

MRO

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**Cargo Conversions
Special Issue**



**Composite
Repairs**

Bringing new
techniques to
the market

Composite repairs: How are they shaping up?



MROs are investing in repair capabilities for heavily composite aircraft like the A350.
Photo: AFI KLM E&M

The demand for more fuel-efficiency, reduced operational costs and manufacturing have propelled the use of new composite materials and subsequently, improved repair processes as **Keith Mwanalushi** reports.

The aerospace industry has used composites for some time now on various applications especially heavily composite aircraft like the B787. A recent market study suggests revenue from aerospace composites topped U\$32 billion in 2020, prior to the pandemic and expected to reach a valuation of over U\$56 billion by 2031.

At GA Telesis MRO Services they have a fully capable composite repair facility and Ben Macre, Vice President, MRO Services – Composite says repair solutions range from small-scale tailored engineering repairs performed on-wing using heat blankets to large-scale repairs using an autoclave. Beyond physically touching the aircraft or component, GA Telesis supports operators with assistance in repair design and the fabrication of parts for ageing aircraft.



Ben Macre, Vice President,
MRO Services – Composite, GA Telesis

With the pandemic still in circulation, the GA Telesis leadership team quickly took action to minimise the impact of the pandemic to the businesses – “We reduced our costs by looking at every expense, even at the way we were buying coffee. We also worked with OEMs to place sizable orders of repair materials to ensure supply chain integrity and avoid delay issues for our customers. By taking these measures early, we were able to keep our customer's components on time while keeping our team fully employed through the pandemic and maintaining our profitability in 2020,” Macre reports.

Meanwhile, at Vallair they provide composite repair solutions referenced in the OEMs structure repair manuals, and Steve Pike, Aerostructures and MRO Services Sales Manager says



they also work closely with a DOA when creating repair solutions outside the scope of the SRM, thus in some cases, they can conduct repairs where the component would otherwise be



Scott Butler, Chief Commercial Officer,
Ascent Aviation Services

scrapped. "We successfully extend the life of composite components providing cost effective solutions and high-quality repairs," he says. Vallair's capability listing covers a range of composite components and panels including nacelles, thrust reversers, engine inlet cowls, radomes and flight control surfaces for Airbus, Boeing and ATR aircraft.

Pike explains that Vallair also carries a range of serviceable and overhauled components on the shelf at its Chateauroux based composite repair facility and therefore offers alternative loan, leasing and exchange solutions alongside the specialist repair and overhaul capabilities currently on offer.

Speaking on the pandemic Pike indicates that the outbreak has severely impacted the entire aviation industry and those operators that are able to survive are without doubt seeking cost effective repair and overhaul solutions extending the life of their composite components,



Steve Pike, Aerostructures and MRO
Services Sales Manager at Vallair.

more than ever before. "The market is expected to grow through the increase in the use of composite technologies and as operators and leasing companies start to put their aircraft back in the skies. The pandemic has wreaked havoc amongst the industry and resulted in the demise of many operators, but we now see evidence of new start-ups evolving and filling the gaps left by those unable to survive."

Scott Butler the Chief Commercial Officer at Ascent Aviation Services also sees a general slowdown for composite and component repair during the crisis. However, he says this is picking up in 2021 with several clients in the leasing

“The increased use of composite materials in the newest aircraft designs will necessitate new inspection techniques and, ultimately, new repair techniques.”

Ben Macre, GA Telesis

sector trying to get all the needed repairs done now while the aircraft are on the ground.

Evolving technologies and composite repair processes

Butler reckons the costs are a high barrier to entry, but they have begun by adding next-gen composite aircraft to their OPSPEC at Ascent. “We plan on serving both B787 and A350 at Ascent Marana and Ascent Roswell soon. We definitely acknowledge that composite is the future of aircraft, and we need to position ourselves to serve this growing market.”

Macre has seen changes to both the number of composites and the types of composites used on aircraft over the years, he gives a good example being the evolution from fiberglass toward carbon fibre – “The increased use of composite materials in the newest aircraft designs will necessitate new inspection techniques and, ultimately, new repair techniques,” says Macre.

Obviously, repairing composite components requires specialist knowledge, skills, and capabilities and at Vallair they work closely with OEMs, operators and airworthiness authorities when creating repairs and repair methodology in line with modern materials in use today. Pike states: “Repairability is something that the OEM considers during their initial design



Revenue from aerospace composites topped US\$2 billion in 2020.
Photo: Vallair

phase and one major issue is time and labour costs given manual repairs are time consuming and expensive. Investment in automated repair technologies will be required in the future to reduce costs as well as the risk of human error.”

Investing in new generation aircraft services

Macre reports that GA Telesis continues to make significant investments in all its businesses, specifically with composites, to ensure they remain competitive. “We have most recently added a larger autoclave to accommodate the composite structures installed on the latest generation of aircraft, including the B787 and A350. We have just completed the build-out of our transmissivity test booth as well. We are also working with tooling

equipment manufacturers to evaluate new technology non-destructive testing equipment such as phased array, ultrasonic delamination tools, and 3D laser scanners,” he states.

And over at Ascent Aviation Services, Butler indicates that they are expanding the component services offering as well at all locations. “Our increasing share of leasing customers are continually looking for one-stop-shops and we want to keep as much work on the field as possible, to reduce lead times and transportation costs.”

Certainly, the aerospace industry has universally adopted composites and new repair techniques and the evolution in the manufacturing technology of such composite parts will continue to drive their use in aerospace applications.