www.lowcostandregional.com

LOW COST & REGIONAL airline business

Volume 13 Issue 2 | April 2018

ATR

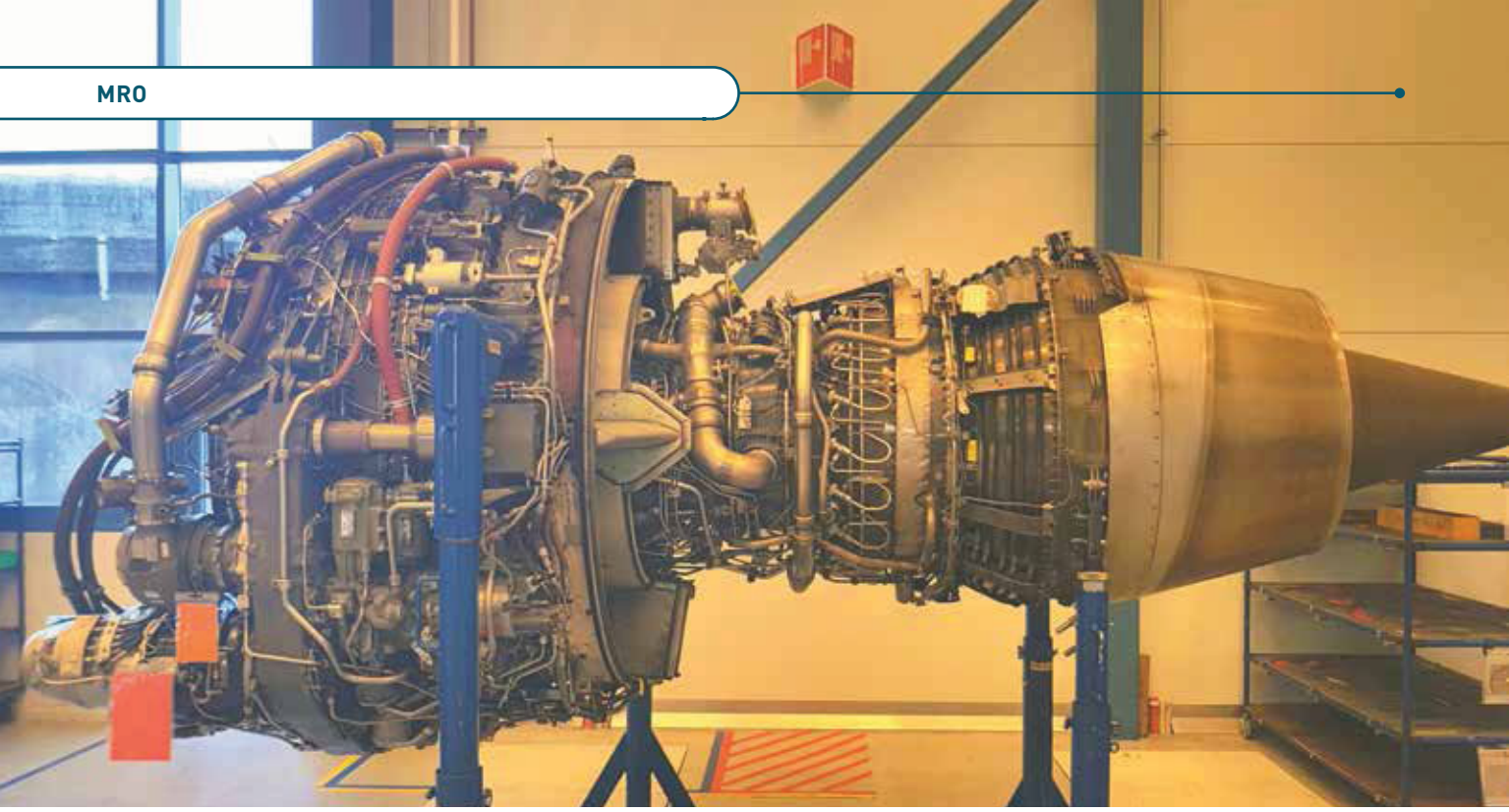
In the big league

American express

Lease plan

Saudi's big deal

CFM56 repairs



Turning turbines

The CFM56 is arguably the most iconic engine in commercial aviation and as shop visits begin to peak, **Keith Mwanalushi** checks in with two of the key MRO players

The CFM56 continues to be a popular type *(photo: Keith Mwanalushi)*

According to CFM International's December 2017 fleet highlights, 32,000 CFM56 engines have been delivered to 588 operators to date, making it one of the most widely operated powerplant in service. The CFM56-5B is the engine choice of the ubiquitous A320 family and the CFM56-7B is exclusively powering the Boeing 737 NG family. The CFM56-3 is deployed on the 737 Classics.

