Helicopter Safety Enhancement (H-SE) Summary Report
Completed Helicopter Safety Enhancements

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Completed Helicopter Safety Enhancements

1. Utilities and Construction Practice Guide
2. Safety Culture and Professionalism
3. Detection and Management of Risk Level Changes During Flight
4. The Final Walk Around
5. Development of Airman Certification Series for Rotorcraft
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7. Simulators and Outside-the Envelope Flight Conditions
8. Helicopter Flight Data Monitoring
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14. Pre-Flight Risk Assessment for Student Pilots
15. Recognition & Recovery of Spatial Disorientation
16. Hazards of Over-the-Counter Medication
Utilities and Construction Practice Guide

H-SE 13A

• Action: Promote recommended practices for utility patrol and construction operations

• Result: Assisted in the creation of the Utilities Patrol and Construction (UPAC) Safety Guide for Helicopter Operators

UPAC Safety Guide for Helicopter Operators
Safety Culture and Professionalism

H-SE 19A

• Action: Develop definition and promote effective safety culture relatable to frontline helicopter professionals

• Result: Worked with FAASTeam to deliver “Go Local” helicopter safety workshops and webinars

• USHST All Hands Webinars

• Push to Talk Podcast: Improving Safety Culture
Detection and Management of Risk Level Changes During Flight by Pilots and Nonflying Crew

H-SE 22A

• Action: Develop and promote practices to detect and effectively communicate increased risk and appropriate mitigation

• Result: Developed the following outputs:
  • Detection & Management of Risk Level Changes During Flight by Pilots & Non-Flying Crew
  • US Army Aircrew Coordination Training
  • Using CRM on All Helicopter Flights
  • Sample CRM Briefing Card

• Push to Talk Podcast: Managing Risk in Flight
Helicopter Final Walk Around & Security of External Cargo
H-SE 28/112

- Action: Develop and promote guidelines for preflight inspection, final walk around, and postflight inspection to training and general pilot community
- Result: Developed the following outputs:
  - Recommended Practice, Helicopter Preflight, Final Walk Around and Postflight Inspection Guidelines
  - 12 Rules to Live by for Your Pre-Flight Helicopter Inspection
  - USAIG/HAI Poster: One Last Look
Develop & Publish ACS
Rotorcraft-Helicopter Series
H-SE 30

• Action: Develop and publish new Airman Certification System Rotorcraft-Helicopter series to replace the current Practical Test Standards
• Result: USHST members supported FAA’s ACS, Rotorcraft-Helicopter ARAC, providing content for inclusion in the updated ACS
  • Airmanship Safety Bulletin, Vortex Ring State
  • Airmanship Safety Bulletin, Power Available Limitations
Add Progressive Approach to Training Autorotations to Helicopter Flying Handbook
H-SE 37 ⇒ ⇒ ⇒ ⇒ H-SE 30

• Action: Amend Helicopter Flying Handbook to incorporate progressive approach to training autorotations
• Result: To streamline resources, efforts under this H-SE were consolidated into H-SE 30 (Develop & Publish ACS Rotorcraft-Helicopter Series)
• Refer to H-SE 30 for more details
Stability Augmentation System (SAS)/Autopilot
H-SE 70

• Action: Encourage development and installation of a stability augmentation system (SAS) and/or simple autopilot in light helicopters.

• Result: Developed and published report, *Loss-of-Control In-Flight Mitigation through Installation of Stability Augmentation and Autopilot Systems in Light Helicopters* that included several recommendations for consideration by industry and FAA.
Technology to Prevent Unintended Loss of Engine Power
H-SE 75 ⇒ ⇒ ⇒ ⇒ H-SE 123

• Action: Encourage development and installation of Full Authority Idle Protection devices to prevent unintended loss of engine power.

• Result: To streamline resources, efforts under this H-SE were consolidated into H-SE 123 (Increased Simulation/Education to Develop Safe Decision Making)

• Refer to H-SE 123 for more details
Improve Simulator Modeling for Outside-the-Envelope Flight Conditions

H-SE 81

- Action: Recommend improved simulator mathematical physics models for level A-D Full Flight Simulators, basic and advanced Aviation Training Devices, and Level 4-7 Flight Training Devices for outside-the-envelope flight conditions.

- Result: Developed and published Improve Simulator Modeling for Outside-the-Envelope Flight Conditions
Helicopter Flight Data Monitoring
H-SE 82

• Action: Promote install/use of data recording devices to detect/monitor exceedances; collect/preserve accident investigation data; detect/correct procedural noncompliance.

• Result: Developed & published:
  • Helicopter Flight Data Monitoring Quick Start Guide
  • Summary Report, Helicopter Flight Data Monitoring

HFDM Quick Start Guide

HFDM Summary Report
UAS in High-Risk Environments
H-SE 90

• Action: Encourage use of UAS and continued development and integration of optionally piloted aircraft or autonomy-enabled helicopters, to supplement and support manned operations in high-risk operations or environments.

