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MRO

Management

OPPORTUNITIES OUTWEIGH CHALLENGES

Joramco chief Fraser Currie on supporting
fleet expansion and training future engineers

p.16



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ENGINE MRO

Overcoming setbacks and
identifying growth spots

p.32

MILITARY & DEFENCE

The specialised MRO
needs and requirements

p.42

SPARES & REPAIRS

Addressing the challenges
of parts availability

p.46

AMOS. AGAIN.



 SriLankan Airlines

"The implementation of AMOSmobile and cloud-hosting services will allow us to digitize and streamline our maintenance procedures, increase efficiency, and reduce overall costs through process automation. We look forward to a successful Go-Live and utilizing state-of-the-art features for which AMOS is highly trusted and appreciated by its loyal customer base."

says Group Head of Information
Technology SriLankan Airlines

SriLankan Airlines takes off with AMOS, the world-class M&E software solution.

Swiss-AS welcomes SriLankan Airlines as a new member of the AMOS customer community!

The airline will optimise AMOS usage by opting for AMOSmobile/EXEC and Cloud Hosting, thereby adding value not only in terms of cost, but also in terms of time, ensuring high productivity whilst maintaining quality, safety, and consistency.



WELCOME...

For many, January marks an opportunity to set some personal New Year's resolutions; whether it's to do more of something you enjoy, to quit a bad habit that you've been meaning to for some time, or take a step towards making a positive change. Sticking to these resolutions can often be easier said than done, but starting the year in an optimistic mood can be uplifting.

It got me thinking: what New Year's resolutions would be relevant to the MRO sector? Perhaps it would be to embrace predictive maintenance tools more to enhance efficiency and reduce aircraft downtime. Maybe it would be to place greater efforts in sustainability by adopting eco-friendly practices and exploring greener alternatives in operations. Or perhaps it would be to foster stronger collaborations and build partnerships to collectively address common challenges and promote knowledge sharing.

These are probably goals the industry should be working to achieve regardless of a new year, but another resolution I think should be top of the list is for the industry to invest more in workforce development.

The MRO sector's most valuable asset is its workforce. So, in 2024, I would like to see a dedicated effort to invest in training programmes, skill development initiatives and education to ensure that technicians and engineers remain equipped with the latest tools and knowledge to elevate overall service quality.

We learn in a Top Table interview with Joramco's Fraser Currie on page 16 that a new group of students



auremur/Adobe Stock

have recently started their four-year education journey with Joramco Academy which is not only supplying a source of engineers for the MRO provider, but is also giving opportunities for the youth of Jordan to embark on a career in aviation, which is inspiring to see.

I will be aiming to cover the topic of training and development throughout the year in print and online to showcase the progress being made in empowering workforces, investing in education and the importance of skill-building to shape a resilient and proficient MRO industry.

As always, I hope you enjoy reading the issue and please do get in touch to share comments or even send in details about your latest projects to be considered as future print or online features.

Craig Waters

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Contents

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MRO Management

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6 Hangar talk

The latest industry news

12 Trend watch

New initiatives and innovation

16 & 18 Top Tables

Featuring interviews with Joramco's
Fraser Currie and Stephane Menard
from M3 Solutions

20 Legal Matters

Understanding export
licensing exceptions

24 Best Places To Work In Aviation

The latest and most interesting
contest in the industry

26 Event Preview

What to expect at MRO
Middle East 2024

28 Middle East Outlook

MRO facilities in the region
making a positive impact

32 Engine MRO

Kevin Rozario reports a positive
outlook but some challenges persist



38 Aircraft Painting

Craig Waters finds out what MAAS
Aviation's 'can-do' attitude is all about

42 MRO Military & Defence Applications

Mario Pierobon explores how the role
of MRO has evolved

46 Spares & Repairs

Bernie Baldwin looks at how the spare
parts challenge can be overcome

50 Green Sky

The lowdown on MD Turbines'
one-stop-shop approach



NEWS FROM ACROSS THE INDUSTRY

Hangar Talk



Magnetic MRO

Training & Development

MAGNETIC MRO LAUNCHES TRAINING ACADEMY TO SOLVE LABOUR SHORTAGES

> Magnetic MRO has launched a new workforce training programme which it hopes will help to alleviate labour shortages in the aircraft maintenance sector.

In the coming years, between 60 and 100 new aircraft engineers are expected to enrol in the 'Magnetic Academy' workplace-based training programme.

Magnetic MRO states the programme is unique in that it offers an opportunity to those who have no previous aviation education or experience, and is also open for professionals already

in the company to gain additional training opportunities.

The programme combines Magnetic MRO's practical experience with the academic knowledge of the Riga Transport and Telecommunications Institute (TSI Riga).

Risto Mäeots, chief executive at Magnetic Group, said: "Our aim is to fill a critical gap in the skilled workforce that is essential for Magnetic MRO's development and growth."

Ene Krinpus, HR manager at Magnetic Group, said: "Magnetic Academy

provides an opportunity for those who want to pursue a career in aviation but lack the necessary background or education. We believe it will open the door to aviation for many talented people."

“
**We believe it will
open the door to
aviation for many
talented people”**



Component Support

Transavia France and AFI KLM E&M sign new A320neo component support contract

> Air France Industries KLM Engineering & Maintenance (AFI KLM E&M) and Transavia France have signed a new custom-designed component support contract to cover the French low-cost airline's entire A320neo fleet.

Alongside providing repair services, pool access and the provision of a Main Base Kit (MBK), AFI KLM E&M state that its services will cover an extended range of components, going beyond Line Replaceable Units (LRUs) to include other critical items such as wheels and tires, oxygen systems and batteries.

The airline will also benefit from simplified order processing and streamlined maintenance management with the establishment of an interconnection between its operating systems and the AFI KLM E&M information system, via the Aeroxchange platform.

“AFI KLM E&M state that its services will cover an extended range of components



Component Support

AAR signs flight-hour component support deal with ASL

> AAR Corp has signed a multi-year contract extension for flight-hour component support services with ASL Aviation Holdings DAC (ASL Airlines).

The contract expands AAR's existing component support agreement with ASL Airlines Belgium to include ASL Airlines France, ASL Airlines United Kingdom and ASL Airlines Ireland.

AAR currently supports 28 ASL aircraft, which is expected to increase to 65 under the new agreement.

AAR's Integrated Solutions' segment promises to provide 24/7 component support services for the airlines' Boeing 737 fleets.



Thiago Trevisan/Adobe Stock

BRIEFS

- SriLankan Engineering has announced a new line maintenance agreement with Smartwings at Bandaranaike International Airport, Sri Lanka. In a post on their LinkedIn page, the aircraft maintenance service provider commented that it was “thrilled” to serve the Czech airline.

- Israel Aerospace Industries (IAI) Aviation Group has signed a deal to maintain and service PW4000 engines for Air Transport Services Group's (ATSG) leasing company, Cargo Aircraft Management (CAM). The engine maintenance will be carried out at IAI's Bedek MRO Division's facilities.

- Engineers from Execujet MRO Services Australia have completed Falcon 6X maintenance training, approved by the EASA. The practical and immersive six-week training programme means engineers can now provide line maintenance for the aircraft visiting Australia and the Pacific region.

- Aviation component solutions provider Artemis Aerospace has opened two new hubs in the US. Located in Miami, Florida and Los Angeles, California, it is hoped that the hubs will streamline orders and deliveries for US-based customers and provide a quicker and even more efficient service.

IN NUMBERS

100

Up to 100 new engineers are expected to enrol in Magnetic MRO's training academy

\$22 m

American Airlines has been awarded \$22 million to upgrade its Tech Ops facility in Oklahoma

5,000

ExecuJet Haite will operate the 5,000sqm maintenance hangar at Beijing Daxing International Airport



embraer.com

Facilities

EMBRAER ADDS THREE MRO FACILITIES IN THE US

Embraer is doubling its maintenance service capacity in the US with the addition of three executive MRO facilities in Texas, Ohio and Florida.

The locations will help to support Embraer's continued growth of its executive jets' customer base.

The three facilities are in Dallas Love Field, Texas, Cleveland, Ohio and Sanford, Florida, with service expected to begin in the second quarter of 2024.

Frank Stevens, vice president of MRO services at Embraer Services and Support, said: "Our Executive

Jets fleet has been growing rapidly over the last several years as strong demand continues across the entire product portfolio.

"This expansion will provide immediate additional capacity and ensures that we are poised to care for our valued customers and strategically grow for many years to come."

Embraer states it will also substantially increase its Mobile Response network by 28 teams, and enlarge its capabilities including access to interior services, paint, and component repairs as part of the expansion.



Digitalisation

Air Algérie and ATR sign digital maintenance documentation contract

Air Algérie is set to go digital and strengthen its maintenance documentation system by signing an agreement with regional aircraft manufacturer, ATR.

The three-year Digital Maintenance Documentation package means the Algerian carrier can further optimise its maintenance and engineering operations for its 15 ATR aircraft.

This new service provided by ATR provides customers with raw data of line maintenance publications in XML format which can be uploaded into an airline's Maintenance Information System via 'AMOS'.

Air Algérie will be able to shorten revision processes, reduce preparation time for maintenance checks, standardise the structure of its documentation, improve information consistency across all aircraft manuals and automate revision tracking and document control.



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AREN'T BORN.
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ENGINEERED.**



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Heavy Maintenance

AIR ASTANA COMPLETES FIRST SIX-YEAR C-CHECK ON A321

➤ Air Astana has completed its first six-year C-check on an Airbus A321 at the carrier's engineering and technical centre in Astana, Kazakhstan.

The work took 20 days to complete and involved 7,800 man-hours by highly qualified mechanics and engineers holding international certificates and EASA Part 66 licenses, including those trained under Air Astana's aviation technician training programme.

Air Astana received the licence for this type of work in 2023, following an international EASA audit.

Air Astana became the first airline in Kazakhstan capable of independently performing heavy maintenance C1 and C2 checks on Airbus family aircraft at its engineering bases in Almaty and Astana in 2019. Since then, it has serviced 24 aircraft.

Eight more Airbus family aircraft in the fleet are due for maintenance

in 2024, three of which involve full six-year C-checks.

Temirlan Bagashar, Air Astana's technical support manager, said: "Carrying out complex repairs in-house allows the airline to establish control over the process of timely maintenance of its aircraft and reduce costs for these types of work, which previously required the involvement of foreign companies and ferrying aircraft abroad to facilities in Europe, Russia and China.

"Today, our qualifications and professionalism, as well as the equipment base, allow Air Astana to perform quality C-check works within Kazakhstan."



Carrying out complex repairs in-house allows the airline to establish control



Air India Express

Engine Maintenance

Lufthansa Technik and Air India Express sign engine maintenance deal

● Lufthansa Technik and Air India Express have signed an Engine Maintenance Services (EMS) agreement which will include overhauling a minimum of three CFM56-7B engines for the airline's Boeing 737-800 fleet.

