



Smaller helicopter operators are the target of a new tool kit that will ease the pain of developing a safety management system.

BY JAMES T. MCKENNA

A campaign to convince commercial helicopter operators to embrace a host of new recommendations for improving rotorcraft safety, including a tool kit for developing a safety management system (SMS), has been launched by an international coalition of helicopter manufacturers, regulators, operators and customers.

The coalition, the International Helicopter Safety Team (IHST), modeled on the airline-oriented Commercial Aviation Safety Team (CAST), since late 2005 has been pursuing the goal of reducing rotorcraft accident rates 80 percent by 2016 (see “International Helicopter Safety Team,” p. 28). The team has two main subteams. One spent 18 months analyzing the root causes of 197 helicopter accidents that occurred in 2000 and recommending means to prevent similar accidents. The other subteam is just beginning the task of turning those recommendations into pragmatic actions.

This group aims to gain industry support for its efforts by offering individual helicopter operators a simplified tool to assist in developing and implementing an SMS tailored to each firm’s mission and business circumstances. Group leaders expect the SMS tool kit will help persuade operators that its recommendations could improve both safety records and bottom lines. The tool kit is available online at <www.ihst.org>.

In developing the tool kit, the group aimed to win acceptance of the SMS approach — and by extension the group’s subsequent recommendations — from operators of five or fewer helicopters. Such operators make up the largest single segment of the civil helicopter industry, approximately 80 percent, and are involved in the vast majority of helicopter accidents.

“The real target audience is the operator of two to five helicopters,” said B. Hooper Harris, manager of the U.S. Federal Aviation Administration (FAA) Accident Investigation Division.



Harris is co-chairman of the subteam that watched over the development of the SMS tool kit and participated in drafting it. He shares the chair of the Joint Helicopter Safety Implementation Team with Greg Wyght, vice president of safety and quality for CHC Helicopter Corp., among the world's largest providers of helicopter services to the global offshore oil and gas industry.

The IHST calls an SMS "a proven process for managing risk that ties all elements of the

organization together laterally and vertically and ensures appropriate allocation of resources to safety issues." It urges that the term "safety management" be taken to mean safety, security, health and environmental management. The key focus of such a system, though, "is the safe operations of airworthy aircraft."

The helicopter industry faces challenges in making such an approach common. To date, the SMS approach has been applied in industries large

International Helicopter Safety Team

The Safety Management System Tool Kit for helicopter operators is the first product of a 10-year effort to cut worldwide rotorcraft accidents by 80 percent.

Making this effort is the International Helicopter Safety Team (IHST), the outgrowth of a September 2005 gathering of manufacturers, regulators and operators from around the world. That gathering was supported by the International Civil Aviation Organization and regulators in Canada, France, the United Kingdom and the United States. Also backing it were Canadian, French and U.S. accident investigators, rotorcraft manufacturers, and major civil and military operators.

Convened in Montreal at the behest of the American Helicopter Society International and the Helicopter Association International, the gathering marked the participants' recognition of a daunting challenge: their inability year after year to reduce the number of accidents. That inability seemed to reinforce a public impression of helicopters as unreliable and unsafe, an impression that stood as a critical obstacle to the growth and prosperity of the industry.

To dismantle that obstacle, the 260 attendees of the first International Helicopter Safety Symposium agreed to draw on the successful experience of the Commercial Aviation Safety Team (CAST) in the United States. That is, they would search all credible data on helicopter

accidents for root causes and use that data to prioritize mitigation measures to address the most common problems.

The IHST is co-chaired by Matt Zuccaro, president of the Helicopter Association International, and Dave Downey, manager of the Rotorcraft Directorate of the U.S. Federal Aviation Administration (FAA) Aircraft Certification Service. It includes the Joint Helicopter Safety Analysis Team, which is doing root-cause analysis of rotorcraft accidents on an annual basis, and the Joint Helicopter Safety Implementation Team, which will develop mitigation measures based on the analysis team's recommendations.

While the IHST is drawing on the model of CAST, its goals are more ambitious in several respects.

First, while CAST focused on an 80-percent reduction in fatal accidents, the helicopter team aims for a similar reduction in both fatal and non-fatal accidents. Second, CAST's target group is a fairly homogeneous one: commercial airlines generally flying large fleets drawn from a small set of fixed-wing transports. Roughly 80 percent of civil helicopter operators have fleets of fewer than five aircraft, and they fly aircraft built by more than 15 different manufacturers, including those from former Soviet republics.

Third, CAST concentrates on scheduled airline service. The helicopter team must cover aircraft used in a variety of missions, with each mission type

having unique operational, training, and equipment aspects. The IHST settled on grouping its analysis and mitigation work into 15 different mission sets.

Most challenging of all, perhaps, was the lack of reliable utilization numbers for helicopters. Hours flown by commercial airlines are tracked in detail by regulators and financial markets. But helicopter flight hours in the United States, the world's largest rotorcraft market, are based on sampling by the FAA, an approach that has proven inaccurate for the small fleets involved. So before it could tackle its goal of reducing helicopter accident rates, the international team had to build the database for establishing those rates.

"You can't even meet the goal until you know how many hours are flown," said Roy G. Fox, chief of flight safety at Bell Helicopter, who is leading the effort to compile that database. That work should be completed in 2008.

Most of the team's work has focused on the United States, but team leaders aim to establish regional teams throughout the world, already under way to varying degrees in Australia, India and Latin America. The European helicopter community is pursuing a parallel effort. This year, team leaders plan to meet with industry officials in United Arab Emirates, Japan and South Africa to launch regional teams in the Middle East, Asia and Africa.

