

# MRO MANAGEMENT<sup>®</sup>

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Testing and equipment

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# Scrapheap challenge

A few years ago, aircraft dismantling was seen as an environmentally friendly practice. More recently, it has become something of a free for all as companies have dived into what is seen as a lucrative source of revenue. **Ian Harbison** talks to some of the key players

**T**here is clearly a limited number of aircraft that are suitable for spares recovery. At present, there are too many companies chasing too few resources. The situation is also affected by the current economic good times, with airlines keeping older aircraft flying longer, especially as the cost of jet fuel has come down and with favourable lease rates. From those aircraft that have been dismantled, there are cases of excess inventory for some items, this lowers their value and negates the investments being made – something that may help sift out some of the ‘cowboys’ in the industry.

Among the key players are both OEMs and MROs. The OEMs are influencing the market with tactical purchases of hard to get items, but as each one has its own strategy by part and platform, the effect is

diluted. More seriously, it has been suggested that some OEMs are reducing pricing to airlines for MRO work in order to put independents out of business. However, it is difficult for OEMs to compete against parts companies and MROs that cover all aircraft and engine platforms, mainly because these companies cover a number of platforms, and for the airlines, the broad range of coverage is more important than simply dealing with a single OEM. Additionally, the upsurge in aircraft dismantling by airlines and parts companies has led to reduced demand for PMA parts, as there are significant levels of used-serviceable components in the market and OEMs are often selling new parts below the PMA price, again to put the competition out of business. Once they achieve this, it is likely that they will return with higher prices. ▶

‘Quality is important’, says KLM UK Engineering, which has EASA Part 145 approval, a full scope of services, AFRA Accreditation, as well as an approval from the UK Environment Agency (photo: KLM UK Engineering)



Door sections are carefully removed to make instant cabin door trainers for cabin crew (photo: AELS)

As for the MROs, they are not really influencing the market by purchasing for their own work as they just do not have the power that the OEMs do. However, there are some major airlines and parts companies that combine the parts and MRO services to provide comprehensive support capabilities to airlines. This has usually been a service offered by the OEMs. Now, much of their involvement is driven by the need for used serviceable material for cost per hour arrangements. This is a way to save money without having to use PMA parts.

## AELS

Derk-Jan van Heerden, General Manager of Aircraft End-of-Life Solutions (AELS) in the Netherlands, says he is uncertain about the numbers of aircraft that are being dismantled. While there seems to be an increase in demand for buying aircraft/engines for disassembly, AELS is now constantly scanning the market for availability and is more aware of activity. In addition, it is often difficult to establish exactly when aircraft are recycled – sometimes, they will be parked with only the engines removed.

He adds that components seldom increase in value: they only sustain value or decrease. The incidental increase only happens when there is an AD/SB or another technical requirement. When it comes to OEMs and MROs, van Heerden says both are active in the market, but for different reasons. In some cases, OEMs will buy components to sustain their market value, while MROs generally buy to meet stock requirements, rather than taking a more strategic approach.

The amount of inventory coming from airlines disposing of surplus material is decreasing, as they are using power-by-the-hour contracts instead and are becoming smarter with regards to the contents of their stock.

According to van Heerden, there are now too many entities 'fishing' for aircraft to buy for part-out, but in regard to availability of inventory he says this depends on aircraft and component type. The more aircraft of a particular type/model that are disassembled, the more availability there will be. If demand in the market remains high, this is not a problem, but typically the number of easy sales will decrease with each aircraft that is recycled.

Despite this, he believes there will be continuous healthy demand for components. The challenge is to buy assets at the right price. If fuel prices stay low and interest cost increases, new aircraft become less popular and that will influence the availability of end-of-life aircraft. However, to keep on flying, older aircraft will require more spare parts. So it's hard to predict where the balance is. AELS takes care with what it buys, and tries not to invest in a break-even horizon too far in the future.

## Ascent Aviation

John Keating, Chief Commercial Officer of Ascent Aviation Services in Tucson, AZ, says that in 2014 his company recycled 20 Boeing 737s, two 767s, one 757, seven Bombardier CRJs, four Airbus A320s, and two McDonnell Douglas MD-80s. So far this year, six 737s, three CRJs, two A320s and an MD-80 have suffered a similar fate. Through 2016, he expects to see upwards ►

of 38 aircraft – mainly A320s, 767s and 737s – being recycled by the company.