It is the first ever contract between the MRO provider and the subsidiary of Air India.

In addition to the EMS, Lufthansa Technik also supports a part of the airline's Boeing 737 fleet with ad hoc repair and exchange of components as well as Aircraft on Ground (AOG) Services.

Anil Jain, head of engineering at Air India Express, said: "Air India Express now has access to Lufthansa Technik's industry-leading experience and years of knowledge that will further assist us in our growth and operational reliability."

Johanna Koch, vice president of corporate sales Southeast Asia and Indian Subcontinent at Lufthansa Technik, said: "We extend our gratitude to Air India Express for entrusting us with their vital maintenance needs.

"Lufthansa Technik holds this collaboration in high regard and eagerly anticipates the development of this new and mutually beneficial partnership."

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Trend watch

The new partnerships, solutions and initiatives that are driving innovation in the MRO industry



FL Technics

01

MAINTENANCE

● FL Technics has become the first sole independent AMO service provider at Abu Dhabi Terminal A, offering a comprehensive suite of GCAA-certified AMO solutions to airlines operating from the hub.

FL Technics' Zilvinas Lapinskas said: "This development is important for FL Technics to mark a new stage of our growth in the region and establishing the leading position as an independent AMO."



Adobe Stock

05

FACILITIES

● American Airlines has been awarded \$22million to grow and improve the airline's maintenance base and engine repair and overhaul facility in Tulsa, Oklahoma.

The funds are part of the State of Oklahoma's Business Expansion Incentive Program and will be received over the course of three years.

The funds are in addition to American Airlines' recent \$31.6million capital investment in the engine shop to modernise machinery and a multi-million dollar improvement project at Tech Ops – Tulsa.

"We trust in MTU's technical expertise and look forward to their fast, reliable and cost-efficient support"

02

OPERATIONAL EFFICIENCY

● Collins Aerospace is activating its connected aircraft services solution on more than 330 easyJet Airbus aircraft, with the airline becoming the largest A320 operator in the world to deploy GlobalConnect.

The solution enables the already-installed Flight Operations and Maintenance Exchanger system to give easyJet insight into its fleet operations, enabling proactive decision-making.



03

COMPANY GROWTH

● Lufthansa Technik has launched its 'Ambition 2030' programme to expand its global position in the technical support of aircraft fleets.

The programme plans extensive investments in the expansion of the core business, the expansion of locations and international presence, potentially also through acquisitions, as well as the expansion of digital business models in the coming years.

04

ENGINE SUPPORT

● MTU Maintenance has signed a five-year LEAP-1A MRO contract with SriLankan Airlines.

The airline's Richard Nuttall, said: "We trust in MTU's technical expertise and look forward to their fast, reliable and cost-efficient support for our growing fleet."



easyJet



Markus Manka/Adobe Stock

TRENDING STATS

6,000

Over 6,000 attendees are expected to attend MRO Middle East 2024 (from Event Preview feature, p.26)

50%

Joramco's maintenance training programme covers 50 per cent of tuition fees (from Top Table feature, p.16)

250

MD Turbines successfully completed over 250 engine teardowns in 2023 (from Green Sky feature, p.50)

38

A team of 38 MAAS Aviation painters worked on the E195-E2 'Tech Eagle' project (from Aircraft Painting feature, p.38)

06

COMPONENT SUPPORT

● Air Serbia has awarded Lufthansa Technik with a minimum five-year contract to provide Total Component Support (TCS) for up to 15 Airbus A320neo family aircraft.

The contract includes comprehensive MRO services as well as spare parts pooling and home base services for the required components in Belgrade.

Lufthansa Technik's Kai-Stefan Roepke said: "Our modern component services offer excellent quality."

Air Serbia

07

FACILITIES

● Execujet Haite has signed an agreement with Capital Airport Holding Business Aviation Management Co. Ltd to operate the new MRO facility at Beijing Daxing International Airport (PKX).

The facility is already built and is co-located within the airport's 300,000sqm business aviation area, the largest in Asia Pacific.

The agreement allows Execujet Haite to operate the 5,000sqm state-of-the-art maintenance hangar including back shops and offices at PKX.



Boeing

08

PEOPLE NEWS

● Stephanie Pope has been named as the executive vice president and chief operating officer of The Boeing Company.

In this newly created position, Pope will report to CEO Dave Calhoun, overseeing the performance of the company's three business units with responsibility for driving supply chain, quality, manufacturing and engineering excellence across the company.



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B787-8/9
B777-200/300



E170 E190
E175 E195



- EASA Part 145
- 25+ Additional National Approvals
- 17+ Parallel Lines of Wide-Bodies & Narrow-Bodies Across 5 Hangars

Queen Alia International Airport - Jordan





Fraser Currie, chief executive, Joramco

Excellence, innovation, and customer satisfaction

Joramco's chief Fraser Currie discusses customer expectations, the significance of advanced planning, particularly in heavy maintenance visits and lease returns, and supporting future engineers with education and training



1

Q: Towards the end of 2023, Joramco announced several new partnership extensions including with Emirates and Gulf Air to name just two. What qualities do you think Joramco offers its customers that keeps them returning?

Customers return when they receive a service level that meets or exceeds their expectations. Expectations in aviation maintenance are underpinned by providing unwavering safety and quality. After safety and quality comes the adherence to timescales and delivering the aircraft back on time so that the airline's schedule is not adversely affected.

In advance of the aforementioned comes commercial terms which should be competitive. Some of the softer issues affecting whether a customer returns or not are how they are treated and how you deal with the unexpected.

I believe Joramco's success is because of our consistency, our attention to detail and that we focus on our core values, our people and our processes.

Q: Many airlines operating in the Middle East have announced plans to expand their fleets; what challenges and opportunities do you think this brings to the MRO industry, and how is Joramco preparing to play a part?

Airlines expanding their fleets can only be great news for everyone, and for an independent MRO the opportunities far outweigh the challenges.

However, one of the challenges is that a new aircraft will have a very limited requirement for heavy maintenance visits in their first years following entry to service, and it is these types of visit that airframe MROs thrive on.

Another challenge can arise if the airline is expanding its fleet with a new aircraft type that their existing MRO does not have the capability for. The MRO will have to evaluate if they will get an acceptable return on investment (ROI) based on what they must spend on new tooling and type training. The ROI will come down to either fleet size or strategic partnership.

In terms of opportunities, fleet expansion means more future potential business for the MRO. If the airline is also returning older aircraft, the opportunities can also include lease return opportunities for the MRO either via the airline directly or through the lessor if the aircraft is leased.

Based on growth predictions and an order book that is expanding rapidly, Joramco is expanding its footprint in Jordan by building a new five-bay hangar and associated support buildings/warehouses.

The new hangar can take an additional five lines of heavy maintenance checks, increasing our capacity to 22 parallel lines. The hangar can also take a variety of aircraft including the Airbus A380.

1. The Joramco Academy enhances the opportunity for the youth of Jordan to embark on a career in aviation
2. Joramco is building a new five-bay hangar in Jordan



2

"I ENCOURAGE ALL LIKE-MINDED COMPANIES TO FOCUS ON THEIR OWN TRAINING INITIATIVES TO SUPPORT THE GLOBAL SHORTAGE OF SKILLED AVIATION MECHANICS AND ENGINEERS"

Q: When we spoke at MRO Europe in October 2023, you mentioned that continued success for Joramco relies on operators focusing on advanced planning; do you think this is still the case, and what recommendations about this do you have for industry going into this new year?

Advanced planning is key in any heavy maintenance visit and especially lease returns, as there is a tremendous amount of work that goes into the pre-input phase of any aircraft check.

We always encourage our customers to be as prepared as possible, both in terms of work packs and materials.

A general lack of capacity in the global market for aircraft maintenance slots has increased the pressure on airlines to be planning at least 12 months in advance, especially those airlines operating widebody aircraft.

Capacity shortfalls are not going to improve in the near future, so the focus remains with airlines to make long-term strategic agreements with MROs and lock in slots early to avoid disappointment.

50%

Joramco started its latest aircraft maintenance training programme in October 2023 with an initiative that covers 50 per cent of tuition fees, making the programme extremely attractive to future engineers

Q: A new group of students have recently started their four-year education journey with Joramco Academy – do you think this is a platform that's more important than ever before considering the industry challenges in finding talented individuals in the Middle East?

Our training academy is the 'life blood' of our future engineers and as such Joramco continues to fully support the academy.

We started our latest aircraft maintenance training programme in October 2023 with an initiative that covers 50 per cent of tuition fees, making the programme extremely attractive to future engineers.

Our successful applicants are a minimum of 18 years old and have all passed their high school exams.

The training programme is characterised by the qualitative training provided to the students in the company's dedicated academy, divided into a theoretical academic segment and a practical experience segment, each of which extends over two years respectively.

After passing the programme, Joramco prioritises employment for students within our business. The academy is not only providing a source of engineers for Joramco, it is also enhancing the opportunities for the youth of Jordan to embark on a sustainable career in aviation.

I encourage all like-minded companies to focus on their own training initiatives to support the global shortage of skilled aviation mechanics and engineers. As an industry we must rise to the challenge of training collectively, and to not rely on a migration of staff between organisations based on very short-term thinking. 

Visit joramco.com.jo for more information



Stephane Menard, chief technology officer, M3 Solutions

Synced up and ready for business

The operational complexity of aviation makes it the ideal sector to benefit from solutions that synchronise portable devices to streamline airline maintenance activities, says M3 Solutions' **Stephane Menard**



Q: Can you provide a background to M3 Solutions and why is aviation an important industry for you to be active in?

Back in 2008-2009 we had clear indications that the industry would transition towards mobility to increase workforce efficiency streamline operations, reduce cost and increase overall performance.

With that in mind, we decided to develop a comprehensive portable device management solution enabling administrators to take full control of portable devices such as smartphones,

tablets or laptops, as well as their content. The idea was to eliminate the steep IT labour related to the management of portable devices.

According to Gartner, the yearly cost of managing a fleet of portable devices can be as high as six to eight times the hardware cost in a specialised environment. In order to achieve our goal, we knew the solution could not only be software, but we also had to develop the companion hardware, taking the form of a kiosk. The kiosk would essentially charge and control access to the portable devices for security, while

the software manages the complex content synchronisation, providing a full-blown inventory management platform.

M3 Solutions mainly focuses on the military and aviation sectors. The aviation sector has proven to be very well suited to a solution like ours because of the operational complexity of airlines as well as how closely they are monitored by regulatory bodies to ensure public safety.

There are multiple use cases within the aviation sector but one that has benefited enormously from our solution is MRO organisations. MRO departments, by their specific use case, utilise the full feature set of our solution; from security, device access control and complex/large datasets required for rapid and efficient synchronisation to the devices.

