
Aviation Parts System

Delivering Value with a Universal
Commodity Parts System for Aircraft
Manufacturers and Air Carriers



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White Paper

Introduction

With the advent of liberalization, the aviation industry has taken a new direction, moving away from a nationalistic approach. Bilateral and multilateral agreements, regional liberalization arrangements, code-sharing arrangements – all demonstrate the move of air carriers into a global realm.

Parts management, however, still remains in a silo. While an aircraft manufacturer may sell its planes to any number of air carriers, in any number of countries, its parts management system remains uniquely its own. Each part is catalogued according to the original manufacturer's system and is tracked as such. When a part is sold and installed in an airplane being built, that same part is catalogued again, this time according to the aircraft manufacturer's system. When the plane is sold to an air carrier, the new owner will give that part its own unique identifier as well. In such an environment, procuring, tracking and managing parts can become overwhelming, as well as costly, but many of these issues can be alleviated with a universal parts system.

With planes having millions of parts (a Boeing 747, for example, has over six million, ranging from complex, expensive parts such as flight computers and black boxes to the smallest rivet in the wing), creating a universal database of parts with a standardized part identification system is virtually impossible. However, far closer within reach is a universal database of standard

commodity parts – the nuts, bolts, rivets and washers that help hold the plane together. Although small pieces, these parts play a pivotal role in the safety and mechanical ability of a plane. Their universal database can play just as big a role in helping air carriers and aircraft manufacturers improve logistical efficiencies and save money.

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The Universal Commodity Parts System

To many people, commodity parts seem insignificant, especially when compared with some of the more complex instruments such as landing gear. However, a great deal of time and money goes into the creation of an individual commodity part such as a bolt – from material choice, to mechanical design, sizing and load-bearing capacity.

Understanding this, aircraft manufacturers have adopted the use of standard commodity parts whenever possible. In doing so, they can design their products without having to redesign, from the ground up, each screw and rivet used in the plane. In addition, these parts have been designed according to nationally or internationally

recognized standards and are therefore easy to obtain from a number of suppliers. Since many different companies are supplying the same part, this often lowers the cost of the item. Aircraft manufacturers save by spending less time as well as less money on procuring and managing the parts they need.

So, while it is beneficial for aircraft manufacturers and their suppliers to use standard parts in the design of their products, doing so is often hampered by existing inefficiencies. With information about parts spread throughout numerous databases and manufacturers' catalogues, finding the ideal part is time-consuming and inefficient.

With a universal commodity parts system, commodity parts can be identified, no matter how they are used. Such a system provides the names of all the suppliers that produce it. For example, a bolt used by aircraft manufacturer A and sold to air carrier X is cross-referenced in the same manner as one used by aircraft manufacturer B and sold to air carrier Y. This system applies no matter who supplies the bolts.

To be an effective tool, a universal commodity parts system has to do more than simply list current or obsolete part numbers. It must also validate the parts listed. For example, if bolt XY1234 was produced by six manufacturers, the system should list only the manufacturers that were able to certify that the bolt XY1234 they manufactured met the universally recognized specifications for the part. This would allow both designers and maintenance workers to choose a part from a supplier in the system with confidence that it complies with safety regulations.

Delivering Value with a Universal Commodity Parts System for Aircraft Manufacturers and Air Carriers

The ideal universal commodity parts system acts as a knowledge base for each part in the system. It includes information such as technical characteristics, description data and mechanical drawings. Users are able to use this information in their design process and use the data to make comparisons between similar parts to choose the right one for the job. To make usability easier than paper-based catalogues, the universal commodity parts

system is available for access over the Internet. From engineers in Portland to repair technicians in Paris, users are able to quickly locate part-specific data right at their desktop. This system allows them to do more than just look up a part by its identification number; it also lets them locate a part by keyword descriptor or manufacturer. It acts as a repository of all national, international and military standard commodity parts. No longer do engineers, procurement managers or maintenance employees need to sort through a disparate set of listings to find the information they need – they can find the right part every time through one comprehensive system.

Benefits of a Universal Commodity Parts System

A universal commodity parts system offers a number of benefits to both aircraft manufacturers and air carriers.

Aircraft Manufacturers

Parts management as a whole is a cohesive solution involving an individual organization's buy-in and commitment. A universal parts system is an ideal tool for enabling the process. Parts management allows companies to improve logistical operations and control costs by minimizing the use of unique and new parts. It encourages engineers to design products using parts already in use by the organization and to standardize by replacing with similar parts. This saves money by allowing procurement managers to make fewer buys of many different parts and enjoy the economies of scale that come from buying more of the same part. It also decreases material handling and inventory stocking and tracking costs.

With a universal commodity parts system, standardization of parts becomes easier as engineers have access to a complete database of all possible parts. It allows them to search based on specific engineering needs and to make comparisons between parts with similar technical characteristics. Since the system lists multiple suppliers for the same part – all of whom have certified that their part meets universally recognized standards – procurement managers have a greater range of valid choices when selecting suppliers and can negotiate for better prices and terms for the parts they purchase.

Air Carriers

Air carriers also benefit from a universal commodity parts system. No matter whether their airplane needs scheduled, unscheduled or condition-based maintenance, access to a universal commodity parts system can speed the maintenance process and get airplanes flying again as quickly as possible. With access to a database of universal parts, maintenance workers quickly find the part they need, when they need it. If a part is not on hand, they can find the nearest supplier who offers a similar part.

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In addition, with a universal commodity parts system, air carriers will be able to decrease their inventory of spare parts. Currently, if an air carrier owns a number

of plane models from different manufacturers, it has no way of knowing which parts these planes have in common. The air carrier can therefore end up holding in inventory spare parts for each type of plane in its fleet. A universal commodity parts system allows air carriers to recognize common commodity parts across their fleets. A bolt used in a plane made by one aircraft manufacturer is now identified as the same one used in a different supplier's plane. Under this system, the air carrier is able to cut inventory and material handling costs by stocking the same common part for multiple types of planes.

Conclusion

Having access to a universal parts system to identify and validate an airplane's commodity parts offers a substantial benefit to the aviation industry as a whole. It also reflects the spirit of liberalization with its emphasis on global information-sharing and co-operation.

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Originally published in [Business Briefing: Aviation Strategies: Challenges and Opportunities of Liberalization](#), March 2003



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