The View from Washington

BY RIC PERI
VICE PRESIDENT, AEA GOVERNMENT & INDUSTRY AFFAIRS

Don't Be Afraid of Safety Management Systems

"We shouldn't be afraid of SMS (safety management systems) for the maintenance industry," said John "Hondo" Gratton, project director for the Maintenance Regulations Project, Civil Aviation Safety Agency–Australia.

"At its best, it is essentially no more than a system of integrated management, which provides an effective safety outcome. Of course, such a system can be simple for a small shop and more complex for a large organization, and each will provide the desired result," he said.

At the 2006 Europe/U.S. International Aviation Safety Conference, safety management systems was among the topics of interest, and each presenter appeared to have a slightly different definition of SMS and a spectrum of recommended approaches, from a completely voluntary system to a mandated system. Though they all touted the benefits of SMS from a regulatory perspective, no one focused on the cost/benefit for small businesses.

While there was some disagreement on the application of SMS in aviation, one message was received loud and clear: SMS is coming.

What is SMS and does how it apply to aircraft and avionics maintenance? A Google search for "safety management systems" comes up with 247 million results — not much help, but a clear indication of the various views of what SMS is and the widespread application of SMS in many industrial and transportation industries.

In the March/April 2006 issue of *FAA Aviation News*, the FAA describes a safety management system as an "integrated set of work practices, beliefs and procedures for monitoring, supporting and improving the quality of safety and human performance in an organization." This sounds like an old concept with a new cover.

The various civil aviation authorities have the same basic mandate as your business: continuous improvement. In most of the developed world, aviation accidents are at an exceptionally low rate — but it isn't perfect.

At the third annual Workplace Safety Summit in April 2003, at McDonough Graduate School of Business, Georgetown University, Washington, D.C., Alan C. McMillan, president of the National Safety Council, made these remarks when he presented "Safety Leadership: Highlighting CEOs Who Get It:"

"Leading safety and health begins with your values…Values are a reflection of what we stand for. When safety is a value, the people, and especially the CEO, take each injury to any associate personally, whether they occur on or off the job. When safety is a value, you strive for absolute perfection, set your goals at zero injuries and manage accordingly.

"Now, some business leaders may say that perfection is unattainable. But if safety is truly a value, then absolute perfection must be your ultimate goal. I hear business leaders say they want to improve safety performance in a particular year by 20 percent, 30 percent, 50 percent…those are great goals and entirely appropriate as interim objectives.

"But if safety is a core value, then shouldn't we add another level to these goals? Shouldn't the ultimate goal be perfection — zero injuries?"

For any aviation regulatory body, the public mandates perfection. Although a person could fly every day of their life and not attain the 5-million-plus departures that statistically trigger one fatal accident, the statistics don't matter. One accident, one incident is too much for the traveling public.

The FAA's goal for the end of the fiscal year is a three-year rolling average of no more than 0.018 fatal accidents per 100,000 departures. Through March of this year, the aviation industry has maintained a rate of 0.022 fatal accidents per 100,000 departures.

This fiscal year, there have been three fatal air carrier accidents. On Dec. 8, 2005, a Southwest Airlines 737 overran a runway in Chicago (Midway) and hit a car, killing a child inside. No passengers or crew were killed. On Dec. 15, 2005, a twin-engine Grumman G-73T Turbine Mallard turboprop seaplane, operated by Chalks International Airlines, crashed into water shortly after takeoff from Miami. Eighteen passengers and two crewmembers died on the flight. An accident on Jan. 16, 2006 involved a mechanic ingested into the engine of a Continental Airlines jet. (Source: FAA, "Commercial Air Carrier Fatal Accident Rate.")

What is Safety Management Systems?

Simply, safety management systems is a standard for safety management that

is organized around four basic building blocks: policy, safety risk management, safety assurance, and safety promotion.

Safety has progressed through the years. What once was simply referred to as "safety" became industrial safety, flight safety and flight-line safety, then it was safety management and system safety, and today the "new" buzzword is "safety management systems."

We have known for years that a successful safety program:

• must have the commitment of the organization's leadership,

• must have the buy-in of the entire organization, and

• maintain open and constant communications.

It's the old argument, "If you don't know what you don't know, you can't fix it."

The National Safety Council notes that 75 percent of industrial injuries are forecast by near accidents or incidents. In regards to the mechanic who was ingested into the engine, how many incidents went unreported before that fatal accident? How many co-workers knew of the hazard? How many times had it "almost" happened to someone else?

Capt. Rick Clark, director of SMS for the Air Line Pilot Association (ALPA), in his 2003 presentation "The Safety Management System: Blending Safety and Corporate Management," said latent conditions are situations placed in the system by decision-makers, or conditions which are placed on the system by decisions or actions of those at some distance from the operation.

He also said latent conditions could trigger active failures or combine with active failures to result in a loss. He surmised that eliminating a latent condition might eliminate a number of accidents.

What latent condition allowed that particular mechanic to be in the wrong place at the wrong time?