Q: What do you consider to be the main challenges in aviation, and how does the technology from M3 Solutions play a positive role?

The aviation sector is challenged with operational complexities and the synchronicities required by regulatory bodies. Our solution was defined and built in line with these challenges which enable us to become the solution of choice

"M3 SOLUTIONS WAS BUILT ON THE PREMISE OF BEING A 'CUSTOMER FIRST' COMPANY"



◀ The M3 kiosk improves device management to increase worker productivity



“WE REMAIN PROACTIVE AS OPPOSED TO REACTIVE WHEN IT COMES TO THE EVER-CHANGING NEEDS OF THE AIRLINE INDUSTRY”

in the sector. There is no unified software solution to manage the operation of an airline; on the contrary it is very fragmented where multiple software vendors do their own bits and pieces, and the airlines are stuck with integrating and streamlining the data flow to ensure secure and smooth operation.

From our perspective, it means integrating with these various vendors to ensure, for an MRO for example, that a mechanic walking to the kiosk will get a device that is ready and updated for the work on hand.

The other important challenge is synchronicity which, from an MRO organisation's viewpoint, means that a mechanic will always get the same and latest information whether they are looking at a tablet or desktop. On that front we serve as a gate-keeper, guaranteeing that within a defined number of hours, all portable devices are up to date and aligned with the online version on the organisation's network.

Q: Which airlines have already implemented your technology, and what feedback have you received?
We have a variety of airline customers in North and South America and recently there has been a lot of activity in Asia where we are in the middle of opening a Singapore office to support that region.

Air Canada has always been an early adopter of new technologies and perceived by the industry as a technology leader. They were also an early adopter of our solution. Back in 2014, we jointly defined the product requirements for the MRO use case at Air Canada. We installed our first system in late-2015 and evolved from there. We started with the integration of the Boeing toolbox with the help of Boeing, then carried on with Trax.

Today, most of Air Canada's required apps for operation have been integrated and their data synchronisation has been automated with the M3 Platform. The airline often mentions it could not go back to a manual

approach, having too many apps with too many manual interventions. When you have a platform that enables automation and control, the future is easier to define and implement.

Q: Innovation is often crucial for staying competitive; how is M3 Solutions leveraging technology and innovation to ensure it can meet the evolving needs of clients and the aviation industry?

There are three main aspects we can leverage to ensure we are ahead of the game. First, we stay very close to our airline customers to get their vision of what is ahead in the short- and long-term. Airlines may not be the fastest to incorporate new technologies, but they are known to define long-term plans.

Secondly, portable device suppliers such as Apple, Samsung and Windows are defining the future of mobility and therefore it is key for M3 Solutions to be an integral part of that community.

Finally, back-end technologies (Innovative DB technologies, AI, etc.) enables us to support the growth and demand of these customers in the future.

Q: What principles do you prioritise to guide M3 Solutions towards success?
M3 Solutions was built on the premise of being a 'customer first' company; rather than just a piece of hardware, M3 Solutions is a full-scale IT services business. Our customers get a completely tailored solution and benefit from improvements that wouldn't be cost effective to implement in-house. By acting as an extension to our customer's IT department, we remain proactive as opposed to reactive when it comes to the ever-changing needs of the airline industry. With these guiding principles we are confident in becoming the market leader in our space. 

Visit m3-solutions.net
for more information



Jason Dickstein, president,
Washington Aviation Group

Understanding export licensing exceptions

Jason Dickstein explores how the US is expanding the export licensing exceptions for certain avionics, such as IRUs

Visit washingtonaviationgroup.com for more information on the law firm which supports the aviation community

The United States (US) government has changed the rules for certain licence exceptions that are commonly used in aviation. These changes may seem minor, but if you are using the 'AVS' license exception for your international transactions, then it is important to ensure that your transactions continue to comply with US export laws.

In this article I will examine a change to the US export laws, including laws that apply to transactions that occur outside of the US. It is important to recognise that other countries have their own export laws, and one must comply with the requirements of each legal system with jurisdiction over the transaction.

“Destination-based licensing requirements apply to re-exports and to in-country transfers, as well as to direct exports”

BACKGROUND

Many aircraft parts are subject to licensing obligations when they are involved in international commerce. There are several reasons why a transaction might require an export licence. One of those reasons would be destination-based licensing obligations.

The destination-based licensing obligations typically are based on a combination of the 'reasons for control' associated with the article, and the

destination country (as well as other countries related to the transaction and subject to analysis). These same obligations typically apply to export from the US to a second country, re-export from a second country to a third country, and in-country transfer of the aircraft parts.

Destination-based licensing requirements apply to re-exports and to in-country transfers, as well as to direct exports. This means that the US export regulations continue to apply after the articles have left the US. Thus, this information is important for manufacturers, distributors, MROs and airlines that operate outside or within the US.

A licensing requirement can slow down a transaction. One way to accelerate the transaction is to identify a licensing exception that applies. Licensing exceptions are typically based on fact patterns where the US government has found that the specific type of transaction described by the exception tends to be acceptable. Rather than require applicants to seek exemption for every transaction, licence exceptions carve out broad transactional models that have been identified as acceptable without a licence.



MISSILE TECHNOLOGY RESTRICTIONS

The US government has an export restriction called 'missile technology' ('MT'). This is a reason-for-control that is assigned based on the export commodity classification number (ECCN).

The missile technology restriction can apply to articles such as civil aviation avionics devices. An example of avionics units subject to the MT reason for control is inertial reference units (IRUs and ADIRUs). The missile technology restriction also applies to certain bearings with specific dimensional tolerances and/or heat tolerances.

When an article is subject to the missile technology control, it almost always requires a licence for export. The only non-US destination that does not automatically apply a licence requirement to missile technology exports is Canada. Because of the special foreign aircraft rule, any export, re-export or in-country transfer of an article subject to the MT reason for control must also look at country of

registration for the destination aircraft, the location where the part will be installed and the nationality of the operator. Each of these three places must be analysed as if it were a destination. So, if you wanted to export an IRU for a commercial aircraft to Canada (which normally does not require a licence based on destination), but the end-use aircraft is registered in the UK, then the registration would drive a licensing obligation.

Licence applications take time, so it is normal for exporters to look for export licence exceptions when they are seeking to export aircraft parts subject to licensing provisions. These licence exception provisions are where the most recent changes have been applied.

NEW LANGUAGE FOR LICENSE EXCEPTIONS

One of the frustrations that I have encountered is places where the exceptions apply to exports but not to re-exports (or not to 'in-country' transfers). This is frustrating where

the exception clearly seems like it should apply but the language is more limiting than it ought to be. The BIS has remedied this in one place that is very important to aviation.

The AVS exception that applies to aircraft parts includes the following clause authorising the export or re-export of aircraft parts to most aircraft:

"Equipment and spare parts, for permanent use on an aircraft, when necessary for the proper operation of such aircraft, may be exported or re-exported for use on board an aircraft of any registry, except an aircraft registered in, owned or controlled by, or under charter or lease to a country included in Country Group D:1, Cuba, or a national of any of these countries."

The obvious problem is that in-country transfers are not authorised under this clause. So, if a prior export had sent a Honeywell IRU to Virgin Atlantic in the UK but Virgin wanted to transfer the IRU to British Airways (also in the UK), then it would seem that the in-

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“Many aircraft parts are subject to licensing obligations when they are involved in international commerce”

country transfer would need a licence (because the UK as a destination is subject to licensing requirements for MT-controlled articles).

Normally, the next step would be to go to the AVS licence exception. MT-controlled articles often are restricted from using the AVS licence exception but there is a special clause that authorises the use of the AVS licence exception for certain MT-controlled articles subject to IRU ECCNs like 7A103. This examination previously would have revealed that in-country transfers were not included.

The recent change to the regulations has added a new subparagraph that does two things. First, it adds transfers in-country to the list of transactions permitted under the licence exception. Second, it specifically authorises the use of the AVS licence exception for ECCNs 7A101, 7A102 and 7A103 (which includes IRUs) when those goods are sent to a country within the Missile Technology

Control Regime that has committed to Russian sanctions (the UK is such a destination). The new language looks like this (subsection (ii) is the new language):

15 C.F.R. § 740.15(b)(2) Aircraft.

“(i) Equipment and spare parts, for permanent use on an aircraft, when necessary for the proper operation of such aircraft, may be exported or re-exported for use on board an aircraft of any registry, except an aircraft registered in, owned or controlled by, or under charter or lease to a country included in Country Group D:1, Cuba, or a national of any of these countries. (ii) This paragraph (b)(2)(ii) authorises exports, re-exports, and transfers (in-country) to any country that is identified in Country Group A:2 and supplement no. 3 to part 746 of ECCNs 7A101 through 7A103 when the commodities are for use in or for the ‘production’ of civil manned aircraft.”

Subsection (b)(2)(ii) applies to destinations that are in both country

group A:2 and on the list of countries committed to Russian sanctions (supplement No. 3 to Part 746). It applies only to three ECCNs: 7A101 through 7A103. It applies if the units are intended for use in civil aircraft or if the units are intended for production of civil aircraft.

This changed version of the exception would permit us to make use of the AVS licence exception for our hypothetical transfer of the IRU from Virgin Atlantic to British Airways.

The preamble to the change explains that the (b)(2)(ii) situation was a common subject of licence applications and were regularly granted. Thus, the Commerce Department felt that it was appropriate to expand the licence exception to explicitly endorse this sort of transaction.

CONCLUSION

There is new authority permitting certain types of transactions involving certain articles controlled for missile technology reasons. This is useful for exporting, re-exporting or transferring avionics, like IRUs, that are controlled for missile technology reasons under ECCNs 7A101, 7A102 or 7A103, and that are intended for installation in civil aircraft. 



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The Best Places to Work

Peter Burke, president of Workforce Research Group and partner of *Aviation Business News'* Best Places To Work In Aviation awards, explains why firms should aspire for the accolade

Tells us about Workforce Research Group

We run around 28 to 30 best employer programmes globally. We have city-wide programmes such as Best Places To Work in Los Angeles and San Diego as well as state-wide versions like Best Places in Illinois or Louisiana.

We also have sector-based programmes like Best Places To Work in Healthcare or auto dealerships. In the UK, we've run several programmes in PR and marketing and the broadcast sector.

How does the Best Places programme work?

It's a two-part process. First, we ask what you do for employees such as benefits, things you do for fun and perks – the things employees love about where they work. That's worth 20 per cent of the evaluation.

The bigger part is the employee engagement survey which is more complicated. We get businesses to securely submit their employee email addresses and then we send out survey links.

The survey takes about 10 minutes. We get the answers back, crunch the numbers, determine who's good enough to make the list and then we rank them.

Why should aviation companies consider becoming a best place to work?

There are two main reasons organisations participate in our programmes.

