



By Paul Seidenman/Overhaul & Maintenance



Until the rash of accidents in 2008 involving EMS operators, the overall number of helicopter accidents had been declining.

Citing statistics from the FAA and other sources, Michael Kriebel, chief underwriting officer for Allianz Aviation Managers LLC in New York, said that from January through June 2008 there were 2.23 accidents per 100,000 hours flown by single engine turbine helicopters, down from 2.87 for the same period in 2007. He noted that in 2004, the rate was 3.84 accidents, per 100,000 flight hours. Multi-engine helicopter accidents showed a similar downward trend: 1.48 accidents per 100,000 flight hours in January-June 2008. Though slightly higher than the 1.15 rate for 2007, it was considerably less than the 2004 rate of 2.48.

EMS, said Kriebel, definitely contributed to the higher 2007 accident rate for multi-engine turbines. In fact, according to National Transportation Safety Board (NTSB) statistics, EMS operators accounted for eight accidents, including nine fatalities in 2005. But by the Feb. 5-July 21 period of 2008, the number of EMS accidents had reached 10, with 24 fatalities.

Accidents, of course, are multi-faceted in terms of cause. Along that line, a more in-depth examination of helicopter accidents was carried out by the International Helicopter Safety Team (IHST), founded in 2005 with the stated goal of reducing helicopter accidents worldwide by as much as 80% by 2016. IHST (www.IHST.org) has more than 200 members from the U.S., Canada and Europe representing government, operators and industry.

IHST program director Mark Liptak, who also is an aerospace engineer with the FAA's Safety Data and Analysis Services Office in Washington, D.C., explained that the U.S. Joint Helicopter Safety Analysis Team, the U.S. data analysis sub-team of IHST, issued a report in September 2007 analyzing 197 helicopter accidents culled from National Transportation Safety Board (NTSB) docket data and other reliable sources between 1980 and 2000. The 2000 cut-off date was chosen, he explained, so that the statistics would not influence more recent, open litigation.

The report concluded that, for 20% of the accidents, maintenance was "part of the causal chain" that led to the accident, although not necessarily the sole cause. In about half of those cases, the accident could have been prevented if equipment that would have predicted impending system failure had been onboard the helicopter, he said. That includes airframe health and usage monitoring system (HUMS), as well as some type of engine monitoring system.

"We also found that in 16% of the accidents tied to maintenance, record keeping could also have been improved, and in 10%, the functional check flight, following the maintenance event, didn't adequately address what had been done to the aircraft."

Yet even more telling, said Liptak, was the conclusion that in 47% of all the accidents, "there was a lack of a proper safety culture" with the operator. "The industry must do a better job of promoting a robust safety management system (SMS) which is applicable to many points of the operating spectrum, of which maintenance is certainly a part."

The team, Liptak stressed, could not find a strong linkage concerning OEM tech support as a contributor to an accident. "The accidents are generally due to human factors. The OEMs actually communicated maintenance and safety related information very well."

By February, the safety analysis team plans to issue a document containing the full recommendations for safety and improvements. The document will be available to the public on the IHST website. "We would like to see SMS used by medium and small size operators as effectively as the larger ones, which have done a pretty good job of implementing SMS," Liptak said.

George Warren, VP safety for Aurora, Ore.-based Columbia Helicopters, an international contract operator, reported that the company is in the process of upgrading its entire SMS program. "Whether you are inspecting a part you receive from an OEM, refurbishing a part, or evaluating a flight critical system, SMS helps to clarify a logical process and adhere to your end goal of eliminating any mistakes," he said. "That's why we endorse it."

Jason Saunders, SVP for AIG Aviation, Inc., an Atlanta-based insurance underwriter, said that the real challenge with SMS

today is to convince smaller operators, with one to four helicopters, to adopt it.

"Many smaller operators do not have the financial or technical resources to design an SMS and to implement it," he said. "Keep in mind that SMS addresses training and maintenance as well as human factors, and requires a tremendous amount of dedication, not only for its design, but its successful execution and ongoing usage."

Saunders added that today, the adoption of SMS practices among helicopter operators, even larger companies, is still in its infancy. "The helicopter operators are about 10 years behind the airlines with SMS. Many of the smaller companies are just coming into this for the first time."

Still, he cautioned, establishing a safety culture has to be a joint effort between the customer, the MRO and the OEM. "The helicopter OEMs have a very big stake in this, because they don't want their products to get a reputation for crashing. To assure that this doesn't happen, there has to be an open line of communication between all parties. But, it still requires some type of measurable safety standard implemented by the OEM, as well as the training of technical staff by the OEMs."

Speaking solely as an experienced underwriter, and not articulating any views of his employer, Allianz Aviation Managers' Kriebel predicted that more helicopter operators will implement "a more robust SMS," based on a risk matrix profile that takes into account every risk factor associated with a given mission and assigns a numerical value to each.

"It would take into consideration the equipment, where the mission will be flown, weather conditions and the terrain, as examples," he explained. "When the numbers are added up, if the total exceeds a certain amount, the decision may be made that the mission is too risky to carry out."

In conjunction with this, said Kriebel, there will be more demand for terrain awareness warning systems (TAWS) for helicopters, along with upgrades to implement artificial vision in cockpits, such as lighting that is compatible with night vision goggles.

Honeywell Aerospace's Kult agreed. "There's definitely an upswing in orders for helicopter enhanced ground proximity warning systems (H-EGPWS) and Traffic Collision Avoidance Systems (TCAS)," he said. "The EMS operators are the largest purchasers of this right now."

AIG Aviation's Saunders reported that he does not see the helicopter operators adopting some of the new safety equipment all at once, nor does he believe that the insurance underwriting industry should enforce their implementation.

"We know that it takes time to retrofit and measure the results of some of the safety upgrades, recommendations and initiatives. When you underwrite somebody and approve them for insurance, the best you can do is to look at their safety record, and the risk is evaluated on that basis," he said. "[We would have to see] that a significant reduction in accidents has been accomplished, through retrofits of H-TARS and TCAS, before that would become a factor impacting premiums."

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