

# Optimising the Cost of Units

The latest developments in component overhaul, including new processes and procedures that make repairing more economical than replacing.

**O**n hearing the term 'component', it's easy to think of some cheap widget that can be bought at a DIY store. In the world of aircraft though, a component can regularly be worth thousands of dollars, sometimes well into six figures. Which is why airlines prefer not to pay for new replacements if an airworthy repair can be performed at much less cost.

The maintenance departments of carriers and third party MRO providers constantly strive to develop such repairs, as the potential savings for airlines can be considerable, especially as new technologies have enabled repairs previously not feasible to become economical.

AJW Technique, AJW Group's Montreal-based MRO facility, processes 35,000 units a year across 6,000 separate part number capabilities for both commercial and business aircraft. Gavin Simmonds, chief operating officer, AJW Group explains: "We continuously look for opportunities to improve repair schemes. Our focus is working with our airline customers to develop comprehensive repair work scopes that either extend time on wing or reduce repair cost/BER (beyond economic repair) avoidance.

"A good example of this is the notoriously unreliable [Bombardier] Q400 coffee maker, which always comes as a surprise to people. Coffee makers are one of the most common items that we see, along with safety slides, navigational instruments and audio control panels," Simmonds adds. "We have therefore developed a series of additional checks and systematic part replacements to maximise the component's time on wing.

"Another example is the [Airbus]

A320 brake transmitter unit. The unit is tested with the Component Maintenance Manual (CMM), but as our reliability reporting has shown, units aged beyond 20 years increasingly fail on wing. In turn AJW Technique has developed an enhanced work scope, which, despite adding cost for the specific repair, ensures units will have extended life on wing, thereby reducing overall direct maintenance costs."

With a heritage going back to the mid-1950s, Wencor Group has been involved in component overhaul for decades. Tom Davis, the company's executive vice-president of product management explains that developing new repairs is still core business: "As OEMs become increasingly stretched with Boeing and Airbus new-build expansion, customers are looking for alternative solutions to support their needs," he remarks.

"Wencor is addressing these needs by continuing to develop DERs [repairs authorised by Designated Engineering Representatives] and PMAs [Parts Manufacturer Approval to make new spare parts] focused on our core competencies of pneumatics, hydraulics, interiors and electric power. In the area of electric power we've developed more than 30 new PMAs and DERs in the last 12 months for internal Wencor and external MRO/airline consumption," the EVP confirms.

Davis's colleague, Travis Dykstra, vice-president, MRO marketing and contracts, adds, "As a solutions focused service provider, Wencor MRO is continually and consistently adding capabilities based on our customers' needs and challenges. From a long-term perspective, we are strategically investing capital, expanding and maximising our capabilities in our core competencies of interiors and

*Gavin Simmonds has been AJW Group's chief operating officer since July 2017. He previously served as general manager of the company's Canadian subsidiary, AJW Technique.*  
AJW GROUP



lighting, hydraulics, pneumatics, power generation and accessories, and repair technologies, as we understand the cost effectiveness of reducing and consolidating their vendor base.

"We've recently had success with developing newer technologies such as LED lighting, software-driven control components, newer metal and composite parts and IDG's (integrated drive generators)," states Dykstra. "In addition to supporting legacy airframes, we have focus development to offer expanded component capabilities on the Embraer 170/190 Series as well as the Boeing 787 Series, especially on OEMs that are not able to meet the

*AJW Group was founded in 1932 as a surplus parts redistribution business supporting the Taylor (later Piper) Cub.*  
ALL PHOTOS AJW TECHNIQUE UNLESS STATED

*AAR's Amsterdam component repair centre was opened in 1967.*  
AAR

*A joint venture between AAR and Indamer Aviation is set to open a new MRO facility in Nagpur, India later this year.*  
AAR

*AAR also offers MRO services to NATO air forces, this includes supporting the US Navy's Boeing P-8A Poseidon fleet with depot airframe maintenance.*  
AAR

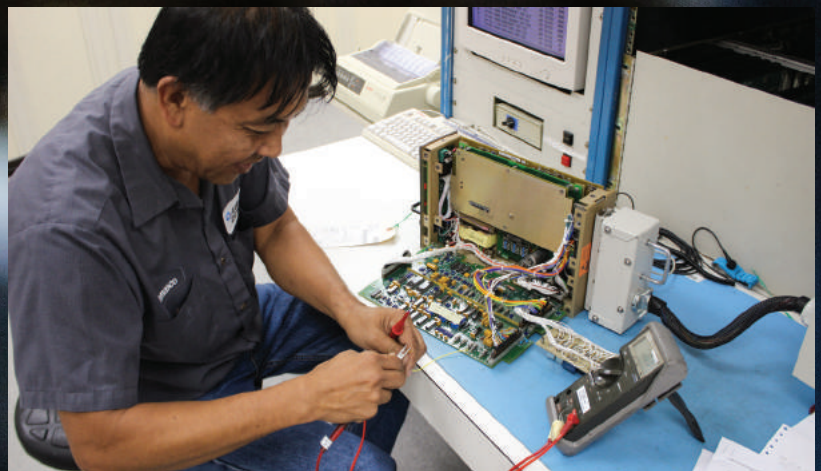
expectations of our customers."