If you make the list that's fantastic; being able to use the Best Places To Work logo gives your company a real boost



especially in sectors and regions where the battle for talent is really tough. To have that distinguishing factor really means something.

However, even if you don't make the list organisations want this information – they want to know what their employees are thinking and feeling so they can get better. And of course they can compare their results to the benchmarks of those who made the lists.

“THIS IS A MEANINGFUL AWARD TO WIN AND SOMETHING YOU ABSOLUTELY WANT TO BRAG ABOUT”

Is there a charge to become a Best Place To Work? The process is free to find out if you make the list, but a lot of employees invest in the employee feedback. We have a data dashboard that you can purchase access to.

It's relatively inexpensive – less than £1,000 – but it will give you all the results of your survey which you can break down into different demographics, length of tenure or departments, so it becomes a management tool.

Tell us a little more about the employee survey The survey has been rigorously tested. All questions have been assessed by experts who know what they are doing in terms of how best to ask them.

It was engineered to be used in any sector, any region. You can go online and look at it. We are fully transparent about what we are going to be putting to the employees and employers.

There are about 70 questions and employees respond from a range of 'strongly agree' to 'strongly disagree' to the statements in front of them.

There are a few open-ended questions, which we don't use for scoring, but are in the data dashboard. The survey remains in the field for two weeks and we send five reminders to participants.

Is it all about recruitment? Our mission is to have the most credible lists we can get, not just a fly-by-night moniker we have bought.

This is a meaningful award to win and something you absolutely want to brag about, not only for potential employees but for the people who already work for you.

Retention is a huge issue, and our research shows when you make one of these lists, employee turnover goes down because people realise they do have a great place to work. 



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“Attendees can expect to witness the unveiling of state-of-the-art tools and methodologies”

A highlight of this year’s event will be the Go Live! Theatre sponsored by FedEx Express which will feature innovative content, case studies and product briefings right in the centre of all the action – on the exhibition show floor. Free to attend for all delegates, content will span both MRO and AIME topics presented by regional and international industry experts.

Previous editions of MRO Middle East have been renowned for fostering a collaborative atmosphere, providing attendees with ample opportunities to connect with potential clients, partners and industry peers. This year’s event is no different and offers an exhibition area teeming with top-tier companies showcasing their products and services. With approximately 200 exhibitors, attendees can expect to establish valuable business relationships and explore collaborations that can drive growth in their respective ventures.

While walking the show floor at MRO Middle East, participants will discover a range of ‘zones’ that group specific exhibitors together, giving attendees an opportunity to easily visit a cluster of companies on a specific topic.

Another highlight of the event includes an official Closing Reception which is a new feature for 2024. Held on 6 March, the reception – which is open to all attendees and exhibitors – will be a great opportunity to continue networking once the official business has finished in a more relaxed setting.

Show organisers are expecting over 6,000 attendees for 2024, cementing MRO Middle East as an important and must attend event for the MRO industry. 

1. MRO Middle East 2024 will take place on 5-6 March 2. The event will offer a diverse range of workshops, seminars and panel discussions

MRO Middle East returns for 2024

Industry experts will meet in Dubai to be part of the largest MRO event in the Middle East

Taking place between 5-6 March at the Dubai World Trade Center, MRO Middle East 2024 is the largest event in the region. Co-located with Aircraft Interiors Middle East (AIME), it will provide a platform for all those looking to expand their networking and do business in the commercial aviation aftermarket.

Industry giants will present their technological breakthroughs, ranging from predictive maintenance solutions

and advanced robotics to artificial intelligence-driven data analytics. Attendees can expect to witness the unveiling of state-of-the-art tools and methodologies that promise to revolutionise the MRO landscape.

The event will also offer a diverse range of workshops, seminars and panel discussions featuring influential leaders and experts from across the aviation industry. These sessions will delve into critical topics such as sustainable practices, supply chain optimisation, workforce development and digital transformation. The sharing of insights and experiences will empower attendees with the knowledge required to tackle the evolving challenges in the MRO sector effectively.

Furthermore, as the global aviation industry continues to recover from the impact of the Covid-19 pandemic and navigate turbulent economic times, MRO Middle East 2024 will shed light on the latest market trends and growth projections. Industry experts will discuss the regional and global prospects for MRO services, offering attendees valuable insights into upcoming opportunities and challenges.



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FACILITIES TO HANDLE GROWTH





◀ Joramco is based in Amman, Jordan

The construction of MRO facilities in the Middle East is poised to have a positive impact on the region's growing aviation industry

In its most recent Commercial Market Outlook (CMO), Boeing forecasts that widebody airplanes will comprise 45 per cent of deliveries to Middle East airlines over the next 20 years. The aircraft manufacturer states that is the highest percentage of the 10 global regions featured in its forecast.

The CMO projects delivery of 3,025 new commercial airplanes in the Middle East by 2042, including 1,350 widebodies, 1,570 single-aisles, 70 freighters and 35 regional jets.

Many airlines in the region provide service between major population centres in Asia, Africa and Europe via growing hubs that offer efficient connectivity. As a result, it is reported that a higher proportion of widebody aircraft are needed to carry larger passenger volumes.

The Middle East single-aisle fleet is also expected to more than double according to the CMO, as low-cost carriers (LCC) and short-haul networks continue to develop and expand. By 2042, the CMO predicts that nearly half of the region's aircraft will be single-aisle jets.

Commenting on the CMO, Darren Hulst, Boeing's vice president for commercial marketing, said: "Airlines in the Middle East have increasingly expanded their influence and reach, transforming the region into an international air transit hub.

"Air travel and cargo demand continue to gain momentum, driven by significant economic growth and national development plans. As airlines in the region will require efficient and versatile fleet solutions, Boeing products will be ready to meet market demands."

The CMO is good news for airlines and MRO companies based in the Middle East, many of which have been able to make a strong recovery post-pandemic. According to the CMO, the commercial fleet is expected to generate demand for \$335 billion in aviation services including maintenance, repair, training and spare parts.

So, with recent news of engineering facilities in the Middle East being expanded and constructed, companies can play a huge role in offering MRO services to meet the inevitable increased demand, and contribute to showcasing the region's positive reputation as an efficient and capable aircraft maintenance and repair hub.

During the last Dubai Airshow, two major announcements were made about the construction of new engineering facilities.

Emirates revealed its huge plans to build a new US\$950 million ultra-modern engineering facility at Dubai World Central (DWC).

Set to span over one million square metres, the engineering complex will be the largest and most advanced of its kind to be operated by any airline, and is expected to create thousands of skilled technical jobs and add value to Dubai's economy.

Construction work on Phase 1 is anticipated to begin in 2024 and be completed in 2027.

Purpose-built to support Emirates' aircraft fleet and operating requirements into the 2040s, the facility will also be a centre of excellence for commercial aviation engineering services in the Middle East, with spare capacity potentially offered to other airline operators.

Speaking at the announcement, Chairman and chief executive of Emirates airline and group,

"The new facility will enable Emirates to be entirely self-sufficient when it comes to MRO"

His Highness Sheikh Ahmed bin Saeed Al Maktoum, said: “The new facility will enable Emirates to be entirely self-sufficient when it comes to MRO and all engineering requirements for our aircraft fleet. It gives us operational stability and flexibility, and quality assurance.

“With the projected growth of the region’s aviation sector, Emirates’ new engineering facility will also play a key role as a centre of excellence, attracting the involvement of global players across the aviation supply chain.”

Emirates states that the new engineering facility will be equipped to handle the full range of specialist aircraft engineering services – from routine aircraft checks to bespoke paint jobs, light to heavy maintenance programmes, engine repair and testing, to full cabin interior fit-outs and aircraft conversions.

Emirates states that Phase 1 of the project will deliver eight maintenance hangars and one paint hangar – all capable of handling any size of commercial aircraft up to Code F (A380), an engine run-up facility, some 20 support workshops, and massive storage facilities.

It has also been reported that provisions are being made for further expansion, potentially doubling the facility’s capacity in Phase 2, in line with Emirates’ fleet growth and operational requirements.

It is expected that the existing Emirates Engineering Centre at Dubai International (DXB) will continue to support the airline’s operations, with the new complex at

DWC initially handling spill-over work and heavy maintenance programmes with longer aircraft ground time.

flydubai also announced exciting plans to build its first purpose-built MRO facility in Dubai South with the aim to bring the airline significant reductions in operational costs.

Construction of the new US\$190 million hangar and workshop is due to commence during 2024 and is expected to conclude by the last quarter of 2026.

When the announcement was made, Mick Hills, chief operating officer at flydubai, said: “Having our own in-country MRO facility will ensure a quicker turnaround of our fleet maintenance while adhering to the highest quality standards.

“This increased level of control will result in reduced downtime as maintenance tasks can be efficiently planned and executed, minimising any disruption to our flight schedules in the future and enhancing overall operational reliability.”

Speaking as chairman flydubai, Sheikh Ahmed bin Saeed Al Maktoum said: “This will bring flydubai greater control over its maintenance requirements as it continues to grow its fleet and capabilities with a firm focus on the future.”

His Excellency Khalifa Al Zaffin, executive chairman of Dubai Aviation City Corporation and Dubai South, said: “flydubai’s new facility in Dubai South reflects our commitment to enhancing the ecosystem that contributes to the growth and sustainability of the aviation industry.

“This partnership reaffirms Dubai’s position as a global aviation hub and reinforces our shared vision of providing

world-class aviation services to our partners.”

Ghaith Al Ghaith, chief executive of flydubai, said: “Dubai has emerged as a thriving aviation hub that fosters connectivity, innovation, growth and setting benchmarks for the global aviation industry.

“At flydubai, we continue to invest in our people and technologies and build solid foundations to enable further growth as part of our role in supporting Dubai’s economic and aviation vision.”

Elsewhere, Joramco, the Amman-based MRO provider and the engineering arm of Dubai Aerospace Enterprise (DAE), is investing in a new hangar at its main base which is set to be the largest of its six hangars with the capacity to accommodate a widebody aircraft up to A380/B777 in parallel with four narrowbody aircraft.

Scheduled to be online by the end of H1 2024, it should align with the firm’s new Boeing freighter conversion deal which was announced in August 2023 and makes Joramco the first MRO supplier in the Middle East to support future Boeing conversions of both domestic and foreign aircraft.

With the region’s anticipated future fleet growth as outlined by Boeing’s CMO, the construction of these facilities will help boost the Middle East’s MRO expertise. ¹

1. Ghaith Al Ghaith, chief executive at flydubai, and His Excellency Khalifa Al Zaffin, executive chairman of Dubai Aviation City Corporation and Dubai South 2. Emirates’ new US\$950 million ultra-modern engineering facility at Dubai World Central (DWC)



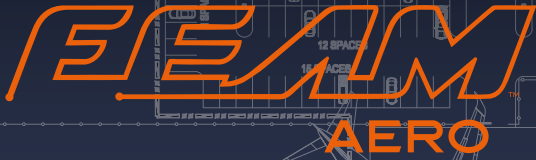
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“Having our own in-country MRO facility will ensure a quicker turnaround of fleet maintenance”



flydubai

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A BRIGHT NEW YEAR – BUT CHALLENGES PERSIST

Last year, the sector was in the headlines for all the wrong reasons. Is 2024 the year to move on? *Kevin Rozario* reports



Recapping 2023, engine MRO companies suffered several setbacks – mostly external but some self-inflicted – while rebuilding their operations post-pandemic.