Aviation analysts are projecting a concentration of A320 and 737NG lease ends between the years 2019-22, with a peak towards 2022. This will mean a busy cycle ahead for operators and lessors and subsequently MROs.

Norway bound

Nestled close to Stavanger Airport, Aero Norway is a specialist provider of CFM56 maintenance and repair services.

Current CEO Glenford Marston is justifiably proud of the facility's achievements with the CFM56. Clearly, the global operator base is extensive and Marston believes working exclusively on the CFM56 is the key to the success of the business because the services model that CFM has staked its reputation on for decades is underpinned by independent engine MROs and the usage of the CFM56 series shows no signs of waning.

"You have good volumes of engines to get your teeth into and although it's competitive, we are not scared of competition when it comes to quality and pricing," Marston tells *Low Cost & Regional Airlines Business* in Stavanger.

Marston sees a steady flow of engines from the -3, -5 and the -7 varients and as CFM pushes out new models and engines Aero Norway has sights fully set on servicing the new LEAP engine – "That will be a natural progression for us."

When looking at the market forces today Marston feels the outlook for the CFM56 is solid and he says the business is working to ensure it can sustain its flexibility.

Marston agrees with analysts when it comes to lease end projections saying now is quite a peak time for the CFM engines, especially for the -5 and -7 because there has been a delay in shop visits for the bulk of engines due to how well they have performed in service.

> You have good volumes of engines to get your teeth into and although it's competitive, we are not scared of competition when it comes to quality and pricing
>
> Glenford Marston, Aero Norway

He says operators that had originally planned about 10,000 to 12,000 cycles with these engines were in fact achieving 15,000 to 20,000 cycles. "I think shop visits will peak for the -5 and -7 especially. For the -3 there are less customers operating the Classics but there is still a lot of work out there to be done," Marston states.

Despite the dwindling number of 737 Classics in operation Aero Norway has no intention of closing the -3 side of the business. The company's customer base is mixed flying the Classics, NGs or Airbus. While Marston observes that larger MROs are taking the Classics out of their portfolio, Aero Norway will continue to put those engines through their shop in Stavanger.

"It's a progression for our smaller customers to go from the Classics to the NGs so you will find that we are working on different engines for the same operator. It's all about fulfilling their needs, not everyone has the same pocket and we are very unique in identifying that."

Aero Norway is planning for the upcoming lease ends with balancing capacity versus capability for the engines services and making step changes to introduce more -5s and -7s. Last year the company did 80 engine inductions and for 2018 the plan is push that number up to 92.

"We have what we call a roadmap that kind of dictates how we operate, we do this every year. Our short-term plan is to do 120 engines by 2020, maybe even surpassing that. The capacity of the shop is around 140 engines, but our goal is to consistently do 120," Marston explains.

In terms of work scope Aero Norway uses the same manual as other MRO providers and is not unique in doing that but rather provides its own limits inside the manual limits as Marston put it: "We are a little more stringent with our suppliers and our external repair vendors but we have a very good relationship with them. They have to be part of the commitment we make to our customers because on average we guarantee our customers more than other MROs."

The unequivocal pursuit of industry recognised EGT (Engine Gas Temperature) margins reduces costs and improves reliability – the greater the EGT margin achieved, the healthier the engine. Engines will also last longer on wing, and the engine components, especially in the hot section, will remain in better condition.

The standard offer for a -3C1 is approximately 25°C EGT at most shops, according to Marston and that is the industry standard, but he says Aero Norway offers at least 30°C and, in some cases, even 35°C margin.

However, Marston states that currently, they are averaging 40°C for the -3C1 for the shop: "It's not every single engine that you will get 40 but the year on year average is in access of 40°C."

To achieve those margins Aero Norway has become meticulous with measurements especially in the core area of the engines, the parts used and the quality of those parts. There is also attention to the limits that are stuck to in line with the engine maintenance programme. "We have our own programme which is formulated from the OEM work scope planning guide and we've incorporated that into our engine maintenance programme."

For engine material supply he feels the market is very buoyant today. "There is a lack of material because the OEM cannot provide enough new parts to keep up with the demand," Marston reveals.

He also mentions the importance of good support from external vendors because they buy engines and tear them down to look after the market. ▶

In 2017 Aero Norway achieved 80 engine inductions *(photo: Keith Mwanalushi)*

Aero Norway has an active apprentice programme *(photo: Keith Mwanalushi)*

But Marston sees not much potential for tearing down for the third party market however Aero Norway does partake in tears for the -3 for its own material use. "We also partner with material suppliers to tear their engines down, but we will block off what material we need. We don't do tear downs just for the sake of it, we will if we are taking most of the material. Then that makes sense to our business."

