

**Helicopter Safety Enhancement (H-SE) Number 122:  
Recommended Practices for Standardization of Autorotation and Emergency Aircraft  
Handling Training**

<b>Safety Enhancement Action:</b>	Training: Convene team of training industry experts to develop consensus on recommended practices for standard training of the Certified Helicopter Flight Instructor on autorotations and emergency aircraft handling.
<b>Expected Implementers:</b>	<ul style="list-style-type: none"> <li>• Helicopter Association International (HAI) Training Committee (TC)</li> <li>• USHST Special Emphasis Area (SEA) Training Team</li> <li>• FAA Safety Team (FAAST)</li> <li>• FAA AFS-810</li> </ul>
<b>Statement of Work:</b>	<p>Although only one of the 52 fatal accidents within the LOC-I, UIMC, and LALT dataset from 2009-2013 spurred creation of this H-SE, its final score was the highest of all the interventions proposed.</p> <p>This H-SE is closely related to the work on H-SE 37. For consistency and standardization purposes, there is benefit to information being shared and closely coordinated between both efforts.</p> <p>Autorotation training occupies a significant portion of any flight training curriculum. The USHST identified an apparent disconnect between autorotation training conducted at flight schools, guidance provided in official FAA publications, and the practical application of the maneuver in flight during either a real or simulated engine failure. Therefore, the USHST proposes that a team of training industry experts (H-SE 122 Subject Matter Expert (SME) Team) develop a consensus on how autorotation training should be conducted for the Certified Flight Instructor-Rotorcraft/Helicopter. This guidance should be general in nature and center around principles of Energy Management to account for aircraft-specific differences. This single-source reference should be created to facilitate flight schools incorporating the recommendations into their existing Flight Instructor training programs.</p> <p>Additionally, emergency aircraft handling (abnormal operations) training is confined to guidance provided by Operator Handbooks or localized (tribal) knowledge and no standardized reference exists in current training publications.<sup>1</sup> The H-SE 122 SME Team also should generate standard reference(s) for emergency and abnormal operations to augment available materials.</p>

<sup>1</sup> The Rotorcraft Flying Handbook had a small standardized foot-note reference regarding landings from in-flight emergencies on page 12-18, but these references were eliminated in the Helicopter Flying Handbook.

	<p>Project:</p> <ol style="list-style-type: none"> <li>1. Define an H-SE 122 SME team, composed of subject matter experts from the helicopter training industry and led by the USHST SEA Training Team.</li> <li>2. H-SE 122 SME team to draft White Paper documenting the consensus on recommended training practices for Certified Flight Instructor-Rotorcraft/Helicopter, focusing on: <ol style="list-style-type: none"> <li>a. Basic Autorotation to Advanced Autorotation development as skill maneuver only (progressive approach).</li> <li>b. Autorotation as an emergency maneuver building competency within realistic scenario (Engine Failure Training) and associated complex decision making elements.</li> <li>c. Additional autorotation techniques to be generated, in-line with licensing standards of other ICAO member states (recommended practice), other than straight-in auto and 180 degree autorotation as the current Practical Test Standards require.</li> <li>d. Standardized Emergency Aircraft Handling in-line with recommended practices from sources such as POHs, RFMs, ICAO guidance, SME experience, and other source materials.</li> </ol> <p>The team will develop an online database of resources when the draft is complete.</p> </li> <li>3. H-SE 122 SME team lead to submit White Paper and associated media to USHST, FAA, and other stakeholders, as appropriate.</li> <li>4. H-SE 122 SME team lead to submit endorsed White Paper to FAA to support revision of current Advisory Circular (AC) 61-140, as amended (Autorotation Training) .</li> <li>5. H-SE 122 SME team to support revisions of Helicopter Flying Handbook, Helicopter Instructor’s Handbook to include information from endorsed White Paper.</li> </ol> <p>The following fatal accident prompted this safety enhancement: ERA10FA283</p>
<p><b>Relation to Current Aviation Community Initiatives:</b></p>	<ul style="list-style-type: none"> <li>• ICAO Doc 9868, PANS-TRG; Guidance on Instructional Design used for development of competency based programs</li> <li>• EHEST Helicopter Flight Instructor Manual</li> <li>• FAA AC 61-140A (Autorotation Training), <a href="http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/B8C6BE172F015A3586258020006AEA40?OpenDocument&amp;Highlight=61-140a">http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/B8C6BE172F015A3586258020006AEA40?OpenDocument&amp;Highlight=61-140a</a></li> </ul>

