RFID JOURNAL
THE WORLD'S RFID AUTHORITY

ATA Approves RFID Data Structures for Spec 2000

Topics/Verticals: Supply Chain, RFID Standards, Operations, More...

The agreement paves the way for parts suppliers, airplane manufacturers, airlines and maintenance companies to adopt radio frequency identification to track parts.

By Mark Roberti

June 15, 2009—The Air Transport Association (ATA), the United States' airline trade association, will publish an update this month to Spec 2000 that covers the data to be included regarding automatic data-capture devices, including radio frequency identification tags, as well as the structure of that information. The publication of the enhancements to Spec 2000—a comprehensive set of e-business specifications, products and services designed to enhance supply chain efficiencies—represents a step forward as the industry seeks to employ RFID to track airplane parts throughout their life cycle.

Spec 2000 began in the 1970s as a specification for sharing electronic data interchange (EDI) messages for parts orders between airlines and manufacturers. In the 1990s, the specification was expanded to include a standard for using bar codes to identify and track parts, with RFID added in 2004 as another means of parts identification. ATA has been working since then to form a consensus among aircraft manufacturers, parts suppliers, airlines and maintenance organizations regarding which data should be stored on RFID tags so that it can be shared.

ATA has approved a data structure regarding what information should be stored on tags used on parts. For high-memory tags (which will hold 64 kilobytes of data), there will be information on each part's "birth record"—that is, a code indicating the company that made it, as well as the part's date of manufacture, country of origin, part number and serial number. High-memory tags will also have "current data" about the items to which they are attached. If a part has been refurbished, or had new software added, for instance, that information would be stored on the tag. In addition, there will be an open area of the tag's memory for users to add whatever information they like, such as notes by a mechanic who serviced the parts. When low-memory tags are used, they would be encoded with just the birth record and possibly limited, current information.

Because ATA strives to remain technology-neutral, the revised RFID standard does not specify which RFID protocol companies should utilize, though it does indicate that passive ultrahigh-frequency (UHF) tags based on the ISO 18000-6C standard are preferred. Passive high-frequency (HF) tags (Spec 2000 does not designate a particular air-interface protocol) can be employed for certain unspecified applications, and the same data structures could be used for other auto-ID technologies, such as contact memory buttons. The standard requires that the part's existing serial number be written to the RFID tag's user memory.

However, the standard does not specify a method for sharing data. Based on the current version of Spec 2000, a company that performed maintenance on a part would be identified on the tag, and a supply chain partner seeking additional information would have to contact that company directly. The committee that drafted the specification did consider the Electronic Product Code Information Service (EPCIS) standard—a set of standards and protocols for sharing Electronic Product Code (EPC) data

over the Internet—but some ATA member companies felt an EPCIS-based system would not be a cost-effective means of sharing data in the near term.

"This is a very important milestone," says Carlo Nizam, Airbus' head of value chain visibility and RFID. "All the players in the industry have come together—including competitors—and agreed on an interoperable and standardized data structure for low- and high-memory tags, and that is consistent whether companies are using HF, UHF or other auto-ID technologies."

"This will open the door to software companies who can now write applications that use the data captured from the tags," adds Airbus' Paul-Antoine Calandreau, who worked on the standard for the aircraft manufacturer. "Overall, this is going to enable new efficiencies for the industry."

Spec 2000 will continue to evolve in order to serve the airline industry's needs. For the standard to be adopted, Boeing and Airbus will need to require subcomponent manufacturers to tag subassemblies. But the approval of data standards is a prerequisite, because the aircraft manufacturers can not require suppliers to tag parts and subassemblies until there is agreement within the industry regarding which data should be stored on the tags.

"It's a positive first step, because you have to be able to identify a part before you can start sharing data about a part," says Ken Porad, an associate technical fellow for the Boeing Co. "The industry has now agreed on an architecture that requires a unique serial number within a CAGE [Commercial and Government Agency] code."

The CAGE code—a five-digit identifier assigned to suppliers to the U.S. Defense Department or other governmental entities—identifies a part's manufacturer, but a part number can change during that part's lifetime, making it challenging to track the part's history. Agreeing on a format for identifying an individual part throughout its life should eliminate this problem.

Moreover, by agreeing as to which data should be stored on RFID tags, the industry lays the foundation to begin using the technology to track parts throughout their life cycle. Sources tell *RFID Journal* that Boeing and Airbus will begin requiring their suppliers to place RFID tags on parts within the next year or so. And several airlines, according to the ATA, have already expressed interest in piloting the use of the newly adopted tag structure to help streamline their processes. "Although the impetus for the project was driven by the aircraft manufacturers, airlines are looking forward to researching possible opportunities to utilize these tag formats on existing fleets as well," says Elizabeth Merida, an ATA spokesperson.