As for the 737 Classics, Marston reckons there is still a glut for them today with fuel prices at what they are. "Many operators who have Classics in their fleet will rather utilise them if it keeps money in their pockets because the NGs still carry a high cost – they are not cheap, but you can pick up a Classic quite cheaply.

Marston: "We want to support a lot of small operators too" *(photo: Keith Mwanalushi)*

It's the engines that actually carry the value, they can pick up the aircraft for next to nothing."

Marston admits that the business may not be suited to support the likes of Ryanair and easyJet due to their sheer size but many of the big MROs do offload some of this work to Aero Norway which makes sense to their business. "We will not take on the big easyJets because they will take over your shop, we want a broad customer base which keeps our business quite healthy," he says.

Rather, the smaller operators such as the regional and small low cost carriers are just the kind of operators Marston is interested in: "When they come to the shop we can offer them a package," he states.

He adds that the support extends to anything from the need for engineering assistance to sending a field team to go over and troubleshoot a problem or perform repairs.

"Every single customer that comes through, and I will maintain this while I'm the boss, is number one," Marston stresses. "It doesn't matter whether you have 50 or 10 aircraft – you are number one. Nobody jumps anybody here."

He suggests that the situation is not quite the same at the larger MROs. "If they have a fleet of Ryanair's or easyJet's to maintain, they will be number one. A guy with his 10 engines or 10 aircraft will never get up that pecking order because he only takes one engine through the shop every two or three years, but that's not the case here at this facility. We want to support a lot of small operators too because they need to fly as well."

With the current strategic business plan on course and a solid set of financial numbers, it seems things are looking up in Stavanger. ▶

German expertise

Hans-Dieter Reimann, Director Engine Programmes at MTU Maintenance shares the same sentiment saying the CFM56 MRO market is dynamic and healthy, which is good news for operators. "For customers with younger engines, such as younger fleets like CFM56-5B and -7, the focus is on longer-term and cost-effective operations with increased on-wing times as a way of reducing costs," Reimann advises.

He says one aspect of this is assessing the optimal point in time for a scheduled off-wing shop visit. "We use our engine trend monitoring system to make recommendations as to customers in this regard. The decision is critical, as it is always a balance between keeping an engine on-wing for as long as possible, to get the most out of hardware, but also not taking if off too late and, in turn, too heavily affecting performance [such as EGT margins] or causing additional damage to parts, for instance."

Alongside engine trend monitoring, MTU Maintenance offers customised workscoping, alternative repairs, Line Replaceable Units (LRU) and accessory management, and on-site and on-wing services, which help plan and schedule maintenance and extend on-wing times. There is also spare engine and leasing support as well as 24/7 Aircraft On Ground (AOG) support, which help minimise downtime.

With the market entry of A320neos and 737 MAXs, Reimann foresees that several CFM56 engines will be retired in the coming years, creating an increased supply of spare engines and Used Serviceable Material (USM), which can be fed into cost-effective solutions, he points to MTU's mature engine programme for instance. He says the more spare engines and USM in the market, the more flexible and cost-effective this becomes.

"This is great news for operators with maturing CFM56 fleets," Reimann states. "Because their focus moves from extended on-wing times more towards reducing overall MRO and operating costs. After all, as engines age, MRO costs increase due to the need for heavier shop visits and material replacement."

In terms of lease ends and transitions, MTU Maintenance has been working on comprehensive lifecycle solutions for lessors, particularly during transition phases. "Lessors want to be directly involved in engine maintenance decisions, particularly during the transition between lessees, in managing and optimising maintenance reserves and choosing the timing of engine shop visits.

"Our comprehensive services start from the moment the engine is purchased and go all the way to maximising value at the end of the engine's service life, for instance through a sale, extended lease-out or a teardown for serviceable material." Reimann stresses both lessors and lessees benefit from the 'cost-effective' MRO services, simplified transitions, and ultimately, financial and technical risk mitigation.

The engines are reaching global shop visit peaks *(photo: MTU)*

Furthermore, he says MTU can be approached for customised solutions upon lease end. "Say for instance a lease agreement is coming to an end. The asset owner might want to dispose of the asset from their portfolio, for instance through a sale. While the airline might still want to operate the aircraft, the capital expenditure to acquire it and to maintain the engines through its remaining life might not in their best interest. This is where MTU Maintenance steps in."

Reimann explains that in a joint approach with the airline, MTU Maintenance Lease Services acquires the engines from the current owner and leases it to the airline for the remaining green-time. "Furthermore, to allow the aircraft to fly for the duration of its economical service life, MTU can replace any unserviceable engines with serviceable engines from its pool. This minimises any downtime of the aircraft and delivers the thrust needed to extend service life as the airline requires."

As things stand, it looks like the CFM56 will continue to fly for some time yet. ■