	<ul style="list-style-type: none"> <li>• IHST Helicopter Training ToolKit</li> <li>• USHST/IHST Autorotation and Energy Management Publications</li> <li>• H-SEs 37 and 124</li> </ul>																												
<b>Performance Goal Indicators:</b>	<ul style="list-style-type: none"> <li>• H-SE team formed and meeting schedule established.</li> <li>• White Paper drafted and supporting materials generated (as applicable), including online database of resources.</li> <li>• White Paper endorsed by the USHST.</li> <li>• AC 61-140A and Handbooks updated.</li> </ul>																												
<b>Key Milestones:</b>	<table border="1"> <thead> <tr> <th></th> <th><u>Total Months</u></th> <th><u>Start Date</u></th> <th><u>End Date</u></th> </tr> </thead> <tbody> <tr> <td>Output 1:</td> <td>2</td> <td>Jan. 1, 2018</td> <td>Mar. 1, 2018</td> </tr> <tr> <td>Output 2:</td> <td>12</td> <td>Mar. 1, 2018</td> <td>Mar. 1, 2019</td> </tr> <tr> <td>Output 3:</td> <td>3</td> <td>Mar. 1, 2019</td> <td>June 1, 2019</td> </tr> <tr> <td>Output 4:</td> <td>12</td> <td>June 1, 2019</td> <td>June 1, 2020</td> </tr> <tr> <td>Output 5:</td> <td>24</td> <td>June 1, 2020</td> <td>June 1, 2022</td> </tr> <tr> <td colspan="4"><b>Completion: 53 months</b></td> </tr> </tbody> </table>		<u>Total Months</u>	<u>Start Date</u>	<u>End Date</u>	Output 1:	2	Jan. 1, 2018	Mar. 1, 2018	Output 2:	12	Mar. 1, 2018	Mar. 1, 2019	Output 3:	3	Mar. 1, 2019	June 1, 2019	Output 4:	12	June 1, 2019	June 1, 2020	Output 5:	24	June 1, 2020	June 1, 2022	<b>Completion: 53 months</b>			
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<b>Potential Obstacles:</b>	<ul style="list-style-type: none"> <li>• Financial resources to support meetings and development of materials.</li> <li>• Obtaining USHST endorsement for White Paper.</li> <li>• FAA procedural hurdles to updating AC and Handbooks.</li> </ul>																												
<b>Detailed Implementation Plan Notes:</b>	<p>Endorsement from either the IHST (if HAI is lead)—or HAI (if the USHST is lead)—is crucial in establishing validity in the eyes of the target audience. Efforts for AC and handbook revisions provide FAA endorsement in the long-term.</p> <p>This SE should be coordinated with efforts under H-SEs 37 and 124, which also calls for AC and Handbook updates.</p>																												
<b>CICTT Code:</b>	LOC-I																												
<b>Output 1:</b>																													
<b>Description:</b>	Define an H-SE 122 SME team, composed of subject matter experts from Training Industry and led by the USHST SEA Training Team.																												
<b>Lead Organization:</b>	USHST SEA Training Team																												
<b>Supporting Organizations:</b>	<ul style="list-style-type: none"> <li>• AFS-820</li> <li>• IHST</li> </ul>																												