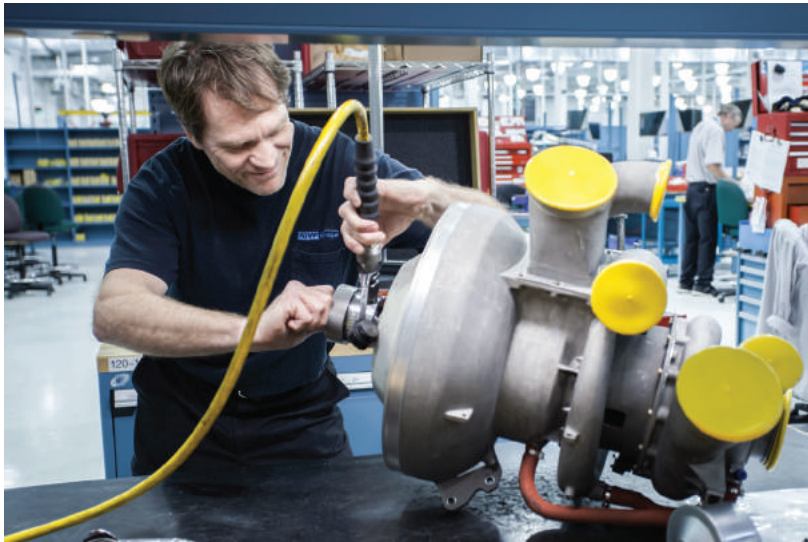
AAR is one of the big players when it comes to new repairs to components. The company, according to André op't Hof, director of commercial operations at AAR Component Repair Amsterdam, "is constantly reviewing its technological (repair) capabilities to meet customer demand. Cost reduction opportunities in the MRO process are an aspect of this," he emphasises.

Where new parts are needed for a component or module repair, some companies, as with Wencor, are happy to use PMA parts while some are not. "While AAR prefers to align with the requirements from the equipment

OEM, we do not ignore specific customer needs and strive to seek a collaborative and satisfying outcome for all involved," op't Hof reports.

Assessing the PMA debate, Wencor's Davis remarks, "The market is becoming increasingly bifurcated, with some customers only accepting OEM parts and others becoming increasingly open to alternative materials. Wencor attempts to balance these customer needs by offering solutions that match the customer requirements which span from 0-100% alternative material. Where alternative material is requested by the customer we seek to use the best combination of USM (used serviceable) >>





material), DER and PMA to provide the optimum value of reliability and cost.”

“With the increasing consolidation of OEMs, coupled with their increasing interest in the aftermarket component MRO, the need for a large independent MRO is greater than ever” declares Dykstra, before claiming: “Wencor MRO is uniquely situated to be the leading alternative to the OEM with the ability to control material costs. Whether it is utilising the experience of our on-site engineering to develop reliability enhancing PMAs and DERs, or leveraging our strength in the USM market, we are able to provide our customers with a total value solution that not only is comparable to the OEM, but often is better.”

AJW’s Simmonds underlines the need to discuss PMA parts with all parties and, more importantly, to listen to them. “Though our strategy is always to work with the OEM, in some instances use of PMA parts can reduce the overall cost of repair. We ensure that we are always aware of PMA options. However, it is often possible to secure an equivalent cost from the OEM. We therefore work with the operator to review all possible options,” he explains.

Whether repairs of major components

are completed with OEM or PMA parts, the ability to improve the speed of access to spare parts beyond the current just-in-time supply chains is fast approaching with the use of 3D printing/additive manufacturing. However, there are still key areas to overcome, as AAR’s op’t Hof notes. “For us this is not yet a dominant aspect in the sourcing of piece-parts for component MRO, as all new items require traceability to the production approval holder (OEM).”

Other companies, though, are certainly moving along the road towards using this manufacturing process. “As a company, we continually study how we can use technology to work more intelligently and efficiently. AJW places a huge importance on technological innovation and we are always looking for ways to further enhance the market-leading service we offer our airline customers,” Simmonds confirms.

“At the moment, there is relatively limited opportunity to make use of 3D printing/additive manufacturing on the components we repair at AJW Technique, due to the certification requirements necessary for new parts we install in our repaired components.



**ABOVE LEFT • AJW Technique’s MRO facility is close to Montréal/Trudeau.** AJW TECHNIQUE

**ABOVE • Opportunities to incorporate 3D printing are currently limited but are expected to broaden as the technology matures.** AJW TECHNIQUE

However, it is possible that we will see increased use of these technologies in non-critical areas, such as cabin furnishings,” he forecasts.

Wencor is keen to progress with 3D printing/additive manufacturing, according to Davis. “Our PMA process is greatly aided by the continued advancement of 3D, with many of our samples produced in this manner to allow advanced design validation and fit checks. But our production is generally still performed via more traditional manufacturing processes and will be until the FAA provides clearer part validation guidance,” he admits.

The future of component overhaul thus looks promising. The use of 3D printing/additive manufacturing appears set to develop, initially through some of the less mission-critical parts, extending later into those areas once the authorities have certified them.

Further new repairs will be developed too, especially for composite materials which are becoming ever more prevalent in aircraft manufacturing. And major players, such as the aforementioned companies, will not be resting on their laurels but driving innovation in repair and overhaul for years to come. ○

**BELOW LEFT • The 160,000sq ft Montréal site employs 170 technicians.** AJW TECHNIQUE

**BELOW • Evacuation slides are one of the most commonly overhauled items by AJW Group.** AJW TECHNIQUE

