



# vertiflite Commentary

## IMPROVING HELICOPTER SAFETY: IN PURSUIT OF A GLOBAL VISION

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Within the United States, the civil helicopter accident rate average as measured during the 1999-2003 period is an unacceptable 8.3 per 100,000 flight hours and shows no trend toward improvement. To put this in perspective, the (Federal Aviation Regulations) Part 121 accident rate in 2003 for all U.S. registered scheduled air carriers was 0.30 per 100,000 hours. There is little question that helicopter manufacturers, operators and the government regulatory community need to develop new approaches to improving helicopter safety. This high accident rate provokes needless tragedy and generates extraordinary costs. And because the public views helicopters as being unsafe, it limits markets for rotorcraft.

Helicopters operated in Part 135 commercial service, such as air medical, air taxi and commercial air tour missions, account for only 12 percent of the 1,875 U.S. helicopter accidents recorded during the period 1995 through 2004. Private or general aviation, helicopters operating under Part 91, account for 60 percent. All others, such as external loads, aerial application, and utilities account for the balance of 28 percent.

Accidents occur across the spectrum of helicopter types. This includes civil turbine-powered helicopters, both single and twin-engine, which make up about 51 percent of the 11,289 helicopters on the U.S. registry, piston-powered helicopters which make up 44 percent and military surplus aircraft which account for the remaining 5 percent.

Nearly all studies indicate that, by far, the most common cause of helicopter accidents is pilot error (or human factors to use a 21st century term) – in fact, it accounts for about 75 percent. The bottom line is simply

that poor pilot judgment accounts for the bulk of accidents. Airworthiness failure – whether attributable to the engine or airframe – contributes to less than 15 percent of all accidents.

Is it possible to reduce the helicopter accident rate by 80 percent, as recommended by the 1997 White House Commission on Aircraft Safety? A Part 121 initiative,

known as the Civil Aircraft Safety Team (CAST), appears to be well on its way. Of course, CAST is targeted toward aircraft that are entirely commercial, whereas 80 percent of registered U.S. civil helicopters are operated in non-commercial, general aviation applications, which means they have fewer resources and are scarcely regulated. So the challenge for the helicopter industry is clearly a magnitude greater than for scheduled air carriers.

Acting on this, the AHS Montreal/Ottawa Chapter – led by Somen Chowdhury – organized the International Helicopter Safety Symposium 2005 held in Montreal September 25-29. The conference brought together 265 members from industry, commercial operators and government regulatory agencies from the U.S. and Canada, South America, Europe and Asia to consider what must be done. The consensus was that something dramatic must occur

to change the unworkable dynamics of the past.

The outcome of the meeting was twofold: first, the attendees, which included airframe and engine CEOs, operator representatives such as Helicopter Association International (HAI), the Association of Air Medical Services (AAMS), and the Tour Operators Program of Safety (TOPS), government agencies such as the Federal Aviation Administration (FAA), Transport Canada (TC), the National Transportation Safety Board (NTSB) and the Transport Canada Transportation Board (TCTB), among



others, agreed to adopt a goal of reducing helicopter accidents by 80 percent within 10 years. Second, they agreed to establish a process, similar to the Part 121 CAST process, to analyze helicopter accidents, accurately measure the accident rate, and recommend potential interventions or solutions.

Is the goal achievable? Roy Fox, who heads helicopter safety at Bell Helicopter Textron, presented a paper ("The History of Helicopter Safety") offering metrics demonstrating that it could be accomplished. For example, equipping helicopters with proximity detection systems could reduce accidents attributable to obstacle strikes and loss of aircraft situational awareness – two prominent causes. The addition of HUMS (health and usage monitoring systems), or some form of aircraft health, real time performance and monitoring aids, could further reduce accidents. Many mishaps, of course, occur for reasons investigators can't really determine. Thus, Fox suggests that installing cockpit imaging and audio monitoring devices could further reduce accidents by providing insights into what actually happened.

Where are we today? A task force, comprised of representatives of AHS, HAI, TOPS, Bell, Boeing, Sikorsky and the FAA have already developed a charter for an International Helicopter Safety Team (IHST), a committee focused on helicopter safety wholly independent of any existing organization but with participation by every segment of the world helicopter community – military and civil, domestic and international. The IHST, and its two key subcommittees for helicopter accident analysis and safety implementation, will meet at regular intervals throughout the year to determine the leading causes of helicopter accidents and the most cost-effective means of reducing the accident rate. The initiative will be announced at HAI's Heli-Expo meeting in February. AHS's Forum 62, planned for May 9-11, 2006 in Phoenix, will devote one day to a special session on IHST.

Thomas Jefferson remarked, "We are not afraid to follow truth wherever it may lead, nor to tolerate any error so long as reason is left to combat it." So shall it be for the participants in this initiative. The goal is lofty but achievable and eminently necessary. And it is undoubtedly one of the most important undertakings ever attempted by the helicopter industry, operator community, and government. Its success insures our community's success. To find out more about this initiative, visit the website at [www.ihst.org](http://www.ihst.org).