Benefits of Safety Management

Our safety record is good, but not perfect. There is a business case to be made for safety — not to mention the human costs to the injured employee and their family. What is the affect on the non-injured employees? How is their productivity affected?

When a business experiences an accident or injury, the indirect costs — the costs not covered by insurance — can run as much as 50 times the amount the insurance company pays. These expenses include:

• Overtime to pick up the scheduled work the injured employee can't accomplish.

• Administrative costs for the supervisors and managers to investigate the accident and prepare the reports.

• Materials cost to fix the customer's aircraft.

• Decrease in overall productivity.

It is important as we move forward into the regulatory phase of SMS that we don't lose sight of the benefits of safety management.

The AEA supports safety and safety management, and will continue to promote safety and safety communication through *Avionics News*, AEA regional training seminars, and at the annual convention. We do not, however, support mandating SMS through regulations.

The regulatory burden proposed by the various civil aviation authorities may or may not be cost-effective, and it may or may not be a reasonable approach to SMS for aircraft maintenance. In most cases, the emphasis of SMS has been on the air carrier operations, so most of the proposals have been geared toward large operational organizations with multiple layers of management and multiple locations.

The inclusion of maintenance organizations is only incidental to the regulatory oversight of all certificated entities. A constant vigil must be made to monitor the local civil aviation authorities' applications of SMS to small aviation businesses.

The AEA encourages every organization to investigate the benefits of safety management systems if they don't already have one. However, we will continue to push for voluntary compliance with SMS from the regulator's perspective. ❑

Regulatory Update

United States

Special Conditions: Sagem Avionics Inc.

On June 19, 2006, the Federal Aviation Administration issued special conditions to Sagem Avionics Inc., 16923 Meridian East, Puyallup, WA 98375, for a supplemental type certificate (STC) for the Cessna C-180 airplane. This airplane will have novel and unusual design features when compared to the state of technology envisaged in the applicable airworthiness standards.

The design features include the installation of a two-panel electronics display system, or electronic flight instrument system (EFIS), manufactured by Sagem. The installation also includes components associated with this display system. The applicable regulations do not contain adequate or appropriate airworthiness standards for the protection of these systems from the effects of high-intensity radiated fields

Continued on following page

Continued from page 21

(HIRF). These special conditions contain the additional safety standards the Administrator considers necessary to establish a level of safety equivalent to the airworthiness standards applicable to these airplanes.

In late June 2005, Sagem made an application to the FAA for a new STC for the Cessna C-180, which currently is approved under TC No. 5A6. The proposed modification incorporates novel or unusual design features that are vulnerable to HIRF external to the airplane.

Under the provisions of 14 CFR Part 21, Sec. 21.101, Sagem must show the Cessna C-180 aircraft meet the provisions of the original certification basis for each model, as listed on Type Data Sheet 5A6, and the additional provisions and applicable regulations in effect on the date of application for this supplemental type change.

The additional systems-related provisions covering the EIFS installation include Sec. 23.1301, Sec. 23.1309, Sec. 23.1311, Sec. 23.1321, Sec. 23.1322, Sec. 23.1323, Sec. 23.1331, Sec. 23.1353 and Sec. 23.1357 at the amendment level appropriate for the application date; exemptions, if any; and the special conditions adopted by this rulemaking action. Additional information regarding the certification basis for this STC is available from the applicant.

If the Administrator finds the applicable airworthiness standards do not contain adequate or appropriate safety standards because of novel or unusual design features of an airplane, special conditions are prescribed under the provisions of Sec. 21.16.

Sagem plans to incorporate certain novel and unusual design features into an airplane for which the airworthiness standards do not contain adequate or appropriate safety standards for protection from the effects of HIRF. These features include dual EFIS systems and associated components, potentially susceptible to the HIRF environment, which were not envisaged by the existing regulations for this type of airplane.

As a result, the FAA has issued a special condition to Sagem Avionics for its STC for the Cessna C-180 airplane. The entire Federal Register notice can be viewed at http://a257.g.akamaitech.net/7/257/2422/01jan20061800/edocket.access.gpo.gov/2006/pdf/E6-9814.pdf.

Canada

Transport Canada Issues New Policy for Re-certification of Parts by AMOs

TCCA recently published MPL 36, "Approved Maintenance Organizations for Recertification of Parts." The purpose of this MPL is to clarify the intent of extending privileges to approved maintenance organizations (AMOs) to recertify parts and establish a process for controlling these approvals.

The intention of TCCA is to extend this privilege to qualified AMOs that have identified a need to recertify undocumented parts and have demonstrated they hold the necessary capability to evaluate the type of parts identified in their MPM revisions, based on their current AMO ratings. TCCA recognizes this is a process most AMOs will want to have, but in general, most AMOs will be limited to very specific types of parts and to very specific types of testing and evaluation in relation to their AMO ratings and capabilities.

The method of applying for this privilege is through the submission of a Maintenance Policy Manual (MPM) amendment to TCCA, which shall include the details with which the organization intends to administer its process. An appendix to the MPL includes text from CAR STD 571 Appendix H, which provides details of the process to evaluate undocumented aircraft parts.

