

# MRO MANAGEMENT<sup>®</sup>

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# Seeking smart stock management

Balancing the number of spares needed to ensure fleet airworthiness against its cash flow requirements can be a tricky task, but help is at hand, as **Bernie Baldwin** reports

Parts specialists such as AJW are no longer the sole source for spares, having been joined in the aftermarket by the OEMs themselves (photo: AJW)

'Cash is king' according to a well-known saying. Having enough to do the work you need is vital, especially in the airline industry. Tying up cash by having too many spare parts hardly counts as best practice. There needs to be smart control of the inventory to ensure that the right parts are available when needed, but it's important that overstocking does not cause cash flow problems.

There are a number of key elements to controlling the inventory of spares. Christopher Whiteside, President and CEO of independent specialist in aircraft spares management, AJW Group, assesses the challenge.

"To be successful when managing the parts inventory for an airline customer, MROs must maintain high levels of insight into an airline's operation," he observes. "This means having a holistic understanding of their maintenance programme and philosophy, operational targets and appetite for risk, as well as the implications of any delays or unscheduled maintenance.

"As with any business relationship, it is essential that there is good communication and trust between both parties. AJW Group offers a 365/24/7 service to our customers which means we're able to support them whenever, and wherever, they need us. Our local

support solutions are centred around our customers' individual needs, which means that the maintenance of parts including wheels, brakes, oxygen bottles, batteries and so on, can be maintained near to a customer's base operation," Whiteside remarks.

"Increasingly, MROs are able to differentiate themselves by offering software packages tailored to an airline's unique and changing needs," he adds. Moreover, airline maintenance departments and third-party MROs can avail themselves of the inventory control modules from established software suppliers, who have their own views on how to balance the stock.

Acknowledging that "effective inventory management has always been about balancing the need to have parts readily available against the high cost of holding those parts on the shelf", Ian Kent, Product Manager at Rusada, explains the role an IT package can play.

"A good maintenance software system should be able to help operators understand their inventory needs as well as their supply chain, so that stock levels can be continually optimised," he says. "A good system should also be able to manage the inventory, ensuring appropriate levels of stock turnover, shelf-life control and cost management.

"An age-old problem for airlines is the continuous increase of inventory on the shelf. It is often difficult for an airline to understand the reasons for this. A good system should have the analytical tools which enable the airline to quickly and easily understand inventory movement," Kent emphasises.

Commssoft's Managing Director, Nick Godwin, provides a checklist of how a maintenance software programme can assist the inventory control task. "A good application does it by providing visibility of:

- stock disposition/availability across the network especially for AOG items;
- stock on order and predicted arrival date with regards to the actual requirement;
- stock reorder alerts when individual warehouse minimum levels are reached;
- part consumption history and data for maintenance costs tracking and budgets;
- preloads for upcoming major checks and the order requirements for these;
- shelf life/calibration on parts and tools and RFID control of tooling;
- auditing and stock valuation;
- being able to control stock with multiple currencies, multiple ownership and multiple locations, as our



application OASES can – thus consignments owned by OEMs or PBH [power-by-the-hour-type] suppliers can be ring fenced and controlled alongside stock owned by the customer;

- the control of Requests For Quotation (RFQs), mainly for rotatable spares, which may have alternative suppliers; and
- automatic stock request or order prompting of stores and purchasing should any preloads for major checks be robbed to support critical operational requirements such as an AOG."

Godwin also notes that for the penultimate point, the RFQ element of OASES will chase promised dates from each selected supplier.

In setting up the processes to help an airline or MRO provider with their inventory, an assessment is needed as to the amount of stock they should keep. "Inventory holding policies vary greatly between customers, depending on the type of operation and location," Godwin notes. "Some hold large inventories and manage these by assessing historic usage, whilst others hold only limited inventories of consumables and rely on support contracts for most rotatable items.

"There is no general solution and it depends on the individual airline policy. The software can assist in assessing the stock holding by providing usage data and historic orders information. It can also alert the purchasing department when stock levels reach the minimum alert levels for any component and this can be set for specific warehouses in the network. ▶

Key drivers of stock levels include the demand for components, lead time for repair and the criticality of a component (photo: AJW)

Christopher Whiteside,  
President and CEO of AJW Group  
(photo: AJW)

"The features in the new OASES Shipping and Logistic module allow stock to be moved efficiently around the network to optimise stock levels at the various warehouses," Godwin highlights. "An additional feature of modern airline operations is the need to react to route and contract changes which demand the rapid opening and closing of bases and their associated warehouses again, requiring the movement of large quantities of stock to and from the location."

Rusada's Kent points out some of the many factors that come into play when assessing optimum inventory holding. "These include aircraft types operated, age and fleet size, type of operation, geographical extent of operation, level of service protection required, level of maintenance operations performed in-house, supplier lead times and many more," he states. "Many airlines, especially start-ups, will look to their OEM for recommendations and initial provisioning lists, but often these are significantly more than is actually required."

"Most of the decisions associated with these factors lie with the airline but an MRO/inventory management system can certainly assist in the decision making through the analysis of material demand data for both routine scheduled and unscheduled maintenance," Kent continues. "Systems such as [Rusada's] ENVISION, allow material requirements to be clearly defined against maintenance task requirements and comprehensive forecasting tools enable accurate material requirements to be determined. This helps an organisation to understand where and when they need inventory to be available."

As a company which actually delivers stock to the MRO departments and third-party providers, AJW Group is arguably even closer to those entities with regard to discussions over inventory levels.

"Airlines use different approaches when it comes to inventory planning; including outsourcing their supply chain solutions, flooding inventories with stock or developing in-house engineering solutions," Whiteside comments. "There are several ways that MROs can assess the levels of inventory airlines need. Although these levels are unique to the carrier, key drivers of stock levels include the demand for components, lead time for repair and the criticality of a component."