<b>Actions:</b>	<ol style="list-style-type: none"> <li>1. USHST SEA Training Team to connect with HAI TC to formulate team participants.</li> <li>2. Establish ownership of efforts and roles within team.</li> <li>3. Establish initial meeting with participants to outline further objectives and meeting schedule.</li> </ol>
<b>Output Notes:</b>	Ideally, the HAI TC will lead the team. Complete once team defined, roles established, and meeting schedule set.
<b>Time Line:</b>	2 months
<b>Target Completion Date:</b>	Mar. 1, 2018
<b>Output 2:</b>	
<b>Description:</b>	Draft a White Paper documenting the consensus on recommended training practices for Certified Flight Instructor-Rotorcraft/Helicopter with focus on areas defined in the Statement of Work and develop an online database of resources when the draft is complete.
<b>Lead Organization:</b>	H-SE 122 SME team
<b>Supporting Organizations:</b>	<ul style="list-style-type: none"> <li>• HAI TC</li> <li>• USHST SEA Training Team</li> <li>• FAA AFS-820</li> <li>• IHST</li> </ul>
<b>Actions:</b>	<ol style="list-style-type: none"> <li>1. Compile and review existing resources.</li> <li>2. Define structure of White Paper: <ol style="list-style-type: none"> <li>a. Consider: Energy Management Discussion; Basic Autorotation maneuver and progression; Advanced Autorotations; Engine Failure Autorotation Scenario Exercises and Abnormal (Emergency) aircraft handling and procedures (general)</li> </ol> </li> <li>3. Draft a White Paper based on the structure defined in Action number 2. Distribute this initial, non-endorsed draft White Paper to the CFI Focus Group for feedback. Incorporate appropriate edits and revisions based on feedback from the CFI Focus Group.</li> <li>4. Build any associated materials as appropriate/necessary, such as videos, slides, etc.</li> <li>5. Build an online public database of resources regarding recommended training practices.</li> </ol>
<b>Output Notes:</b>	For tracking purposes, this Output will be considered complete once Action number 3 is complete. The intent is to keep the White Paper moving through endorsement and to submission to the FAA. Completion of

	Actions 4 and 5 of Output 2 will be worked in parallel with subsequent Outputs.
<b>Time Line:</b>	12 months
<b>Target Completion Date:</b>	Mar. 1, 2019
<b>Output 3:</b>	
<b>Description:</b>	Submit White Paper and associated media to USHST, FAA, and other stakeholders, as appropriate.
<b>Lead Organization:</b>	H-SE 122 SME Team
<b>Supporting Organizations:</b>	<ul style="list-style-type: none"> <li>• HAI TC</li> <li>• USHST SEA Training Team</li> <li>• FAA AFS-820</li> <li>• IHST</li> </ul>
<b>Actions:</b>	<ol style="list-style-type: none"> <li>1. Submit White Paper (and associated materials) to USHST and the FAA for consideration and endorsement.</li> <li>2. Determine whether endorsement should be sought from other stakeholders, and if so, submit for consideration.</li> <li>3. If necessary, incorporate comments and revisions from USHST, FAA, and other stakeholders to finalize the endorsement of the White Paper.</li> </ol>
<b>Output Notes:</b>	The output is considered complete once endorsement is received.
<b>Time Line:</b>	3 months
<b>Target Completion Date:</b>	June 1, 2019
<b>Output 4:</b>	
<b>Description:</b>	Submit endorsed White Paper to the FAA to support revision of current Advisory Circular (AC) 61-140 (Autorotation Training).
<b>Lead Organization:</b>	H-SE 122 SME Team
<b>Supporting Organizations:</b>	<ul style="list-style-type: none"> <li>• HAI TC</li> <li>• USHST SEA Training Team</li> <li>• FAA AFS-820</li> <li>• IHST</li> </ul>
<b>Actions:</b>	<ol style="list-style-type: none"> <li>1. Coordinate with the FAA on preferred process for revising Advisory Circular (AC) (Autorotation Training), including HAI TC drafting suggested revisions.</li> <li>2. FAA to reissue AC 61-140, as amended.</li> </ol>
<b>Output Notes:</b>	Complete once AC reissued.
<b>Time Line:</b>	12 months after submission of White Paper to the FAA.

<b>Target Completion Date:</b>	June 1, 2020
<b>Output 5:</b>	
<b>Description:</b>	Support revisions of Helicopter Flying Handbook, Helicopter Instructor's Handbook to include information from endorsed White Paper.
<b>Lead Organization:</b>	H-SE 122 SME Team
<b>Supporting Organizations:</b>	<ul style="list-style-type: none"> <li>• HAI TC</li> <li>• USHST SEA Training Team</li> <li>• FAASTeam</li> <li>• IHST</li> </ul>
<b>Actions:</b>	<ol style="list-style-type: none"> <li>1. HAI TC to coordinate with the FAA regarding preferred process for revising handbooks. <ol style="list-style-type: none"> <li>a. Recommended that the FAA include changes in next revision cycle or develop amendment if revision cycle is farther away than anticipated target date.</li> <li>b. Should consider timeline for updates under H-SEs 37 and 124.</li> </ol> </li> </ol>
<b>Output Notes:</b>	Revisions to both handbooks complete.
<b>Time Line:</b>	24 months
<b>Target Completion Date:</b>	June 1, 2022