Engines, avionics and electrical parts, plus hydraulic and pneumatic components are in greatest demand, something that has changed in the last 18 months. Of these, engines and avionics have seen the greatest increase in value, while flight controls and interiors have seen the greatest decrease.

Keating agrees there is too much inventory available, especially on classic 737s and older A320s. He acknowledges there are too many players, with more and more entering the market. Also of note, he says, is a temporary decrease in airlines disposing of surplus stocks due to a projected increase in 2016.

As for OEM involvement, Ascent has not seen their influence, and, while some MROs may be purchasing for their own work, Keating believes they have not made much of an impact on the market as they have simply not established the supply pipeline.

### eCube Solutions

Mike Corne, Commercial Director of eCube Solutions, based at St. Athan in Wales, says his company has recycled 14 aircraft in the last 12 months – seven Airbus A320 Family, three Boeing 737NG, two Airbus A330, one A340-200 and one Boeing 747-400. However, the flow of business on a global basis continues to be very 'lumpy', with periods of aircraft simply not moving between the operators/lessors and buyers of end-of-life assets, mainly due to the difference in sale/purchase value expectations. From a global perspective, he feels that the total numbers of recycled aircraft continues to be much closer to 300 per year than the much publicised 600 per year.

Component demand is driven by the parts distribution companies who trade the inventory. On every occasion, all disassembly projects will take avionic suites, flight deck instrumentation, hydraulic components and actuation systems. It is reasonable to assume that there is continuous demand for components in these systems, while areas such as flight controls and interiors tend to be much more optional. He has not observed a change in the demand for different components or ATA chapters, unless an AD or specific campaign has been issued, against a flight control for instance, in which case there is a short-term drive for that item during the period of that campaign.

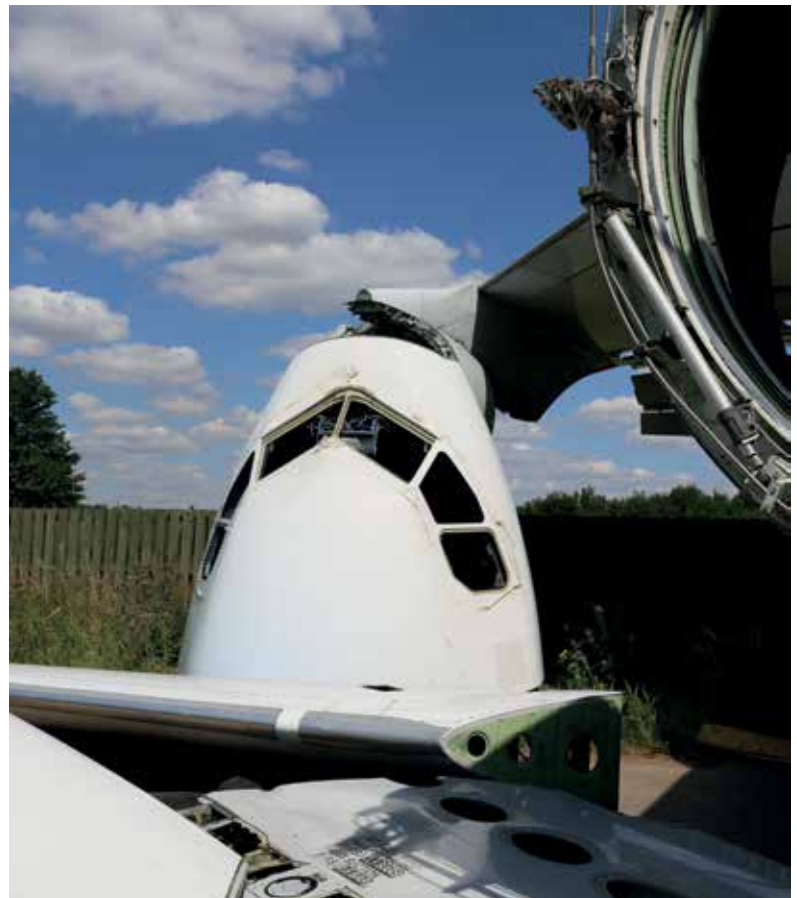
Corne says there is unquestionably an excess of players in the market for end-of-life aircraft. This is an investment market which is perceived to be a growth sector. It has attracted a multitude of players in the last couple of years, but the number of assets available has not increased appreciably. Consequently, supply and demand for acquisition of end-of-life aircraft and associated service provision is temporarily out of balance.