In *MRO Management*, we reported extensively on the supply chain disruptions of parts and materials; workforce shortages – particularly for skilled technicians – that lengthened turnaround times (TATs) and costs; and the geopolitical uncertainties brought on by conflicts in Ukraine and, latterly, Israel-Palestine.

Adding to these woes is instability for cargo in the Gulf of Aden/Red Sea where attacks on ships by Yemeni Houthis in support of Palestinians have led the US and the UK to take military action in Yemen. About 20 per cent of global shipping goes through the stretch of water in order to cross the Suez Canal and all eyes are on this increasingly perilous zone which could affect global supply chains and oil prices.

These external factors were compounded last year by damaging revelations for the engine MRO business when claims emerged that parts from London-based AOG Technics were supplied without valid certification and had been found in CFM56 and CF6 engines, among others.

CFM International – a 50:50 joint venture between GE and Safran Aircraft Engines – made the allegations in a London court in September. By December 6, the UK's Serious Fraud Office (SFO) had launched a criminal investigation into AOG Technics, arresting one individual.

The SFO stated that the parts were mostly sold to overseas companies as well as some UK airlines, maintenance providers and parts suppliers. At the time, Nick Ephgrave, director of the SFO, said his organisation “was determined to establish the facts

“Efficiency has been stepped up in the engine MRO business in general, helped by AI, robotics, digital twins and other technologies”

as swiftly as possible” and noted that they could have “potentially far-reaching consequences”.

This is the kind of publicity the engine MRO business could have done without as it entered 2024, but it may also help tighten up regulations and/or audits for smaller suppliers.

Despite the knocks, confidence should be better than last year as forecasters predict a recovery to pre-Covid levels. There have been signs of a turnaround with bookings up and workshops full. Delays in new engine production from OEMs have also boosted demand for MRO services on existing units.

SUPPLY CHAINS REMAIN A CONCERN

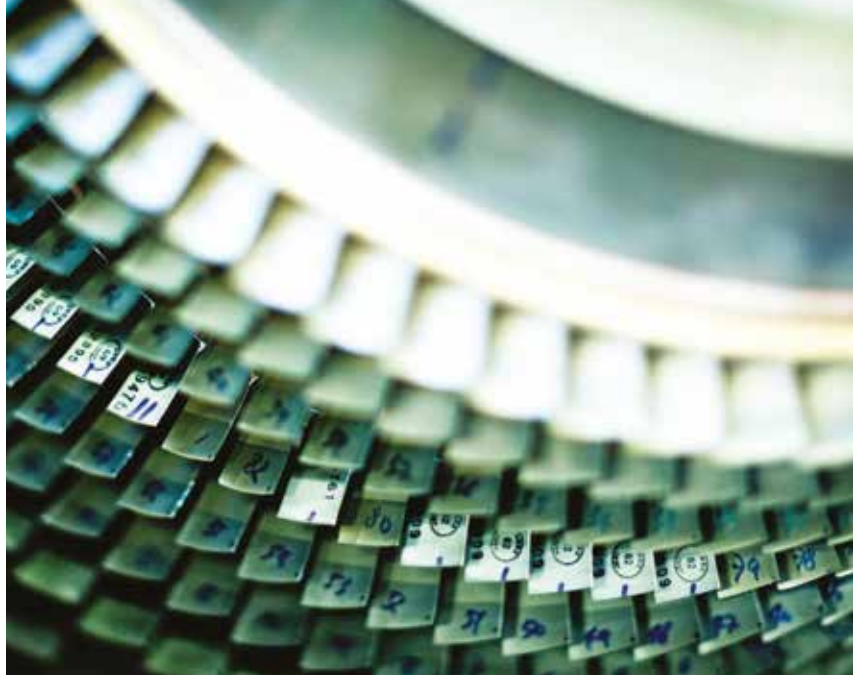
Supply chains normalised somewhat last year but are far from restored. At Pratt & Whitney, Kevin Kirkpatrick vice president of aftermarket global operations, comments: “While we saw supply chain improvements in 2023 which resulted in year-on-year growth, industry-wide pressures continue to affect material availability. We are balancing growing production rates with higher fleet utilisation while the supply base recovers.”

Red Sea disruptions are not expected to affect the high-value engine MRO supply side directly. Evren Akca, global account manager at Aero Norway, says: “Engines and engine parts are typically not transported via sea. However, the situation could affect oil prices and air transport demand.”

Locatory.com, the parts and supplies marketplace which is part of Avia Solutions Group, sees titanium supply as a continuing issue. Chief executive



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Siv Sivertsen

“Delays in new engine production from OEMs have also boosted demand for MRO services on existing units”

Toma Matutyte says: “Ukraine’s rich titanium resources, particularly the deposits in the Zaporizhia region, have played a crucial role in global supply. However, the annexation of Crimea by Russia and the war in Ukraine have disrupted this supply chain.”

Titanium is very temperature stable and corrosion resistant, with an excellent strength-to-weight ratio. It is increasingly used in the production of airframe and engine components, with global demand from big makers like Boeing and Airbus on the rise.

At MTU Aero Engines, the general supply-side situation got to the point where the company stopped providing estimates of when things might normalise and concentrated instead on the factors it could influence. Martin Friis-Petersen, senior vice

president, MRO Programs, explains: “Our main focus is on managing and optimising turnaround times and costs for customers. We are working across our entire network and in all regions to limit the impact.”

At the same time, the company has stuck to investment plans for maintenance capacity, including recruiting and retaining personnel to ensure it is well positioned to handle an increasing need for maintenance. For example, to mitigate slow-moving shop visits, MTU Maintenance Zhuhai is being expanded by adding a secondary facility, while MTU Maintenance Serbia was built specifically for parts repair.

Likewise, other bigger players are looking to increase output. Pratt & Whitney has embedded staff with key suppliers to help accelerate the delivery of parts and to assist with staff training to add more qualified personnel.

IDENTIFYING GROWTH SPOTS

GE90-115B and CF6-80C2 engines remained strong for MTU during the pandemic, while engines catering mainly to the passenger market suffered, particularly older, less efficient aircraft. According to the company it has 18 per cent more CF6-80C2 engines in service than in January 2020 and eight per cent more than in January 2023.

“Total CF6-80C2 cycles are a little softer with only a four per cent increase

in 2023’s flying compared to 2020, but remember 2020 was a strong year for cargo operations,” says Friis-Petersen. It is possible that CF6-80C2 demand may have peaked, but there is likely to be considerable MRO demand for this engine for many more years, according to the senior vice president.

MRO demand for narrowbody engines recovered well in 2023, with strong ongoing CFM56 shop visits, especially the CFM56-7B. Pratt & Whitney’s engine issues have also been positive for some. “We continue to see early technical removal and correspondingly high shop-visit demand on the newer engine models such as the PW1100G-JM and PW1500G as well as the LEAP,” Friis-Petersen comments.

That has a double benefit. “As a consequence of the fleet challenges with the latest-generation engines, more of the flying burden falls back on legacy engines such as CFM56 and V2500. Consequently, we are seeing more MRO demand for these engines than was originally forecast,” adds Friis-Petersen.

Wales-based AerFin has also taken advantage. It has taken delivery of 11 CFM56 and nine V2500 engines,

1. Martin Friis-Petersen, senior vice president - MRO Programs, MTU Aero Engines 2. MTU manufactures parts for the entire CF6 family 3. An Aero Norway engine close up



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bringing the total number of units it has acquired since 2013 to 250 to ensure the availability of used serviceable material (USM). Auvinash Narayan, senior vice president for trading, says that the engine acquisition strategy was instrumental to building a substantial inventory portfolio for regional and narrow-body platforms.

For Pratt & Whitney, the focus is on expanding capacity, and adding advanced technologies at its engine MRO facilities. Kirkpatrick says: “We are increasing our global GTF MRO footprint by making additional investments in our own shops, hiring hundreds of employees and adding industry-leading providers.”

The network now has 15 active sites globally, with five facilities activated in 2023 and plans for an additional four by 2025, taking the total to 19. This will allow for more than 2,000 annual shop visits in 2025, a roughly fivefold increase from 2019.

Kirkpatrick adds: “Since we identified a rare condition in powdered metal used to manufacture certain parts – requiring accelerated inspections of GTF engines – our focus is on executing all elements of the fleet management plan, in particular, industrial output and material flow, MRO output and customer support.”

MORE AI, ROBOTICS AND DIGITAL TWINS

Efficiency has been stepped up in the engine MRO business in general, helped by AI, robotics, digital twins and other technologies. Aero Norway’s Akca believes digital tech will play a major role in enhancing productivity: “The trend is towards integrating these technologies for better predictive maintenance, real-time monitoring and workflow management. For example, digital twins offer significant benefits by providing virtual replicas of engines, helping with evaluation and reducing unplanned downtimes.”

Similarly, MTU is tracking engine on-wing performance and building a maintenance programme using the collected data. This helps in predicting when maintenance has to be carried out and how extensive the work will be. MTU Maintenance uses Cortex, an in-house developed and AI-assisted software, to forecast maintenance scenarios.

“Using AI optimisation algorithms and taking into account variable parameters such as utilisation, operational conditions, parts availability, cost structures and engine health (engine trend monitoring), the software produces cost-optimised scenarios and recommendations to operators,” says Friis-Petersen. The tool can forecast material needs down to life-limited part (LLP) level and calculates spare engine requirements to cover respective MRO intervals.

Pratt & Whitney, too, is investing in several initiatives including product-specific digital twins in what Kirkpatrick

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“While the engine MRO business has had a turbulent year, the outlook for 2024 has many positives”

refers to as the “digital thread” to connect data from enterprise resource planning (ERP), product lifecycle management (PLM), and manufacturing execution system (MES) platforms.

Examples include the launch of Percept, an AI-based aircraft engine analysis tool. Percept is a computer vision and AI platform built by Awiros, a startup based outside Delhi, India. Its cloud-based interface allows users to capture images and videos of engines on their mobile devices and receive real-time responses on parts availability.

Meanwhile, at the company’s Singapore engine centre, engineers have developed a collaborative robot (cobot).

The integration of cobot with camera systems and advanced sensors capture and document hundreds of pictures at different locations on the engine. This replaces the time-consuming photo-documentation task previously performed by technicians.