• Result: Developed & published:
  • Report: [Identifying How UAS/OPA Can Reduce Fatal Accidents in High-Risk Manned Helicopter Operations](#)
  • Bulletin: [UAS & OPA Technology-Integrating into Helicopter Operations](#)
  • Press Release: [USHST Sees Safety Benefits of Integrating UAS and OPA Technology into Helicopter Operations](#)
  • Article: [Unmanned Systems Can Save Lives In High-Risk Manned Operations](#)
Enhanced Helicopter Vision Systems
H-SE 91

• Action: Promote enhanced vision systems tech to assist in recognizing & preventing unplanned flight in degraded visibility conditions.

• Result: Published report, *Enhanced Helicopter Vision Systems*
Threat and Error Management for Initial and Recurrent Pilot Training
H-SE 115 / 128 ⇒ ⇒ ⇒ ⇒ H-SE 30

• Action: Develop and promote best practices for the teaching of Threat and Error Management (TEM) as part of initial and recurrent pilot training.

• Result: To streamline resources, efforts under this H-SE were consolidated into H-SE 30 (Develop & Publish ACS Rotorcraft-Helicopter Series)

• Refer to H-SE 30 for more details
Improve Make/Model Transition Training
H-SE 116

• Action: Improve make/model transition by ensuring familiarity and understanding of new model specific equipment.

• Result: Developed & published:
  • Helicopter Transition Training Recommended Practices
  • Helicopter Make/Model Transition and Differences Training Syllabus
Competency-based Training Assessments in Initial Pilot Training
H-SE 117 ⇒ ⇒ ⇒ ⇒ H-SE 30

• Action: Provide guidance on improved training to competency in the following areas: Aircraft performance and limits; power/energy management; basic maneuvers essential to positive aircraft control; threat and error management; mission planning; aircraft systems; and pilot operating handbook

• Result: To streamline resources, efforts under this H-SE were consolidated into H-SE 30

• Refer to H-SE 30 for more details
Standardization of Autorotation and Emergency Aircraft Handling Training

H-SE 122 ⇒ ⇒ ⇒ ⇒ H-SE 30

• Action: Develop consensus on recommended practices for standard training of CFIs on autorotations and emergency aircraft handling.

• Result: To streamline resources, efforts under this H-SE were consolidated into H-SE 30 (Develop & Publish ACS Rotorcraft-Helicopter Series)

• Refer to H-SE 30 for more details
Increased Simulation/Education to Develop Safe Decision Making
H-SE 123

• Action: Increase the use of relevant simulation to rehearse at risk scenarios to develop safe decision making and educate.

• Result: Developed & published:
  - Video: “Simulation: Learn From Your Mistakes”
  - White Paper: Recommended Practice, Simulation Training for Aviation Decision Making
Improve Understanding of Basic Helicopter Aerodynamics
H-SE 124

• Action: Review and revise helicopter aerodynamics materials to emphasize recognition of unsafe aerodynamic situations and apply appropriate corrective actions.

• Result: Developed & published:
  • Facilitated development of the Helicopter Flying Handbook
  • Airmanship Safety Bulletin: Vortex Ring State
  • Airmanship Bulletin: The Vuichard Recovery
  • Push to Talk Podcast: Understanding Helicopter Aerodynamics

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Preflight Risk Assessment for Student Flights
H-SE 125

• Action: Provide recommended practices to instructors for pre-flight risk assessment of student flights.

• Result: Developed and Published:
  Recommended Practice: Preflight Risk Assessment for Student Flights

• Other Resource:
  FAA Safety Aviation Learning Center Course, ALC-683, Conducting Preflight Self-Briefings for Student and VFR Pilots
Training for Recognition & Recovery of Spatial Disorientation
H-SE 127A

• Action: Develop training for recognition of spatial disorientation and recovery to controlled flight.

• Result: Developed & published Recommended Practice, SD Induced by a DVE, Training and Decision-Making Solutions

• Push to Talk Podcast: How to Recover from Spatial Disorientation
Hazards of Over-the-Counter Medication
H-SE 130

• Action: Emphasize hazards of flying impaired by sedating over-the-counter medications, particularly antihistamines, including through renewed education initiatives

• Result: Available documents
  • USHST Safety Bulletin: Is it safe to fly after taking nonprescription medications?
  • What Over-the-Counter (OTC) medications can I take and still be safe to fly? (FAA)
What’s Next?
New Helicopter Safety Enhancements

- Promote conservative go/no-go decision making (includes performance planning)
- Educate hazards of low altitude operations
- Improve risk management of night operations
- Improve fatigue awareness & risk mitigation of scheduling factors leading to fatigue
- Training on effects of adverse wind situations, particularly performance issues at low airspeed
Ready to Help?

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