Long-term demand will inevitably grow, he concludes, due both to the global growth of aviation and the introduction of new types precipitating retirements. However, there will continue to be unpredictable numbers, timing and geographic locations, since these are largely dependent upon investment and taxation issues, rather than technical or seasonality factors.

### JMV Aviation

Anca Mihalache, Airframe Sales Manager for JMV Aviation in Luxembourg, says wheels, brakes, slides, actuators, valves and display units are in greatest demand, although this demand is subject to continuous change as each time there is a different need for components or engine parts. While there has been no increase in the value of used components, he says the good news is that there are no real decreases. There seems to have been a decrease for some old APU components, but a recovery is expected. With lower oil prices, old aircraft are tending to stay in operation, so the customer base for inventory has become a mix of airlines, repair shops and brokers. As for airlines, disposal of surplus stocks is only happening with fleet changes, but there are no signs of lower sale prices, even at auction. ▶

Long-term demand for recycling will inevitably grow, due to both the global growth of aviation and the introduction of new aircraft types precipitating retirements (photo: Ian Harbison)





eCube Solutions says there is unquestionably an excess of players in the market for end-of-life aircraft; the supply and demand for acquisition of end-of-life aircraft and the associated service provision is temporarily out of balance (photo: eCube Solutions)

He says OEMs are strong players and that they are influencing the parts aftermarket by purchasing for their own MRO work, though each has a different strategy. Either they are buying for their own stock or taking advantage of the issue of new ADs that will result in more parts being scrapped. He does see an increase in MRO activity in the market, adding that this can only be a good thing.

Overall, as the market has evolved in the last 15 years, he concedes that there are too many players. At the moment the industry is very attractive to investors, therefore the price of the assets remain high, while the components prices decrease.

### KLM UK Engineering

KLM UK Engineering has recycled aircraft across the range of types supported at its Norwich UK base, including Airbus A320s, BAe146/AvroRJs, Boeing 737s, and Fokker 70/100s. Arjan Meijer, Managing Director, says each customer has a unique view on what parts of the aircraft will work for their own business case. This also depends on the aircraft type and if it is being dismantled for an airline, lease company or spares company. The financing and purpose of part-out for each of these customers spans a broad array, so the demand for certain items can really vary. He says the market typically shows continuous ups and downs but has been quite stable over the last 18 months.

The dismantling focus in Norwich covers regional and narrowbody aircraft only. Currently the most valuable components are the newer avionics items, the SB driven improvement parts and some of the out of production and hard to find parts. Although there is a slight decline in part values for in-production aircraft, like the Airbus A320 and 737NG, there is still good

demand for the parts and thus for dismantling projects with parts recovery. Out of production aircraft, for example the A320 with CFM56-5A1 engines and Boeing 737 Classic Generation, show a much steeper decline in part values.

Customers for the recovered inventory can vary. The company, on the one hand, has completed projects for airlines that operate the type and are looking for all parts to be removed serviceable with an EASA Form 1. These customers have their own usage data and know exactly what they need to remove. The majority of these parts will find a way back to re-use on the remaining aircraft in the customers' existing fleets. On the other hand, for spares companies the parts would normally be sent through a shop for overhaul and put on the general market.

In addition to these parts entering the market from dismantling projects, airlines are also starting to dispose of surplus stocks on certain older aircraft types. As a consequence, some out of production aircraft types are starting to show too much available inventory in the market, this drives the purchase prices for these parts down, as well as the demand for salvaging them. This subsequently results in dismantling projects that only have a limited amount of parts that are removed for overhaul.

There are various industry reports which estimate the number of aircraft being retired over the next 10/15/20 years, and although the figures are only estimates, they all show a trend of larger and larger amounts of aircraft dismantled with a certain amount of part-out. One big factor over the short to medium-term is the price of fuel. With fuel prices being more stable, coupled with leases on older aircraft being extended, less aircraft will be retired in the short-term, although they will still have a finite life. ►

As a consequence of this projected demand, there are more companies entering the market. Looking in more detail, however, they are not all delivering the same product. KLM UK Engineering differentiates in having an EASA Part 145 approval, a full scope of services, AFRA Accreditation and approval from the UK Environment Agency. These ensure the quality of the product removed, as well as providing confidence in the way the remainder of the aircraft will be recycled.