Elsewhere, Pratt & Whitney is leveraging smart glasses and wearable tech with integrated cameras, a small screen, and audio that enables hands-free communication for uses such as training, troubleshooting and equipment qualification. And in 2023, the company successfully deployed the first-in-MRO application of 3D printing for aero-engine component details.

GUARDED GROWTH EXPECTATIONS

Such tech advances and investment commitments should help reduce time in shops. So, while the engine MRO business has had a turbulent year, the outlook for 2024 has many positives – despite supply constraints not going away.

Contract wins will also play their part. On January 12, Rolls-Royce announced plans to implement a TotalCare maintenance agreement with Taiwanese airline EVA Air for 36 Trent XWB-97 engines to power 18 new Airbus

A350-1000s. This will be the first time EVA Air will include the Trent unit in its fleet. The XWB-97 has more than two million engine flying hours under its belt over five years of service and that will rise to more than five million by 2025.

Aero Norway’s Akca believes engine MRO will grow this year, but it won’t be straightforward. “It’s influenced by varying demands for different engine types and further complicated by the supply chain challenges that could potentially be disruptive,” he says. “Aero Norway’s strategic approach (is to) focus on adaptability and effective utilisation of USM.”

For MTU, there are strong growth expectations especially for cargo. Friis-Petersen says: “For mature widebody engines, although the cargo market softened in 2023, MRO demand has increased in the past 12 months, and we expect that will continue over the next few years.” 

1. Kevin Kirkpatrick, vice president of aftermarket global operations, Pratt & Whitney 2. An Aero Norway engineer at work



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WHAT YOU CAN DO WITH A 'CAN-DO' ATTITUDE

MAAS Aviation's Jan van Engelen and Richard Marston speak to *MRO Management's Craig Waters* about the company's 40-year journey, highlighting the influential role of its 'can-do' attitude throughout and into the future



◀ MAAS Aviation delivers specialist aircraft painting services

Aircraft painting and exterior coatings company MAAS Aviation celebrated its 40th anniversary in 2023. Having grown from simple beginnings, building facilities in Europe and the US, and establishing longstanding relationships with airlines, leasing companies, MROs and OEMs across the globe, its state-of-the-art paint shops for narrowbody and regional aircraft can handle up to 500 aircraft per year, with a further 100 additional slots being added in the US this year.

But the company puts its success down to the hard work, dedication and passion of its people that have supported the business throughout its history.

Richard Marston, chief commercial officer, says: “The great thing about MAAS Aviation is that we have several members of the team that have been with the company since it was founded in 1983. So we’re not only celebrating a 40-year milestone as a company, we’re also celebrating the commitment and loyalty of a dedicated team.”

Although having grown and matured a lot over its four-decades, Marston says it still feels like a family business in many respects.

“Everybody’s extremely proud of the high quality painting work we turn out,” he explains, “and that runs right through from the people that order the materials to the team members who book paint job slots, and of course the talented painters who make the aircraft exteriors look amazing. It is great to be part of a team that is immensely proud of what we do.”

In 1983, Darragh Hall and Harry Ryan set-up Expressair Aviation, the parent company of MAAS Aviation, offering outsourced aircraft painting services across Europe. The duo travelled to their clients’ locations to repaint entire fleets of aircraft.

This entrepreneurial spirit and customer-oriented focus appears to still be at the core of MAAS Aviation’s business culture today. Jan van Engelen, chief executive officer, shares that there are various principles that not only form the bedrock of its corporate culture but also underscore a dedication to deliver business excellence: “I think that at the core of our company’s DNA are several defining elements that have consistently shaped our identity – a commitment to exceptional quality, a

concern for the well-being of our people and an inherent customer-centric approach.”

“Our customers are at the heart of everything we do,” adds Marston. “We’ve got several longstanding relationships – for instance a 40-year partnership with Ryanair. These cooperations are what we really pride ourselves on. Once we secure a customer, we of course want to keep them, and showcasing to them that we have a committed and professional team goes a long way in building those partnerships.”

“I believe the entrepreneurial spirit that our founders had is still very much present throughout MAAS Aviation today – we react to challenges and don’t hide away from problems. Being very transparent with our customers makes a huge difference.”

Van Engelen continues: “Our people think about solutions, rather than problems, and that speaks volumes. We’ve got a fantastic team that are cared for, and that makes them even more willing to contribute to the success of MAAS Aviation. They know that going the extra mile with a ‘can-do’ attitude is important.”

During its 40 years, MAAS Aviation has grown substantially, with many milestones and successes achieved throughout the years. But Marston believes there was one particular step-change for the business. “From my perspective, I think establishing the agreement with Airbus in 2011 at our Maastricht Aachen Airport location was a key milestone for us. That led to us opening a single-aisle paint shop at Hamburg-Finkenwerder Airport in Germany in 2012 dedicated to Airbus, followed by two more in 2016 and in 2018.”

In 2016, MAAS Aviation also opened a single-aisle paint shop dedicated to Airbus at Brookley Field in Mobile, Alabama, US and in 2021 established two additional single-aisle painting halls exclusively for Airbus at the facility. “Alongside our current six facilities with Airbus, we’re building two more,” explains Marston, “and that really demonstrates the strong relationship we have.”

Like all aviation-related businesses, the Covid-19 pandemic was a challenging time, and one that MAAS Aviation had to navigate carefully, especially as it

“Investing in facilities and putting ourselves next to MRO suppliers provides more solutions for our customers”



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“One of the cultural things that’s in the DNA of MAAS Aviation is to care for its people”

hard with many people taking early retirement or moving to different industries. The crisis just forced more people to reconsider their options early.”

Even though the business had a strong workforce presence throughout the crisis, the company faced challenges operating facilities in a safe environment for all employees, customers, suppliers, and business partners while maintaining normal business operations. Marston explains: “We had to completely change our processes, implementing working ‘lanes’ and establishing social distancing.

“We imposed teams of eight people to work completely separate from other teams. They travelled as teams, worked as teams and lived as teams. All the walkways inside the facilities were changed to separate everybody and, incredibly, all through the pandemic we didn’t have a single case of Covid-19 internally.

“It was a very difficult time to manage, but we did it – again with our ‘can-do’ attitude. Even down to travelling, which was allowed internationally if you could show that you were part of critical industry. This meant I could travel under a permit, and could oversee projects to make sure they ran on time.”

Marston then goes on to another key factor: “Establishing strong partnerships coming out of such a turbulent time, such

as our agreement with FL Technics in Kaunas, Lithuania has been important.”

At the start of 2021, MAAS Aviation opened a new purpose-built paint shop at Kaunas Airport, adjacent to FL Technics’ MRO facilities. Combining base maintenance, painting, parking and storage in one location has become an attractive proposition for leasing companies as it minimises aircraft ground time, which in turn offers economic value and is less complex for lessors.

“We’re looking to strengthen partnerships like that,” van Engelen adds. “Investing in facilities and putting ourselves next to MRO suppliers, provides more solutions for our customers who can view us as offering a ‘one stop shop’ service.”

As MAAS Aviation grows, so too will its workforce. But with wider industry challenges in attracting and retaining the right people, and adhering to diversity objectives, how will the company ensure it is a supportive employer?

“There’s a few things that we are doing,” explains van Engelen. “We are widening the pool where we recruit, and we are engaging in partnerships with businesses that operate counter

continued to operate all nine of its paint shops during the crisis.

“One of the biggest challenges we had was in preserving our capabilities,” Marston says. “We had to make sure we could protect and retain our workforce throughout the pandemic. Thankfully Ryanair and easyJet – who between them have the largest single narrowbody fleets in Europe – kept maintaining their fleets right through the crisis, so it was our strong relationships with these customers that ensured we had painting jobs coming through our facilities.”

“I think the company did very well during Covid-19, balancing the financial consequences, the interest and wellbeing of our people and leveraging the partnerships that were in place,” says van Engelen. “The labour shortage was already looming before Covid-19 and, on top of that, aviation was hit particularly

1. The finished paint job for Embraer’s ‘Tech Eagle’ E195-E2 2. MAAS Aviation worked on a top-secret paint job for Embraer’s ‘Tech Eagle’ E195-E2

1. Richard Marston, chief commercial officer, MAAS Aviation 2. Jan van Engelen, chief executive officer, MAAS Aviation 3. Forty years on, MAAS Aviation continues to paint Ryanair's aircraft

cyclically. For example, we're working with a company that paints windmill rotor blades which is predominantly carried out in the summer months. Because we paint in the winter, and they require a very similar skillset, we have set up an exchange programme where we retain that skillset which then helps us to balance out the seasonality and reduce the overall requirement of people."

Van Engelen added: "We've also set up a skillset matrix within the business, creating a career progression programme for our painters. As soon as someone joins our team, they know what skills they must acquire to move to the next level in our business, and we have identified five levels. Establishing this matrix highlights their earning potential and career path with us, which in turn increases workforce retention."

Marston adds: "One of the cultural things that's in the DNA of MAAS Aviation is to care for its people, which is another workforce incentive to stay and progress your career with us. We have had some people leave us, but they've come back because they want to be part of our 'family' again."

"It is no secret that the sector is predominantly male," says van Engelen. "That's sadly the industry we have right now, so we often hear people ask why there aren't more females joining. I think we don't make the industry interesting enough for females and younger generations in general to consider starting a career in aviation painting, so there's a huge amount of work that needs to be done in this respect."



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Although in agreement that aviation is a very male dominated industry, Marston is quick to highlight a major milestone for the business in 2023 when their first ever all-female paint team based at its Mobile, Alabama facility completed the painting of a brand-new A320 aircraft.

"That demonstrated to the industry that MAAS Aviation is proud of all its employees and a great example of how the industry is changing," he says.

"Yes, there's still a challenge not just to increase females in the industry, but in attracting young people overall. Painting aircraft is hard work, but I believe aviation is an exciting industry, so we should do more to 'sell it' to younger people; as such, we are seeking partnerships with local colleges and vocational training academies."

MAAS Aviation has painted thousands of aircraft during the past 40 years and has become a multi-million Euro business.

