

# Reading, Writing RECORDS



*Electronic Records and Manuals Master Required Words*

S T O R Y   A N D   P H O T O S   B Y   S C O T T   M .   S P A N G L E R

Going by the effective date of AC 120-78, the FAA has accepted electronic signatures, electronic recordkeeping systems and electronic manuals since Oct. 29, 2002.

**A**t a repair station of some tenure, one easily can find millions of required words. They fill three-ring technical manuals standing shoulder-to-shoulder for a 100 yards or so, each one full of thumb-smudged, dog-eared white paper pages. In a Rubik's Cube of dense-packed filing cabinets are drawers of reports and records of work the technical data demands, and every effort to solve the regulatory puzzle begins with the arrival of the principal airworthiness inspector.

Acquiring, revising, recording and finding the right words demands more than space measured in cubic yards; it takes time multiplied by wages paid.

Double-spaced in 12-point type, the 204 words that require Part 145 repair stations to amass this mass of information would occupy only half a sheet of paper. In 91 words, 14 CFR 145.109(d) issues the data requirements, from ADs and maintenance manuals to instructions for continued airworthiness and "other applicable data acceptable to or approved by the FAA." The remaining 113 words belong to 14 CFR 145.219, "Recordkeeping." Seven words are repeated in each regulation: "...in a format acceptable to the FAA."

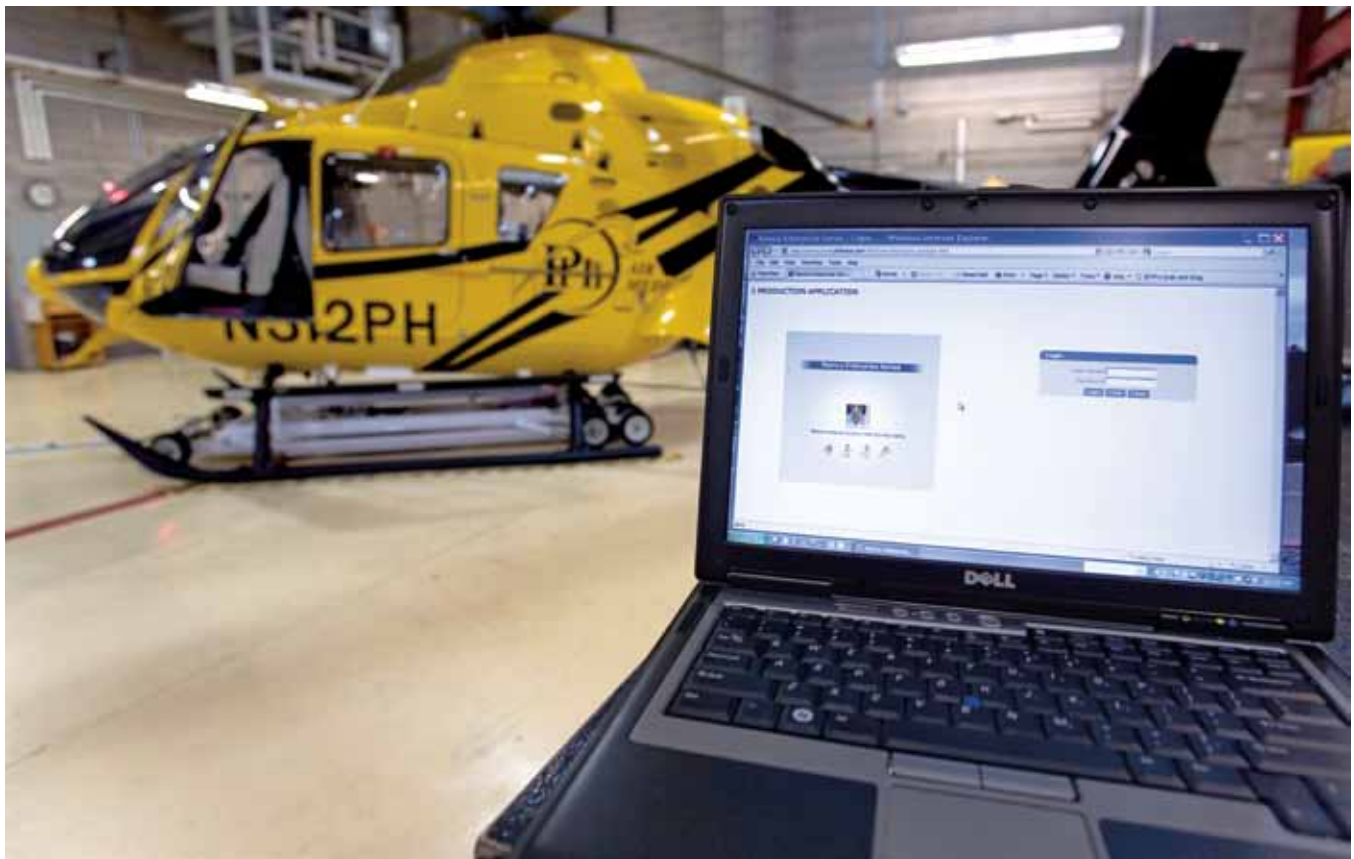
Going by the effective date of AC 120-78, the FAA has accepted electronic signatures, electronic recordkeeping systems and electronic manuals since Oct. 29, 2002.

