcraft RE&D**
  - HUMS, Advanced Flight Controls, Icing

- **Coordination with EASA, TCCA & other Authorities**

- **Unmanned Aircraft Systems**
Rotorcraft ACs & Policies

- **HTAWS AC 27/29 MG-18 (Draft)**
  - To be released once HEMS Final Rule is issued

- **HEMS AC 27/29 MG-6 (Draft)**
  - To be released once HEMS Final Rule is issued

- **AC 27/29 Groups 1 & 2 (Draft)**
  - Group 1 consists of material where few changes were necessary *(Public review ~ Jan/Feb 2013)*
  - Group 2 consists of new material and material involving more extensive changes *(Public review ~ Mar/Apr 2013)*
  - Electronic Display Systems (EDS)
  - XX.1309/1316/1317 (FHA, Lightning, HIRF)
  - Human Factors
  - Night Vision Imaging Systems (NVIS)
Rotorcraft ACs & Policies

• NORSEE – Draft
  – Public Review (Jan. 23, 2013)
  – http://www.faa.gov/aircraft/draft_docs/

• Rotorcraft Laser & Filtered Infrared (IR) Searchlights- Draft
  – Public comments disposition
  – FAA legal counsel review pending followed by Management Coordination
  – National Laser AC – Draft (FAA Internal Review Mar/Apr 13)

• Rotorcraft AML Policy
  – Issued in June 2010
  – National FAA AML Memo Clarifying the AML STC process (Issued Sept. 2012)
  – National AML Policy
Rotorcraft ACs & Policies

• **Advanced Flight Controls** (e.g. Fly-By-Wire)
  – FAA Review – mid 2013
  – Public Review – late 2013

• **Auto Flight Guidance Control Systems (AFGCS)**
  – FAA Review – mid 2013
  – Public Review – late 2013

• **Non-Required Equipment**
  – FAA Review – mid/late 2013
  – Public Review – late 2013/early 2014
Airborne Software Assurance Guidance

• **AC 20-115C will invoke the following RTCA documents:**
  - RTCA DO-331, Model-Based Development and Verification Supplement to DO-178C and DO-278A, dated December 13, 2011.
  - **Public comments - 3rd quarter 2013**