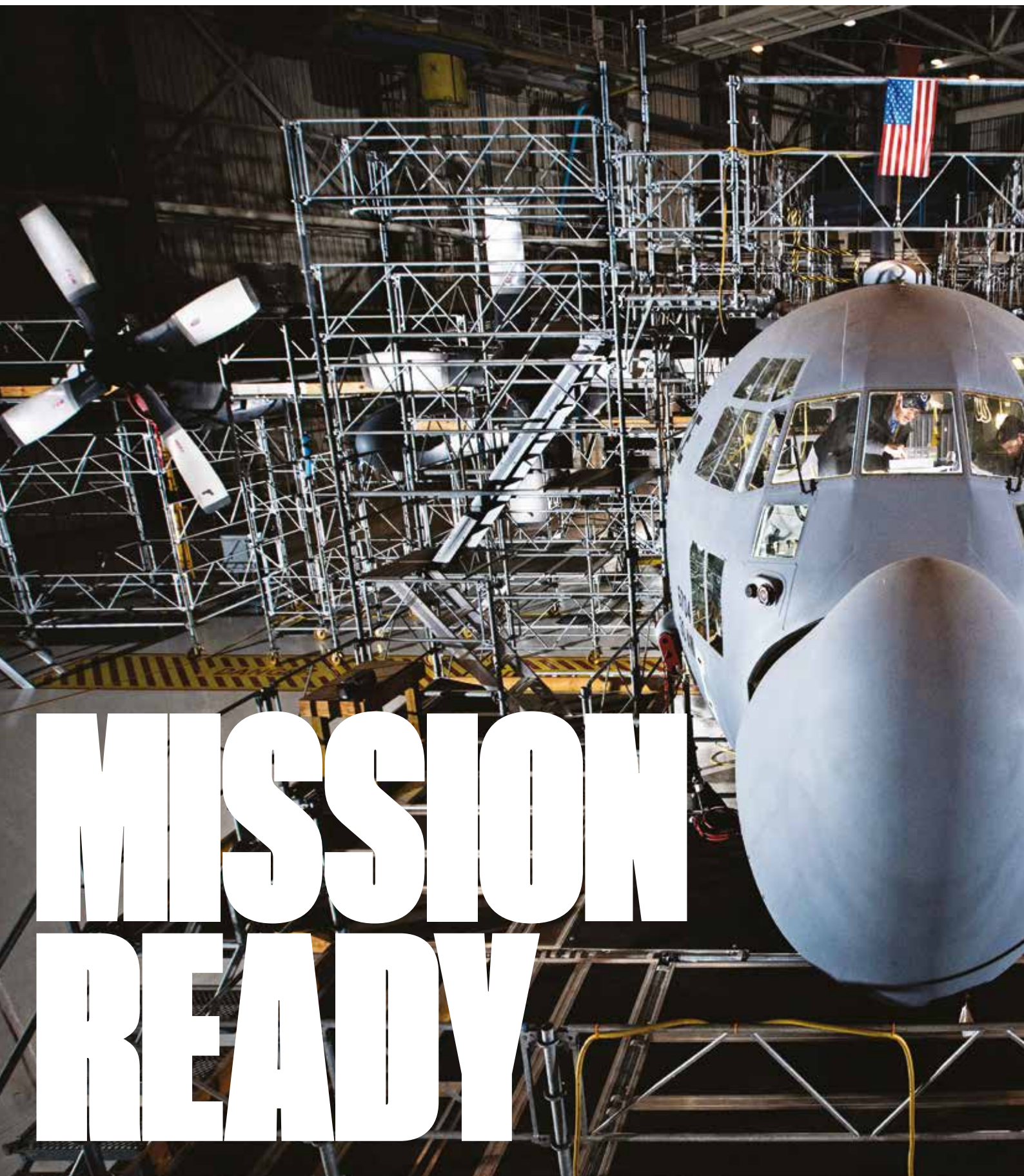
Towards the end of 2023, MAAS Aviation unveiled it had been working on a top-secret paint job for Embraer's latest Profit Hunter, the E195-E2 'Tech Eagle'. The project was completed at MAAS Aviation's flagship facility in Maastricht, the Netherlands and took a team of 38 highly skilled painters working around the clock for 15 days to ensure the unique livery was ready to be unveiled at the Dubai Airshow 2023.

The complex project demonstrated MAAS Aviation's expertise and capabilities of taking on challenging and demanding painting tasks.

Having successfully weathered the storm of the global pandemic and securing many strategic partnerships, it is clear the business is focused on enhancing its market position.

Van Engelen says: "If you look at the market holistically and where we stand, we're one of the three major aircraft painting businesses, but I think we stand out for delivering great turnaround times and quality. We're maybe not the biggest company, and we're maybe not the cheapest – but we certainly offer the best value for money."

"Looking at where we are today, having a successful narrowbody painting network, serving the widebody market would of course be the logical next step for us. We will focus on other OEM-related work which will help to balance revenue streams, and in addition there are a few MRO opportunities we are pursuing. We want to be the global leader in aircraft painting and I'm sure our 'can-do' attitude can take us there." 



MISSION READY

◀ A C-130 undergoes cockpit modernisation



The aircraft MRO industry plays an essential role in ensuring the operational readiness and longevity of defence aircraft assets. *Mario Pierobon* reaches out to experts to assess how the role of MRO has evolved over the years, the specialised requirements and needs of military and defence aircraft, and the characteristics of fleet renewal partnerships

INDUSTRY EVOLUTION

According to Kari Vertanen, senior vice president of through life capability product at defence and technology company Patria, in the past decades, the price and complexity of defence aircraft assets have constantly been increasing. "This usually means that the size of the fleet is also smaller than before, and the desired fleet availability is harder to reach," he says. "Nowadays, it is not even enough to have only one platform available for operational readiness."

"More and more often there is a combination of different platforms providing the needed operational capability together, and even from different domains," Vertanen adds. "Therefore, for an operator to be successful, the sustainment of the fleet, which includes MRO activities, is today in the core of the attention."

King Aerospace provides support to military and special missions aircraft, both for scheduled maintenance, repair and overhaul and on-demand as needed, and declares that this is absolutely critical. "In particular, the ability to deploy to isolated areas on very short notice is critical in today's climate, while continuing to meet the unique maintenance challenges that arise when supporting special mission aircraft continually pushing the performance edge," affirms Jerry King, chairman and founder of the company.

From a generic business perspective, over the years, MRO has begun to be a more interesting field to provide support and to create related services for the customers, according to Vertanen. He says: "Typically, customers have a need and willingness to focus their resources on their main tasks when sustainment may start to slip out."



“In the past decades, the price and complexity of defence aircraft assets have constantly been increasing”

This creates opportunities for industry to provide support for sustainment, as the industry also has typically better tools and processes for more efficient service provision.”

Patria is an international provider of defence, security and aviation lifecycle support services, pilot training and technology solutions. The company provides its aerospace and military customers with equipment availability, continuous performance development as well as selected intelligence, surveillance and management system products and services.

Patria employs more than 3,000 professionals and has several locations including Finland, Sweden, Norway, Belgium, the Netherlands, Estonia, Latvia and Spain, with net sales in 2022 totalling €627.1 million.

Patria has witnessed that customers have started to have many overlapping and often parallel sustainment solutions in use because OEMs are providing their own solutions with their sold assets. “We have the developed the Patria Optime



Patria employs more 3,000 professionals and has several locations including Finland, Sweden, Norway, Belgium, the Netherlands, Estonia, Latvia and Spain, with net sales in 2022 totalling €627.1 million

solution to provide overarching and integrated services, together with OEMs, for the end-user,” highlights Vertanen. “It allows the end-user to focus more on their main tasks of operating platforms while Patria can provide the needed support for fleet sustainment.”

SPECIALISED REQUIREMENTS AND NEEDS

King Aerospace is focused primarily on modifications to existing aircraft, particularly special mission variants of such commercial platforms as the Boeing 737 and 757 and Beechcraft King Air. “While based on civilian models, these airframes have durability and reliability already ‘built in’ to handle the rigors of commercial service,” explains King. “This typically allows us to focus on the unique assets and equipment necessary to perform a wide range of missions, from personnel and cargo transport to highly specialised requirements like intelligence, surveillance and reconnaissance (ISR), without significant ‘upfitting’ or modifications to the basic airframe.”

King adds: “In many cases, the modifications may not be as complicated as one may think; for example, a special mission aircraft may have remote cameras

▲ Patria applies in-depth knowledge to MRO activities

“Special mission aircraft upgrades can be performed by the OEMs or a third-party provider”

mounted to the exterior that are similar in location and function to external cameras that are increasingly popular on VVIP aircraft for passengers to view.”

The requirements for up-to-date military aircraft fleets have started to be really extensive, points out Vertanen. “As an example, mid-sized countries are not in the position to acquire multiple fleets, and this creates the need to have one multi-usable fleet in use. Furthermore, in the past decades prices for purchasing new aircraft fleets have been increasing dramatically and, simultaneously, many of the new needed features are not anymore airframe-dependant,” he explains.

“For instance, upgrading the radar, installing new electro-optic sensors or providing better sensor fusion or human-machine-interaction (HMI) for pilots does not require a change of the airframe anymore unless the airframe has its own limitations – such as fatigue life, flight envelope, etc. This leads to a situation

in which modifying existing aircraft starts to be an even more interesting opportunity for many countries.”

FLEET RENEWAL PARTNERSHIPS

Special mission aircraft upgrades can be performed by the OEMs or a third-party provider, notes King. “For example, the US Navy’s P-8 Poseidon maritime patrol and reconnaissance platform is based on the Boeing 737-800 and is modified exclusively by Boeing’s defence division, while we provide modification and maintenance support for the 737-based C-40 ‘Clipper’ US military transport, as well as for VVIP and special missions 737s operated by foreign allies,” he says.

“These roles are determined by senior government leadership, often in consultation with their contracted partners. Many times, these functions are put out for bid to third-party entities with a proven reputation not only for fulfilling these contracts at reasonable

cost, but – most critically – for also providing consistent performance and the best possible value to the US Department of Defense (DoD) and other government clients.”

Upgrades can also be carried out together with the customer when an external party provides the needed design, planning and preparation while the actual upgrade work is provided internally, notes Vertanen. “In aviation, all upgrades have to be designed by an approved design organisation such as Patria and they need to be certified by airworthiness authorities. The certification process varies by country and the national military airworthiness regulations. These regulations will or might limit the possible suppliers providing the needed and requested upgrades,” he concludes. 

▼ The US Navy’s P-8 Poseidon is based on the Boeing 737-800 and is modified exclusively by Boeing’s defence division





THE SUM OF THE PARTS

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Spare parts availability is challenging the aviation industry. *Bernie Baldwin* learns from some key players in the sector just how the challenge may be overcome

Whether they be new, repaired/ refurbished or USM (used serviceable material, mostly acquired from the teardown of retired aircraft), arguably the main spare parts challenge across the aviation industry is their availability.

“At present, there is still a significant shortage of parts in the market, although the demand decreased somewhat at the end of last year,” says Airina Kacienaitė-Krake, head of trading at Magnetic Group. “The main reasons for this are the decrease in the number of teardowns (out of the planned 600+ teardowns, less than half were done) and the TATs due to spare parts and

manpower shortage at the repair shops. Not only companies that engage in the secondary parts market but also airlines are trying to build at least a minimum stock of parts.”

According to Toma Matutyte, chief executive at Locatory.com, the status of spare parts availability across the aerospace industry is challenging but improving: “There are several factors contributing to the struggle, the main ones being the ageing aircraft fleet, the increasing demand for new aircraft and global supply chain disruptions.

