



# Suite solutions

**Packaged maintenance support programmes are rapidly evolving to provide increased aircraft reliability for airlines, reports Bernie Baldwin.**

**P**ease of mind; forecastable expenditure; smoothing the cash flow curve. These are just some of the outcomes an airline aims for when signing up for a maintenance package from aircraft or engine OEMs or specialist MRO providers.

The creation of such packages covers a range of philosophies and solutions. Some offer the major maintenance elements, such as structures and systems, but then act as integrators and outsource more specialised repairs; others have the in-house capability to offer the specialised areas too.

Air France Industries/KLM Engineering & Maintenance (AFI KLM E&M) works under the latter approach. As marketing director, Jacques-Olivier Guichard, notes: "AFI KLM E&M's scope covers all service levels thanks to a mix of deep in-house capabilities and a broad geographical network. This gives us the capability to provide fully integrated and customised solutions."

Johann Bordais is president and CEO of the recently formed Embraer Services & Support. He reports that with this integration, the company is "ready and fully

prepared to support our customers all around the globe – from technical training, spare parts and tooling provisioning to maintenance programme optimisation and base checks.

"We've recently been working on integrated solutions to support commercial aviation customers in the same way we've successfully done for business jets customers, while providing innovative maintenance and material integrated services called EEC (Embraer Executive Care) to support current E-Jets and the coming E2 family," Bordais continues. "These modular solutions ensure required aircraft performance, cash flow predictability and a single point of contact for airframe maintenance, engines shop visits, landing gear overhauls, material services, eSolutions and technical services."

## CUSTOMER CUSTOMISED

GE's approach, meanwhile, to maintenance is to customise the content of each contract to each customer's unique needs. Bill Dwyer, director of marketing for GE Engine Services,

explained: "This includes the degree of risk transfer for basic engine overhaul (for example for unscheduled removal coverage), to whether or not the customer wants GE to find them a lease engine, or whether the customer wants responsibility for foreign object damage on the flight line or even transportation of engines to overhaul sites."

AAR takes a similar approach. "Unlike some competitors, AAR does not sell 'out of the box' programmes. We customise our component support solutions to each customer's requirements," said Colin Craig, senior vice president AAR Integrated Supply Chain Solutions – Commercial. "We have our own in-house component repair workshops in New York and Amsterdam, with capabilities across a broad range of aircraft types and systems, as well as a long-term component repair partnership with Air New Zealand, which is supplemented by rigorously selected external repair vendors, including OEMs and third-party facilities."

In the past year, AAR signed its first Power-by-the-Hour-type (PBH) agreements to support next-generation aircraft such as the Airbus A320neo and Boeing 737 MAX families, and added ATRs to its portfolio of types supported under PBH. "Just recently, we launched our new customer portal – AARive – a self-service platform for our PBH component support customers that fully empowers users to manage their programme anywhere and anytime," Craig notes. "The portal allows improved asset availability and reduced turnaround times [TATs]."

## AIRBUS APPROACH

At Airbus itself, the OEM's head of business development and projects, customer services, Bruno James, outlines the service package elements introduced recently under the 'Services by Airbus' brand.

"The biggest innovation that we brought to the market is through our new platform of digital solutions called Skywise," he remarks. "With the significant increase of data capture and the use of data analytics

**AFI KLM E&M's predictive maintenance tool, Prognos, gathers and analyses data generated by fleets to predict possible failures and optimise scheduled maintenance.**

we are now able to provide much more advanced predictive maintenance solutions.

"We also announced during the Paris Air Show the launch of the Airbus MRO Alliance, whereby we combine the product engineering knowledge of Airbus and the industrial excellence of selected MRO partners to provide solutions to the airline customers for C-checks, minimising the downtime and maximising the added value on the aircraft," he adds.

### INTEGRATED APPROACH

The recent additions at AFI KLM E&M, including the new Singapore Joint Component Repair Shop, demonstrate the integrated approach mentioned by Guichard. "This local entity will help curb costs and shorten TAT for client airlines," he says.

Also, the company's Airfoils Advanced Solutions will repair high-pressure compressor blades and variable stator vanes, focusing on the CFM56 engines powering the Airbus A320 and Boeing 737 families plus engines for several wide-body aircraft. "The new facility will span nearly 15,000 square metres (162,000 ft<sup>2</sup>) and incorporate state-of-the-art equipment while implementing high-tech metallurgical processes. Airfoils Advanced Solutions will also be active in repair development," Guichard comments.

"AFI KLM E&M Components China has invested in modern tooling and equipment, as demonstrated by their ATEC Series-6 and new Level 3 capability test benches to check and analyse the latest in control and avionics systems," he notes.

In aerostructures solutions, with centres in Paris, Amsterdam and Dubai (equipped with autoclaves) continuing to expand, AFI KLM E&M says it can now provide anything from minor repairs to full overhauls including any required airworthiness directive/service bulletin (AD/SB) implementation. Structures covered include thrust reversers, a range of cowls, radomes and flight control surfaces. "Our capabilities range from pure metal aerostructures work, to metal bonded honeycomb sandwich solutions and right up to advanced



composite repairs," says Guichard.

GE Aviation's Dwyer points out that the company's services portfolio underwent a rebranding in 2016 to differentiate more explicitly its approach from that of other OEMs, to simplify the product suite, and to emphasise the company's interest in the entire engine life cycle.

According to Dwyer, a competitive MRO approach differentiates GE. "We wanted the industry to better understand these differences compared with several other OEMs with a one-size-fits-all approach," he states.

On simplification of the product suite, Dwyer remarks, "While the hallmark of our services brand has been our flexible, customised solutions to an airline's unique needs, a concern was that customisation to an extreme could be viewed as complexity." Meanwhile the focus across an engine's full life cycle means customers have competitive choices at every stage, right down to parts brokered back to the market after teardown.

**Differentiating AAR, believes Craig, is the "ability to provide nose-to-tail MRO services like we recently announced in a contract for CommutAir's new ERJ 145 fleet. AAR's breadth of services provides comprehensive cost-per-flight-hour and cost-per-landing support via our component repair shop in New York; wheel, tyre and brake shop in Miami; and component management and access to pool parts," he declares.**

Alongside in-house developments, Airbus's James believes the company's ability to select and integrate other companies is a key differentiator. "Combining our intimate engineering knowledge of the aircraft with the services

DNA of companies that Airbus has acquired over the past few years – such as Satair and Navtech (now integrated into Navblue) – is delivering to the market integrated added-value solutions," he emphasises.

### PREDICTIVE MAINTENANCE

A differentiator for Guichard at AFI KLM E&M is its new predictive maintenance tool, Prognos, developed by the Group's 'MRO Lab'.

"Its applications are based on the gathering and analysis of technical data generated by aircraft fleets to improve maintenance operations by predicting possible failures and optimising scheduled maintenance," he explains. "Increased aircraft connectivity and the development of Big Data technologies mean that real-time processing and exploiting of data generated by aircraft and engine systems are now possible."

To set itself apart, Embraer has innovated "when it got services and support portfolios development in parallel with the aircraft development cycle," according to Bordais. "This in turn ensures customer requirements are properly inoculated into the projects, such as provisions for smooth services and support portfolios.

"One example is our health monitoring platform, AHEAD-PRO Premium, which includes failure prognosis and decision-making capabilities. Besides changing the customer experience, it also aims to improve the aircraft maintainability and dispatch reliability performance," Bordais adds.

Just one of an increasing wave of packaged solutions that are giving airlines increasing peace of mind. ■

