News from the Hill

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Record-keeping in the Digital Age: A Work of Fiction

The idea for the following fictional story based on an avionics shop in the future came to me as I flew across the ocean returning from a harmonization meeting in Munich, Germany, in March. I was wondering what future generations might think of their predecessors who kept paper records. I also wondered whether we would be successful in our attempts to open up new opportunities for safety and commerce.

So, journey into the future with me and imagine what the next generations might say about our "ancient" record-keeping methods.

An Avionics Story: What the Future Might Entail

The young technician moved the keyboard closer and continued to type. "Bench check, OK," he said. The words finished his Block 13 entry.

He pushed the keyboard away and wondered for the millionth time why there was so much record-keeping work. Oh sure, the regulations required it, but why did they require it? And how did they really get to where they were today?

A booming voice cut short his reverie. "Hey, kid!" That would be Hank, the young man's boss. "Still making your digital entries?"

"Just finishing this 8130-3 tag — that's all," said the young man.

"OK," Hank said. "Just make sure you finish it before you go home for the day. I like to see all my guys finish at least one box a day, especially when we have so many customers waiting."

Hank's preferred work dress was a combination of jeans and a T-shirt from a Harley Davidson dealership. Underneath his overly casual exterior, however, hid a business owner with advanced degrees in both aeronautical engineering and business — a man who'd built one of the most successful avionics shops in the world.

Aircraft owners appreciated Hank's casual manner and his ability to make them laugh with his dry wit. But they appreciated even more his ability to meet deadlines without cutting corners on safety or quality.

"Hey, Hank. Why do we have to complete the 8130-3 tag?" the technician asked innocently.

"Because the government says so," Hank replied gruffly, then strode out of the room.

As Hank disappeared from view, the young technician's co-worker Paul softly added, "It's a 43-9 record."

Paul didn't speak much, but when he did the younger guys tended to listen to him. Paul had worked for the FAA for more than 30 years. People joked that he had been around when the FAA issued the type certificate for the Wright Flyer. This wasn't far from the truth, as Paul actually had worked on approving the type certificate for the replica Wright Flyer — work done to commemorate the 100th anniversary of the original Wright Brothers flight.

The government had appointed Paul to head many high-profile projects. He had a quiet, easy way about him. Most guys lecturing on an FAA regulation could clear out a room faster than a bad odor, but not Paul — the young technicians loved listening to Paul's stories about where the regulations came from.

There was something about the glint in Paul's eye and the lilt in his voice that made you feel as though you might have been there with him when history was made. Something in his voice made you feel like the development of another government form was every bit as important as Armstrong's first steps on the moon. So, when Paul said those simple words — "It's a 43-9 record" — everyone in the shop turned to look his way.

"It was just before the '06 AEA Convention," Paul said.

Everyone knew about AEA. Hank insisted they attend the AEA Regional Meetings in order to keep up with the cutting-edge changes in technology and the law.

"Back in the days when logbooks were really paper, and the 8130-3 tag

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was really a tag and not just an electronic record, there were two changes going on in the way we kept records," Paul said.

They'd all heard the stories. Back in the 20th century, all aviation records were kept on paper. Aircraft records must have filled warehouses! In the first decades of the 21st century, however, two major changes occurred that revolutionized the way bench work was recorded.

First, an international group developed an aviation industry standard for recording and transmitting airworthiness data. The idea caught on like wildfire and soon an aircraft's entire record set (including all maintenance records of every component and appliance installed on that aircraft) could be maintained on a data drive the size of a thumbnail. While a drive of that size seemed grotesquely large to the younger technicians, they knew these drives replaced paper records and paper logbooks in a way that permitted a greater range of records to be maintained and retained than had ever been kept in the past.

Paul had not worked on the electronic airworthiness records standardization group, but some of his fellow FAA employees had worked on the development of the standards, and Paul had been the one to sign the FAA order that authorized the general use of electronic airworthiness records as a standard mechanism for passing airworthiness data.

The new record-keeping paradigms had permitted greater retention of airworthiness documentation for bench work, which allowed for a better airworthiness connectivity between bench work, installation and continuous airworthiness maintenance of aircraft. While most of the changes had been meant for airlines, the same rules applied to all aviation and, therefore, the general aviation world had been affected as well.

But most exciting were Paul's stories about international harmonization. There was a time, long ago, when the FAA was alone in regulating U.S. airworthiness safety. Paul regulated in the days when the FAA was still looking at harmonization with other countries as a goal, rather than the accepted norm. Back then, many peoples could see the potential benefits. Regions and countries ranging from the European community to China were asserting their own sovereignty in the area of airworthiness, and this was leading to a state of the industry in which repair stations had to acquire air agency certificates from several different government authorities in order to stay in business.

While the notion of finding common ground among different governments seemed like a simple matter to the young technicians, in the first decade of the 21st century it was an exploration into the heart and soul of mankind, as men and women with various points of view and speaking many languages met to hammer out the differences in their systems without upsetting the subtle balance between government and industry that had kept aircraft flying safely since the early days of regulated flight.

The young technician had allowed himself to drift off into another reverie and missed most of Paul's story about harmonization — it had something to do with the details of Block 12, and the way Americans used to fill out their approvals for return to service on tags that were colored yellow.

Harmonization Today

This story of the near future is not so much fiction as it may seem. Right now, governments and industry have been working on the details that could make the world described in this story a reality.

While electronic record-keeping is nothing new, the aviation industry has lagged behind other industries for lack of a standard mechanism for passing airworthiness data — a method governments can accept as being at least as safe as the modern methods and at least as commonly readable as existing paper paradigms.

Last fall, we were able to finish a specification for the data structure expected to be published as Chapter 16 of the ATA Specification 2000 standard. The FAA was part of that process and already has drafted language to authorize the industry to use this specification as a common method of passing electronic airworthiness documentation.

In March, I attended a meeting in Munich hosted by the European Aviation Safety Agency with representatives from the FAA and other airworthiness authorities throughout Europe, Asia, Africa, North America and South America. The purpose of the meeting was to harmonize the instruction sets for completing airworthiness authorizations and approvals for return to service.

In the United States, the form for this information is known as the 8130-3 tag. It is used often by AEA members for recording bench work, and also is found accompanying airworthy articles intended for installation in aircraft. Outside the United States, comparable forms are known by many names, such as the Form One in Europe and the 24-0078 in Canada.

Expect to see a number of changes over the next two years as the results of this meeting are implemented (implementation schedules for some of the decisions from the meeting assign deadlines in 2008 in order to permit appropriate government action).

The FAA also has been working on other regulatory changes designed to improve the way the industry functions as a safety-regulated entity.

In the longer term, we can expect the

way business is done will continue to change in subtle ways. Some of those changes, made in the name of harmonization, might be difficult to fathom, but the end result should lead to both safety and commercial benefits for the entire industry as we continue to increase our ties with other nations, open up new markets, and reaffirm the global nature of the aviation marketplace.

Speaker of the House Tip O'Neil once said all politics is local. Later, Speaker of the House Newt Gingrich came to national prominence for the way he made America focus on national politics. While general aviation tends to be a matter of "local politics," the lines splitting general aviation from commercial aviation are blurring on a daily basis, especially as the general aviation bug continues to bite the rest of the world. This will present both opportunities and challenges for the general aviation community.

From Saudi Arabia to China, the world is talking about general aviation. And places like Saudi Arabia and China also are likely to represent the growth markets for general aviation avionics businesses looking to expand in the next decade.

We'll continue to look for opportunities to facilitate this sort of trade through improved regulatory structures. Taking advantage of those regulatory structures is up to you. ❑