“That ageing aircraft fleet poses a distinct challenge as the industry grapples with delayed deliveries of aeroplanes, resulting in continued demand for older aircraft,” she adds. “This strains the supply of replacement

components. Manufacturers are producing fewer new parts for these aircraft, and the supply of USM is further reduced. The retirement of older fleets is also further postponed.”

Matutyte also believes the entire sector is still grappling with the after-effects of the Covid-19 pandemic. “Despite the resurgence in demand for air travel and fewer supply chain disruptions compared with a year or two ago, manufacturers anticipate ongoing challenges. They had reduced production capacities during the initial uncertainty of the pandemic, resulting in the subsequent wave of massive layoffs.

“When the demand for new aeroplanes and parts surged once more, a significant labour shortage emerged, impacting the speed of new parts production. The



1. Parts don't always have to be new, but they must be airworthy
2. Toma Matutyte, chief executive, Locatory.com
3. Airina Kacienaitė-Krake, head of trading, Magnetic Group

“Having our own in-country MRO facility will ensure a quicker turnaround of our fleet maintenance”

demand is substantial but not fully met, contributing to the shortage of parts. Nevertheless, companies are addressing workforce shortages and are working to produce more aircraft and parts to meet high demand. Thus, we see the situation improving.”

For Lindsay Cooper, head of asset management for the AJW Group, industry challenges concern spares availability, characterised by two key factors: “Firstly, the ‘in service’ issues that operators are facing with new-generation aircraft have led them to prolong the operational life of older-generation aircraft. Secondly, supply chain disruptions are causing significant delays in the delivery of new components and affecting the shop processing times for the repair of unserviceable components.”

With parts more difficult to acquire, a key task is to manage stock well to ensure minimum equipment levels (MELs) are kept. “Effectively managing inventory to maintain MELs is a strategy-based balancing act,” Cooper states. “Notably, those who have made substantial investments in stock are better equipped to navigate supply chain disruptions. We employ a proactive approach by maintaining a robust inventory, ensuring a resilient buffer against uncertainties in the supply chain.

“A key aspect of our strategy involves a continuous influx of aircraft for disassembly. This not only bolsters our stock levels, but also provides a steady supply of serviceable material. Also, gaining a holistic understanding of customers’ fleets is crucial, allowing for better anticipation of their maintenance and repair needs.

“Managing stock levels is a data-driven science and utilising advanced analysis tools enables us to identify demand trends, TATs and stock levels. Our strong relationships with OEMs and MRO providers, including our MRO facility in Montreal, AJW Technique, play a pivotal role in our success.

“As an industry, we have proved our resilience and have adopted creative sourcing methods to reduce TATs at MROs and further enhance the overall efficiency of our business.”

“Perhaps the practice most worth mentioning is data management,” Kacienaitė-Krake remarks. “With enough data available regarding which parts are in the highest demand and how often they are replaced, it is possible to plan warehouse purchases and part repairs. This also allows us to forecast changes in part prices quite accurately. Tracking data helps plan when the customer will need one or other part.”

Locatory.com’s Matutyte notes that companies which manage their stock effectively “employ centralised platforms like ours to benefit from a complete view of their spare parts inventory”. This, she continues, “allows for real-time tracking, order management and efficient monitoring of stock levels. Our collaboration also benefits them through access to advanced inventory management systems that minimise inconsistencies. This ensures accurate tracking and accountability, reducing the risk of stockouts or overstocking.”

Matutyte continues: “Effective spare parts management involves collaboration with suppliers to enhance inventory visibility and reduce lead times. Our platform enables such collaboration to ensure that the right parts are available when needed, minimising disruptions.

“Organisations excelling in spare parts management maintain a balance between inventory levels and MELs through a combination of advanced technology, predictive maintenance, streamlined procurement, continuous improvement, and collaborative relationships with suppliers.”

To maintain ample stock, repair parts when feasible; technological advancements can boost the repair of more parts. “In recent years, there have been exciting developments in using 3D printing,” says Matutyte. “For example, Airbus Services subsidiary Satair used 3D printing to make a wingtip fence for





▼ Lindsay Cooper, head of asset management, AJW Group



“More parts being repaired highlights the role that parts pooling can play as a tool for airlines and MROs to help manage stock”

a single air carrier. This part aids in air circulation around the wings. The unique aspect here is that they used 3D printing to create a part for an older aircraft type, the A320ceo, at lower cost and faster speed.

“These components are specifically designed for the A320ceo but are no longer in production. The single supplier of spare parts for the traditional cast version of these components faced challenges, resulting in a consistent shortage of the moulds used to secure the wingtip fences on the aircraft. The absence of these parts hampers the operation of the aircraft. However, this approach helps older fleets stay operational when there aren’t enough suitable spares from scrapped aircraft and new parts are no longer produced.”

Matutyte observes other promising applications. “Despite being applied in mass production since early 2000s, laser welding offers enhanced accuracy compared to traditional methods. Lasers focus heat on precise areas, minimising heat-affected zones and reducing the risk of damage to surrounding components. This improves the integrity and lifespan of repaired parts.”

Viktoras Baltaduonis, repair management lead of Magnetic Trading at Magnetic Group, is less enthusiastic on the repair front. “So far, there is not much new technology in the repair field because

the manufacturers strictly regulate the repair process. However, due to new technologies, new parts are already appearing, the production is shorter and the service life is much longer.

“Owing to the aforementioned spare parts shortage, we have noticed a growth in the PMA (Parts Manufacturer Approval) spare parts market and heavy usage of these spare parts in the repair process of non-critical components. That means aircraft operators are slowly softening their position towards PMA spare parts and are willing to accept components containing them, in exchange for shorter repair TATs and fewer beyond economic repair cases.”

More parts being repaired highlights the role that parts pooling can play as a tool for airlines and MROs to help manage stock. AJW’s Cooper says: “As operators face hurdles such as prolonged logistic lead times, among others, there is a trend towards greater regionality in sourcing. AJW’s operational agility has led us to drive a pooling strategy with inventory placed purposefully around the globe. Our strategically developed stock management and logistics solutions meet our customers’ demands, which is invaluable to operators and MROs.”

Locatory.com’s Matutyte believes that parts pooling is extremely valuable. “Providers of pooling services are addressing supply chain complexities

related to the procurement, stocking, transportation and repair of parts, relieving MROs and air carriers from these complexities. Against the backdrop of the ongoing global supply chain disruptions, this assumes heightened importance. This strategic offloading of responsibilities enables airlines to focus on their core activities while ensuring a seamless and efficient flow of essential components within the industry.

“Major manufacturers offer exchange programmes to assist aircraft operators in reducing inventory, cutting costs and ensuring aircraft reliability. If a valuable part requires repair and overhaul, a replacement can be easily requested, installed, and the old one returned which is then refurbished and added to the exchange inventory.

“As more airlines and MROs adopt pooling programmes, we can expect even greater benefits in terms of reduced costs, improved availability and enhanced efficiency. Benchmark programmes demonstrate the success of pooling initiatives in effectively managing spare parts inventories and supporting the sustainability of airline operations.”

The spares and repairs situation is thus likely to remain fluid for some time, with even small advances likely to be valuable. Add a few of those together though, and the outcome is likely to be greater than the sum of the parts. **M**



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A one-stop-shop approach

MD Turbines is on a journey of continuous growth and client satisfaction, writes Edda De Jesus

Established in 2011, MD Turbines has evolved into a leading turbine engine disassembly service provider. Our commitment to client satisfaction, coupled with strategic expansions, has positioned the company as a one-stop-shop for aviation needs offering disassembly, repairs, logistics and supply chain solutions.

As an AFRA-accredited and insured turbine engine disassembly facility in Miami, Florida, MD Turbines stands as a symbol of reliability and excellence. The company's management team, led by president Manny De Jesus, comprises industry veterans, ensuring a wealth of experience in aviation.

ENGINE TEARDOWN EXCELLENCE

MD Turbines achieved a significant milestone in 2023 by successfully completing over 250 engine teardowns, showcasing a remarkable 9.6 per cent increase from the previous year. With a dedicated team and leadership, we are poised to meet the competitive demands of engine teardowns in 2024, aiming to surpass the accomplishments of the previous year.



1. MD Turbines' new storage facility will be available summer 2024 2. Edda De Jesus, vice president of teardown at MD Turbines

THE IMPORTANCE OF TEAM EXCELLENCE

MD Turbines attributes its success to a great team consisting of seasoned professionals. As vice president of teardown, I bring expertise to disassembly operations, ensuring precision and efficiency to exceed client expectations. Matt Maritza, vice president of logistics, leads a dynamic team in providing top-notch transportation solutions, while Jessie Cardenas, vice president of repairs, oversees the continuous growth of repair capabilities.

LOGISTICS EXCELLENCE

MD Turbines Logistics operates a fleet of over 40 air-ride, satellite-equipped trucks, holding CTPAT certification for secure transportation. The logistics team exemplifies MD Turbines' mission to exceed client expectations, with an ambitious goal to expand its fleet to over 50 air-ride trucks.

REPAIR CAPABILITIES AND CERTIFICATIONS

MD Turbines Repairs, a FAA 145 repair station with EASA 145.6801 certification, offers a comprehensive range of services, including Automated NDT. In-house and on-wing repair capabilities continue to grow, showcasing the company's commitment to maintaining the highest standards in aviation repairs.

SUPPLY CHAIN EXPANSION

MD Turbines provides ASA-100.00-56 certified supply chain services. We are expanding our storage capacity from 230,000sqft to 415,000sqft in summer 2024, supporting sustainable growth for customers by managing, integrating and streamlining turbine engines, engine stands and parts planning and fulfilment.

A CULTURE OF EXCELLENCE

MD Turbines is defined by a culture that prioritises exceeding customer expectations through leadership, understanding and knowledge. Our mission is to maintain high-quality turbine engine disassembly facilities while constantly striving to surpass customer expectations. The vision is clear – to be the premier choice for engine teardowns, repairs, logistics and supply chain solutions.

Our journey of continuous growth and client satisfaction is a testament to our commitment to excellence in the industry. As we expand facilities and services, we remain dedicated to providing top-notch solutions for clients' aviation needs. 



1

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Part 145 Line Maintenance:

A318/319/A320/321 (CFM56)

A318/319/A320/321 (CFM Leap-1A)

A318/319/A320/321 (IAE V2500)

B737-600/700/800/900 (CFM56)

B737-7/8/9 (CFM Leap – 1B)

For more information contact: c.grant@eirtradeaviation.com

Asset acquisition: Are you selling?

Airframes:

A319, A320, A321, A330, A350, B737, B747, B757, B767, B777, B787, E170, E190

Engines:

CF6, CF34, CFM56-5B, CFM56-7B, GE90, PW2000, PW4000, RB211, TRENT 700, V2500



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