Aviation Adds Subcomponent Functionality to RFID Tracking

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After the initial development effort, RFID has been embraced by the commercial aviation industry for over a dozen years as Boeing, Airbus, major OEMs and airlines have all adopted the use of RFID processes in their Maintenance Operations. The **Transparent Data Collection®** aspect of RFID means that hundreds of items like installed life vests can be checked via RFID for both presence and expiration dates in about 35 seconds on a wide body aircraft. This saves hours of crawling around on hands and knees to determine the same things, but with RFID we have saved hundreds of hours and have digital data on every one of those items. Because of the quick ROI, this feature is usually the first application utilized by airlines, followed closely by tool tracking in the maintenance facilities. RFID usage is one of many aspects of the digital transformation efforts improving the aviation business.

As fast and accurate as RFID data collection is, there are areas that have continued to slow down the airlines and exposed them to possible over-running a limit on a time-controlled part on the aircraft. The industry's ATA Spec2000 RFID taskforce has addressed the first of these issues by solving the embedded part life issue where information for sub-components - embedded and inaccessible in slides and rafts - can now be read as easily as the top-level component data itself.

One of the more challenging problems facing the airlines is to keep track of components that are composed of various subassemblies that each have their own part numbers and expiration date. These are known here as **Embedded Life Parts (ELPs)**. The example addressed below is for slides/rafts that will have batteries, reservoirs and survival kits each with their own life limit. Having a tag formatted with this ELP data on the highest assembly avoids putting a tag on every subcomponent and the possible confusion and/or technical difficulty of reading multiple tags in the small confines of say, a slide assembly on the main entry door. Using this ELP tag process, if a subassembly approaches a removal date, the tag on the highest assembly contains the data to guide maintenance to the appropriate subassembly.

The ability that RFID data provides to read and know detailed data like expiration dates of embedded subcomponents saves airlines hundreds of hours of otherwise wasted time. If just one of the subcomponent item's data is not known – or was recorded incorrectly originally – the entire slide or raft will be removed from the aircraft just to be safe, completely disassembled in the shop, only to find that it wasn't required for another year. Airlines do not have that kind of money to waste! Using this new ELP process will allow even more efficiencies for the likes of Delta Airlines and Safran repair facilities to improve their cost structure through innovative digital transformation of part data.

The ELP processes is structured to be flexible and modular as the industry finds other uses for more easily tracking subcomponents, possibly in First Class seat assemblies, in galley or lav equipment, in engine assemblies and other use cases yet to be imagined. If you have ideas where the tracking of embedded subcomponents would be helpful, please let me know we will figure out how to incorporate into the specification.