MPL 36 can be viewed at www.tc.gc.ca/CivilAviation/maintenance/AARPC/mpl/Mpl36.htm.

Transport Canada Revises Policy for Review of Supplemental ICAs

TCCA recently reissued MSI 53 at Revision No. 2 to provide a revised policy for preparation and review of supplemental instructions for continued airworthiness (ICAs).

This revision gives TCCA aircraft certification engineers more flexibility in the review of supplemental ICAs when submitted to support an STC application. It also includes checklists for preparation of supplemental ICAs for each aircraft category and certification basis, and requirements for their format and contents.

It is understood that the format and content have been coordinated with that of the FAA so applications for FAA STCs can proceed with minimum delays because of the FAA's review of the supplemental ICAs. Appendix C to the MSI details the TCCA/FAA/applicant liaison procedures to support FAA's review of the supplemental ICAs.

MSI 53 Revision No. 2 can be viewed at www.tc.gc.ca/civilaviation/maintenance/AARPC/MSI/Msi_53.htm.

Europe

EASA

Commission regulation EC 779/2006, amending the fees and charges regulation, was issued and went into force May 25, 2006. The change mostly affects members applying, amending or maintaining certification approvals, such as STCs, DOAs, POAs, as well as Part 145 and 147 approvals, in accordance with bilateral agreements.

The regulation includes changes to the payment schedule, the amount

charged and introduces indirect cost for certain services. Changes were introduced in the charges for STCs, whereas, for the first time, EASA has specified three levels of changes. Next to significant and non-significant used as per 21A.101, it now introduces "non-significant of simple design" in CS 25. However, simple design is not defined in this regulation nor in Part 21.

Annual fees for holders of EASA TCs and restricted TCs were increased up to four times the original value, and for ETSO acceptance holders, the amount payable was doubled. The change to DOA approval holders in regards to yearly payable fees for surveillance and for the initial approval was increased when the value of the activities is calculated to be above the value of € 9.8 Mio. Production organization approval holders must accept a coefficient that was increased for lower-value activity company and decreased for higher-value activity company.

In addition, Part 145 and 147 approvals, in accordance with applicable bilateral agreements, are affected by the change. The change introduces a coefficient rating on "value of activities" as previously done for the equivalent European organizations. EASA has amended the current Part 147 AMCs in respect to the "record of instructors, examinors and assessors" in the training organization. The amendment is available as ED Decision 2006/01/R and was issued May 16, 2006, based on the comments on NPA 6/2005.

A comment response document to NPA 12/2004 was issued and includes a draft opinion to amend EC 1702/2003 regulation (Part 21) and amending existing AMC and GM to Part 21. The draft changes include changes to the issue of documentary changes to the aircraft flight manual and supplements. The amended documents should be issued before the fall.

Commission regulation EC 736/2006 on the "working methods of the EASA for conduction standardization inspections" of member states' National Aviation Authorities was issued in May and went into force on June 16, 2006.

JAA

JAA issued an operations division organigram to provide an overview of its staff, its associated sectorial team group, steering groups and ad-hoc groups. NPA-OPS 57A describes how to handle and manage electronic navigation data used for navigation. It defines a Type 2 LoA as demonstrating compliance to the EUROCAE/RTCA ED-76/DO-200A standards. This is of importance for any FMS, GPS and EFB applications. ❑

Frequently Asked Questions

TOPIC: Type Design

The following information is from the Federal Aviation Administration

QUESTION:

14 CFR 21.93 defines a "minor change" in type design as one that has no appreciable effect on the weight, balance, structural strength, reliability, operational characteristics or other characteristics affecting the airworthiness of the product. What is a "type design?"

ANSWER:

Type design is defined in 14 CFR 21.31.

Section 21.31 states the type design consists of:

(a) The drawings and specifications, and a listing of those drawings and specifications, necessary to define the configuration and the design features of the product shown to comply with the requirements of that part of this subchapter applicable to the product.

(b) Information on dimensions, materials and processes necessary to define the structural strength of the product.

(c) The Airworthiness Limitations section of the Instructions for Continued Airworthiness as required by Parts 23, 25, 27, 29, 31, 33 and 35 of this chapter, or as otherwise required by the Administrator; and as specified in the applicable airworthiness criteria for special classes of aircraft defined in § 21.17(b).

(d) For primary category aircraft, if desired, a special inspection and preventive maintenance program designed to be accomplished by an appropriately rated and trained pilot/owner.

(e) Any other data necessary to allow, by comparison, the determination of the airworthiness, noise characteristics, fuel venting and exhaust emissions (where applicable) of later products of the same type.

(Note: The AEA offers "Frequently Asked Questions" to foster greater understanding of the Federal Aviation Administration regulations and the rules governing our industry. The AEA strives to ensure FAQs are as accurate as possible at the time of publication; however, rules change. Therefore, information received from an AEA FAQ should be verified before being relied on. This information is not meant to serve as legal advice. If you have particular legal questions, they should be directed to an attorney. THE AEA DISCLAIMS ANY WARRANTY FOR THE ACCURACY OF THE INFORMATION PROVIDED.)