Curious as to how many repair stations reap the time benefits and space-saving benefits of these computerized systems, phone calls to airworthiness inspectors at random Flight Standards District Offices nation-

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*Kevin Huffman, avionics manager for Chicago Jet Group, logs onto a technician's Wi-Fi-connected information terminal.*



*PHI Air Medical set up a Wi-Fi VPN in its ThedaStar hangar to enable A&P Jim Seelinger to access the web-based system from his workbench.*

## **ELECTRONIC RECORDS**

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wide revealed an antipodal separation. On average, each inspector worked with a dozen repair stations, and rare was the facility that did not use electronic manuals — as though they have much of a choice.

Airframe, avionics and powerplant OEMs have been publishing their manuals and technical data on efficient and cost-effective CDs and, increasingly, online, for years.

The number of repair stations using electronic records, however, was the exact opposite. About half the queried inspectors said one, maybe two, repair stations in the FSDO's region used electronic records.

All of these inspectors appreciated the electronic benefits: an organized format and storage structure that makes it

easy to record, recall and share necessary data. Getting digital-record approval requires a letter to the FSDO inspector, and AC 120-78 provides a sample, along with the system requirements.

Why more of their repair stations haven't gone digital, the inspectors' guesses could be summarized this way: Computerizing paper records takes time, and the systems and the equipment to run them are "pretty pricey."

Among the repair stations using electronic records, Horizon Business Concepts' TotalFBO software was mentioned most often. Created for a flight school in the late 1980s, Version 6.10 debuted in October 2009.

There are more than a 100 aviation-specific recordkeeping programs, and almost all of them are built from modules, which users assemble according to their needs. TotalFBO has four: accounting (from ledgers and billing to payroll

and time clock); flight operations (for flight schools, charter and air tours); ramp operations (covering fuel trucks and farms to concierge service and online credit cards); and aircraft management (which includes repair station recordkeeping).

For repair stations that don't want to invest in a computer network or worry about essential maintenance — such as daily backups — most systems offer web-based (aka ASP, or application service provider) versions. Users connect with their records and data from any Internet connection, and the ASP takes care of everything else, from daily backups to software upgrades.

What these in-house and online systems cost is difficult to generalize because each is built to the user's needs, but [www.TotalFBOweb.com](http://www.TotalFBOweb.com) gives a base monthly subscription fee of \$245 for the full package.

## Complex Capabilities

Petroleum Helicopters International (PHI), Elliott Aviation and Chicago Jet Group (CJG) are three diverse companies offering goods and services not found at the average FBO. Despite their different missions and sizes, they have a common denominator: Each is a Part 145 repair station using electronic recordkeeping to efficiently meet its unique needs.

Of the three, Petroleum Helicopters International is the largest and most complex. Founded in 1949, PHI now operates approximately 250 aircraft spread among 12 oil-and-gas service bases circling the Gulf of Mexico, 88 air medical bases at hospitals nationwide and 43 international operations, including Antarctica. PHI Technical Services oversees the maintenance of this fleet and outside customers.

PHI's repair station at its Lafayette, La.,

headquarters employs "250 folks of all skill sets," said Tony Gonzalez, director of maintenance for PHI, from sheet metal and maintenance to paint, engine overhaul and avionics. Each field operation has its own team of mechanics.

No matter where they work, all are connected by Ramco Systems Aviation Group software ([www.RamcoAviation.com](http://www.RamcoAviation.com)). It went online Nov. 1, 2004, after a 12-month evaluation of 109 different systems and another 11 months implementing them.

Ramco covers every aspect of maintenance, and it interfaces with flight operations and the financial side of the house, which is handled by another system, according to Raylund Romero, purchasing manager for PHI, who led the Ramco effort. The Internet connects mechanics to the Lafayette server. Should a hurricane

threaten, the PHI Air Medical headquarters in Phoenix, Ariz., houses a duplicate server and communications system.

Geography isn't the primary factor in PHI's complex equation; it is keeping track of the vast number of rotatable components found on every helicopter. Ramco's robust forecast engine covers all the parts in the fleet, Romero said, so "we know what's coming due cycle-wise, calendar-wise, flight-time-wise, you name it."