KLM UK Engineering predicts a healthy demand in the future, as the part-out business forms part of the 'one stop shop' MRO approach at Norwich. Aircraft whose future life is as yet unknown can also be parked at Norwich, meaning the decision to either perform maintenance or part-out can be deferred until the figures for either case work for the owner.

### Werner Aero Services

Mike Cazaz, President and Chief Executive Officer of Werner Aero Services, says his company has dismantled four Airbus A320/A321s and one Boeing 737-700 in the last 18 months. In general, it is LRUs with high removal rates and nacelle items that are in greatest demand on both types of aircraft. Also worth noting is the age of the components; recently there has been more demand for younger parts. The general demand for the particular type of components has not changed in the last 18 months; however, the supply certainly has, with greater component availability today for some aircraft types, especially the A320. This is due, of course, to the number of teardowns that have taken place with this aircraft type, something that also applies to the A340, the 737 Classic and a few others; it is therefore possible to conclude that there is too much spares availability for these types.

Without a doubt, younger components have seen an increase in value. From time to time there are some ADs due on particular components, causing temporary spikes in demand. There are some aircraft types, such as the 737NG, that are in great demand, and availability in the market place is thus limited – this is particularly the case with engine LRUs. Consequently, the price is driven higher.

Conversely, some avionics components have dropped in value, as they age and get replaced with newer parts that are not available in the surplus market. Avionics are also very susceptible to obsolescence due to the rapid rate of enhancements and changing modification levels. It is important to stay on top of the technical advances in order to ensure the inventory not only remains relevant, but also in demand.

Werner's customers for the recovered inventory are typically second tier airlines, although there is also a lot of consumption from large pool managers as airlines are increasingly shedding the burdens of managing their

own inventories. There are few airlines disposing of surplus material unless they discontinue operating a particular aircraft type. These fleet transitions give airlines the opportunity to reconsider their strategy for materials management, becoming more competitive with LCCs and new entrants who tend to utilise an open loop supply chain or an outsourced model.

Cazaz does not believe OEMs influence the market by purchasing for their own MRO work. In fact, he thinks it is the opposite. OEMs remain primarily interested in selling factory new parts. Much of the MRO work offered by OEMs is packaged in flight hour agreements. While the OEMs (and engine OEMs in particular) are having a growing influence on the MRO market, he does not see them as a market force in the used surplus market (USM) for LRUs. However, large MROs that offer pooling agreements to airlines are becoming a major consumer of LRUs in the USM. There is a growing concentration of supply by these mass marketers which is building up to a critical mass. As a large and astute consumer, the 'big box' MROs are able to apply their purchasing power with the continued concentration of the customer base.

While there are too many players in the market, there is a consolidation occurring on the supply side as well. Airline buyers need to have choices and leverage competitive forces in the market. However, they are limited in the number of suppliers they can effectively manage. Therefore, they must focus their attention on a small number of trusted suppliers who have demonstrated good performance. This supports the case to work with a pool manager, typically a large MRO. Conversely, smaller suppliers that specialise in a narrow product offering can provide airlines with an attractive alternative to the large MRO. This allows the airline to optimise service levels and leverage the expertise of specialists in the market. This diversification in an airline's supplier portfolio provides a healthy force to keep the large MRO slightly off balance. This is why Werner has decided to become a vital player in the nacelle market, its spare and repair solutions provide airlines with assets and repair providers that it can then manage for them.

Future demand for 737NG will continue to be strong and there will be continued demand for surplus material in the A320ceo market. While there is likely to be a high level of aircraft retirements and teardowns, the worldwide fleet should support a healthy appetite for surplus parts for several years to come. There is also a good market for surplus engines to power the single-aisle market for the next few years. However, it remains to be seen if there are enhancements to be made to these powerplants that could affect the marketability of unenhanced assets, as in the avionics category. There are also growing opportunities in the nacelle market as the worldwide fleet ages. ■