— JTM

in scale and homogeneous in mission: railroads, energy, chemicals, airlines, aircraft maintenance and air traffic services. While there are large helicopter operators, such as CHC, and many of them have adopted SMS or major components of SMS, most helicopters are spread among many small operators, and are used in a wide variety of missions.

When the Joint Helicopter Safety Analysis Team presented its recommendations for mishap-mitigation measures, for instance, it did so in a number of mission-specific categories. They include instructional/training, personal/private, aerial application, emergency medical services, law enforcement, and offshore oil and gas platform support. Other categories are business/company-owned aircraft, aerial observation/patrol, air tour and sightseeing, electronic newsgathering, external load, logging, fire fighting, numerous other commercial activities, and utilities patrol and construction. The Joint Helicopter Safety Implementation Team proposes to adhere to the same divisions in developing its mitigation recommendations.

“That means we’re not after the bigs, we’re after the little guys,” said Roy G. Fox, chief of flight safety at Bell Helicopter, who worked on drafting the SMS tool kit.

There is ample cause to target the small operator. The number of helicopter accidents has remained fairly constant for the last 20 years, including U.S. civil and military operations, and operations outside the United States.

“The rotorcraft industry understands its risks more clearly than other elements of the [aviation] industry,” said the FAA’s Harris, “simply because they have an accident rate that is significant.”

In its bid to change that trend, the IHST adopted the general approach used with great success in the U.S. by the CAST. That team began its work in 1997 with the objective of cutting the U.S. airline fatal accident rate 80 percent in 10 years; it has nearly achieved that goal. The foundation of its work was basing safety initiatives on reliable, verified data about accident causes.

The helicopter team works on the same basis. Yet its Joint Helicopter Safety Team had not yet completed its work when it called for widespread use of SMS. Team members said that their interim



analysis argued strongly for adoption of such systems. The analysis team looking at the 197 accidents found that a major contributing factor in most accidents was the failure to adequately manage known risks, said Keith Johnson, safety program manager for the Airborne Law Enforcement Association. Johnson is a member of the Joint Helicopter Safety Implementation Team (JHSIT) and participated in drafting the SMS tool kit.

In addition to the benefits an SMS brings in itself, they said, it also would serve as the framework for subsequent safety recommendations.

“We needed something to start this structure,” Fox said.

“A good, strong SMS is a springboard” for other improvements, said Fred Brisbois, director of aviation and product safety for Sikorsky Aircraft. He is a member of the JHSIT and helped develop the SMS tool kit. “You can have the most modern, best equipped aircraft. If you don’t have an SMS, you compromise all the other safety advances.”

The tool kit’s drafters said they reviewed several SMS models, as well as regulations and guidance material from around the world, to tailor a kit for the helicopter industry. They also said they included contributions from small, medium and large helicopter operators, airlines, industry groups and governments.

“We’re taking what’s out there and putting it into laymen’s terms that the smaller operator can use,” said Brisbois.

The result “is somewhat unique,” said Harris. “Almost everybody else talks around SMS in a ‘big system’ way.”

In a bid to win acceptance from the broadest range of smaller operators, he said, the team opted for a tool kit that fosters a performance-based SMS, as opposed to one that lays out a rigid structure and procedures. Harris explained the difference:

“Every person has a financial management system. You balance your checkbook, you pay your taxes and you pay your bills. You may do that by yourself, with a checkbook and a calculator or computer. [Microsoft founder] Bill Gates may rely on accountants and lawyers. Whoever you are, the functions are the same and the performance objectives are the same: to manage your funds, pay your taxes and honor your debts.”

Toward that end, the IHST tool kit lays out 11 attributes of an effective SMS and offers checklists of steps operators should take to achieve each attribute. But it leaves the details up to each operator.

Perhaps most important to its efforts to win widespread acceptance of its SMS tool kit, the team gives operators the option of integrating such systems into their activities in incremental steps. “This allows the organization to become acquainted with the requirements and results before proceeding to the next step,” the tool kit says.

The core attributes of the IHST’s SMS are:

- An SMS management plan;
- Safety promotion;
- Document and data information management;
- Hazard identification and risk management;
- Occurrence and hazard reporting;
- Occurrence investigation and analysis;
- Safety assurance oversight programs;
- Safety management training requirements;
- Management of changes;

- Emergency preparedness and response, and;
- Performance measurement and continuous improvement.

Essential to the effectiveness of an SMS, Johnson said, is its acceptance by senior management as a core business responsibility.

The team plans additional steps to promote acceptance of SMS. It is developing computer software to help operators assess the savings that could be achieved through use of an SMS. It plans to offer training in the use of that software and SMS at the Helicopter Association International’s Heli-Expo annual convention in February in Houston. It also plans to develop a second edition of the tool kit targeted at medium-sized operators.

Team members believe their efforts got an important boost in October, when ExxonMobil Aviation issued a memorandum to vendors. The unit that contracts for and oversees aviation support for that company’s oil and gas exploration activities worldwide, ExxonMobil Aviation, noted that its “mature and established aircraft operators” have SMS in place.

“However, smaller operators often face challenges in the implementation of a fit-for-purpose SMS that meets operational requirements whilst being economically viable,” the memo states. Nonetheless, ExxonMobil Aviation considers 11 elements, or attributes, of an SMS “as a minimum standard template for long-term contracted aviation activities.” Those are the same 11 listed in the tool kit.

“Having people outside the aviation community saying it can be done lends credibility” to adoption of an SMS, said Sikorsky’s Brisbois. ●

James T. McKenna is editor of Rotor & Wing magazine.