What Ramco does for rotables it also does for inventory, not only within the PHI supply system, but also with its vendors, optimizing repairs, overhauls and new components to reduce shipping distances and downtime.

Ramco generates task cards for scheduled maintenance and inspections, auto-

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matically adding applicable AD requirements, Gonzalez said. Each mechanic and technician has an electronic signature card that endorses logbook entries, clocks them in and out, and keeps track of their qualifications. Mechanics doing nondestructive testing must have an annual color-vision test, Gonzalez said, and if it isn't current, Ramco won't assign the task to the mechanic, nor will it accept his e-signature for the NDT work.

Ink-and-paper logbook entries backup the electronic records. Printed by the system, Jim Seelinger, an A&P for PHI's Air Medical and ThedaCare Hospital in Neenah/Menasha, Wis., holds the single-sheet covering the 24-month airframe inspection. The just-inspected PHI Air Medical EC135 helicopter is heading home, Seelinger said, now that the brand-new ThedaStar EC135 is in service.

Showing off Ramco's capabilities, Seelinger said it will export its data in many formats, including PDFs. But to this field mechanic, more important is its portability. It rarely happens, but Seelinger said the "helicopter has gotten sick" during the decade he has cared for the ThedaStar. Before he got his laptop, his bags of manuals weighed nearly as much as his toolbox.

Another benefit of electronic manuals is the ability to zoom in on small print, especially wire numbers, which challenge older eyes. And with an Internet connection, Ramco orders any needed parts from the nearest source and gives alerts to their arrival time.

### Early Adopter

Elliott Aviation connected its four locations — Moline, Ill.; Des Moines, Iowa; Omaha, Neb.; and Minneapolis, Minn. — with Pentagon 2000 software ([www.Pentagon2000.com](http://www.Pentagon2000.com)) in August 2005. Like PHI, it did extensive research before mak-

ing its decision to retire the software systems it had been using since the early 1990s, said Lonnie Hoodjer, business process manager for Elliott Aviation, who led the effort.

"We were looking for a system that would do it all, so we wouldn't need multiple systems, like maintenance and financials" and customer relationship management, Hoodjer said.

Founded in 1936, maintaining, refurbishing and modifying business aircraft, usually with its STCs, is an important aspect of Elliott's business. So is selling some of these mods, such as a King Air sound management system, as kits. Pentagon tracked and managed all facets of this operation, kitting included. This data feeds all aspects of the system, including bidding a multifaceted upgrade that might, for example, encompass an STC'd glass cockpit, paint, interior and engine work.

Making the recordkeeping process even easier, Hoodjer said, is the growing number of owners who subscribe to electronic maintenance records, like CAMP Systems, and Pentagon can share and exchange necessary information with them through a password portal.

"With the old system, it was all back-office work," Hoodjer said, with people flipping through the records to find the information they needed to enter, then adding more paper to the maintenance record when the job was complete. Now, mechanics and technicians have direct access to information in the hangar at fixed terminals or computer carts parked next to their toolboxes.

### Investment for Growth

Chicago Jet Group is an aircraft management and maintenance company born in 2003. Most of the corporate airplanes it cares for are at its Aurora, Ill., facility, but it also manages a Falcon 900 in Austin, Texas, and a Challenger based in Atlanta, Ga.

To get the most out of each aircraft for

the owners, CJG has them on a charter certificate, which adds another layer of recordkeeping, said Mike Mitera, president of CJG. So, going with electronic recordkeeping was almost a given.

Mitera decided on the Corridor aviation services software from Continuum Applied Technology ([www.ContinuumAppTech.com](http://www.ContinuumAppTech.com)) because it met his needs and because he and one of its developers became friends at the FBO they worked for early in their careers. To avoid the cost of installing, maintaining and upgrading an in-house server, CJG uses the web-based system, which mechanics and technicians access with Wi-Fi connections in Aurora, Austin and Atlanta.

Acknowledging that CJG really wasn't big enough for Corridor, Mitera felt the investment "was crucial to our growth and development." Cash flow is important to all businesses and essential to those just starting, and the program's real-time billing keeps things moving.

"It took us more than a year to build the databases and get everyone up-to-speed and trained how to use it. but literally, we can finish a job, sign it off and, within five minutes, print the final bill," Mitera said.

Electronic recordkeeping thrives on direct entry by those doing the work, allowing companies to reallocate the time of people who used to find records and look up information in the technical library — and it can save jobs. When CJG needed to tighten its belt last fall, Corridor and the company's web-based phone system enabled it to keep one of its dispatchers by having her work from home.

"We're all connected to the computer and phone system," Mitera said, and what this can do for repair station recordkeeping and technical documentation will only continue to grow. □

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*If you have comments or questions about this article, send e-mails to [avionicsnews@aea.net](mailto:avionicsnews@aea.net).*