"The variability of demand has a large role to play in the numbers of any part that are held in an airline's inventory. The greater the

predictability of demand, the less safety aspect required to deliver required service levels. The greater the deviation of demand, the greater safety aspect required to deliver required service levels," he adds. "Lead time for repair processes and the variation of those processes drives the requirement for additional inventory to be held."

"Finally, the criticality of a component is a key consideration as those parts that drive AOG situations have to be available when required in order to minimise the impact to airlines of AOG scenarios," Whiteside stresses. "At AJW Group, detailed historical analysis and profiling is used to apply the most appropriate inventory optimisation algorithms to each demand profile type. This is then used to calculate the inventory required to deliver target service levels to customers."

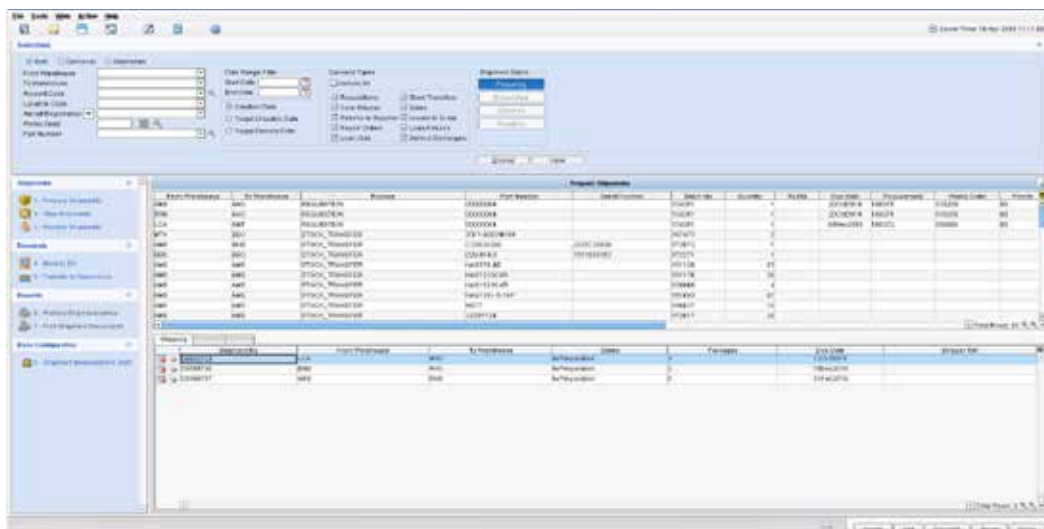
Parts specialists such as AJW are no longer the sole source for spares, having been joined in the aftermarket by the OEMs themselves. Comprehensive support packages offered by the airframers and engine manufacturers nearly always include an offer to help control inventory.

"Many airlines are looking for alternative ways to meet their inventory needs without having the traditional high cost of ownership,"

observes Ian Kent.

"Airframe OEMs and specialist companies offer a range of flexible solutions including provision of on-site consignment stock and access





A software program such as OASES from Commssoft can assist in assessing the stock holding by providing usage data and historic orders information. It can also alert the purchasing department when stock levels reach the minimum alert levels (photo: Commssoft)

to rotatable pool stock under a range of financial options including leasing, power by the hour, loan and exchange.

“Whilst these solutions do allow airlines to lower their investment needs and simplify their supply chain, they can end up increasing the burden of inventory management,” he argues. “Many of these solutions require careful management of OEM-owned/supplied stock and failure to do so can result in heavy penalty costs.

“A good MRO/inventory management software system should support this process, by ensuring that unserviceable components are returned to the OEM/rotatable stock provider within agreed timeframes. Being able to manage these contractual terms and the relationship between exchange items and unserviceable cores is critical for an airline,” Kent emphasises.

Commssoft’s Godwin is also aware of the changes by the OEMs in the aftermarket. “There has been a general trend of airlines reducing the amount of inventory being held and an increasing reliance on just-in-time delivery of components with improved logistics chains,” he notes.

“There has also been an increase in the number of customers using pool agreements and power-by-the-hour-type agreements which provide parts via a consignment stock,” he continues. “OASES can easily handle these through its ability to assign multiple owners of stock within the system and transfer ownership of items in accordance with contractual agreements.

Godwin reports that for Commssoft’s OASES customer base, the vast majority of its customers have

deals with industry stockists and OEMs. “OASES does have a warranty module, but few have adopted this as a consequence of the above. Should the customer opt for extensive direct stock ownership, they are likely to take the warranty functionality,” he confirms.

So what is it like for the spares specialist to find the manufacturers encroaching into territory that for so long was theirs alone?

“With the entrance of new players, predominantly OEMs, the MRO market is becoming increasingly competitive,” Whiteside acknowledges. “Notably, OEMs are willing to spend the capital to invest in new material and are continually developing support packages for their own equipment, and often that of other OEMs too. They are also supplementing their solutions with aircraft data retrieval and analysis services. All of which means that the services offered can be quite compelling, although often not at the lowest cost.

“That being said, their focus is largely on factory new material and less on used serviceable material (USM) and their repair cycle management tends to be focused on OEM maintenance capability rather than non-OEM shops. In response to this competition, other providers, like AJW Group continue to innovate and look for solutions that can drive further efficiencies for their customers,” Whiteside declares.

Thus while OEMs make their mark in enhancing the ways they support their clients, the industry specialists believe that their more focused approach can still offer a better option. The maintenance software providers, meanwhile, are also in a position to benefit by being able to offer the systems which interface with whichever source of spares an airline or an MRO company chooses. ■