



vertiflite Commentary

Safety: Broader Technology Adoption Needed

By Mike Hirschberg

AHS International catalyzed creation of the International Helicopter Safety Team (www.IHST.org) in 2006. The effort, now co-chaired by the Helicopter Association International (HAI) and the US Federal Aviation Administration (FAA), is entering its tenth year. Originally, IHST had a target of reducing the worldwide helicopter accident rate by 80% over a ten-year period, modeled after the successful Commercial Aviation Safety Team (CAST). Although we haven't reached our original goal, IHST has refocused its goal towards a vision of continuing to work toward zero accidents.

While IHST has focused extensively on training and safety management systems to address the human factors issues that cause some 70-80% of all helicopter accidents, technology improvements should also be promoted. This past October, the European Helicopter Safety Team (EHST), which contributes to the IHST effort, issued a report on "The Potential of Technologies to Mitigate Helicopter Accident Factors." A key point was that "Technology provides a variety of solutions that can (directly or indirectly) address the identified safety issues and that can contribute to prevent various types of accidents or to increase survivability."

The study listed 15 "highly promising" technologies that could potentially mitigate most of the top safety issues. Many of the technologies are certified, readily available and affordable, but not yet fully adopted by civil operators:

- Enhanced Ground Proximity Warning Systems (EGPWS)/ Helicopter Terrain Awareness and Warning Systems (HTAWS)
- Flight Data Recording Devices
- Helicopter Operations Monitoring Systems (HOMP) for light helicopters
- Radar Altimeters
- Onboard Rotorcraft Performance Monitoring and Calculating Systems



And, even though it did not make EHST's list, the recent emergence of FAA-certified and affordable stability augmentation systems developed for popular civil-use helicopters should also be mentioned.

Improving situational awareness and standardizing the human-to-machine interface are the primary goals of

these technologies. Broader adoption of these systems will save aircraft and lives, for certain, but the real reward lies ahead: When the **expert use** of this new and maturing technology is no longer a novelty, but a professional expectation, we can expect to see dramatic reductions in accidents – maybe a quantum leap.

Accidents in the US and other countries have come down significantly over the past decade. The US Helicopter Safety Team (USHST) has reported a decrease of 30% in the US, dropping from 185 accidents in 2005 to 130 in 2014; this is in fact the lowest level in

more than 30 years. Could we be seeing the beginning of a confluence of human factors management and the application of technology?

Notwithstanding this progress, the US National Transportation Safety Board (NTSB) has put helicopters on its Most Wanted List for the second year in a row. In 2014, the NTSB urged the helicopter community to “Address Unique Characteristics of Helicopter Operations,” and for 2015, the Board highlighted “Enhance Public Helicopter Safety,” referring to 130 public helicopter accidents over the past 10 years. Clearly all parties agree we are not making progress fast enough.

Meanwhile, the FAA has enacted a “Final Rule” – which goes into effect on April 22nd – that is intended to enhance safety. Under the rule, all Part 135 (passenger-carrying) operators are required to have radar altimeters within one year. Helicopter Air Ambulance (HAA) operators are also required to equip with HTAWS within two years, as well as flight data monitoring system by April 2018. The “Final Rule” addresses numerous Instrument Flight Rules issues, particularly for HAA operators – both clarifying the requirements and facilitating broader use of the IFR system.

Increased use of IFR is another way to make strides forward – particularly in the reduction of fatal accidents. Instrument Flight Rules (IFR) certification for single engine helicopters, which comprise the vast majority of US-based helicopters, is the challenge. In 1999, FAA Advisory Circular (AC) 27-1 significantly increased the requirements to employ new technology in light helicopters, reducing the number of type certifications and supplemental type certifications (STCs) issued since then to a mere handful. The irony, however, is that systems and safety equipment that didn’t exist in 1999 are now readily available at a reasonable cost. Technologies like GPS, glass cockpits, digital maps and EPGWS/HTAWS – to name a few – were virtually unknown in civil helicopters 15 years ago, and are now increasingly common.

There is a panoply of existing and proven technologies that can improve safety by reducing accidents. Some of these technologies are being required in new FAA regulations, while others are stymied by old, outdated policies.

AHS International urges (1) the wider adoption of proven technologies to save lives and aircraft; (2) efforts to drive down the cost and weight of safety-enhancing equipment; (3) research and development of promising technologies; and (4) new or modified FAA policies that facilitate the installation of proven technologies that can reduce the risk of accidents.



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