

LARA

Low-Fare & Regional Airlines

Vol40 No 6 December 2023/January 2024

www.laranews.net

Finance and Leasing Special

Paintings and coatings

Protective measures

Window of opportunity

ATR's Nathalie Tarnaud Laude leads the line





LEAP

LEAP turns heads in the boardroom.

LEAP-powered aircraft are achieving the highest days flown ratio* for their thrust class. That means fewer spare aircraft and more flights, which helps profitability climb. Another reason to say **LEAP. By example.**

*Compared to 83% for competition, per third-party data.

cfmaerengines.com

92% asset availability

LEADERS AREN'T BORN. THEY'RE ENGINEERED.

**COVER****Window of opportunity**

Nathalie Tarnaud Laude was appointed CEO of ATR on 17th September 2022.

**12 OPERATOR PROFILE: JAZEERA AIRWAYS****Worth the Kuwait**

Kuwaiti low-fare carrier Jazeera Airways is holding its own amongst legacy and low-fare carriers in the region while nurturing ambitious plans for the future. Lucy Powell reports.

NEWS & FEATURES**4 COMMENT****Showdowns and throwdowns**

Airbus vs Boeing is one thing, but check out the order book competition between the UAE and Saudi Arabian carriers.

6 NEWS

All the latest news and developments in the low-fare and regional airline industry.

16 FLIGHT PLANNING**All the angles**

With world events increasingly impacting airline flight planning, Emma Kelly looks at how airlines operate safe, efficient and direct air routes.

35 IBERIA MAINTENANCE**Turning the corner**

Iberia Maintenance has begun the next chapter in its 10-year transformation plan. Lucy Powell reports from the shop floor.

38 PAINTING AND COATINGS**True colours**

Elena Lodge explores how painting companies are improving their technology to protect and repair operators' aircraft.

FINANCE AND LEASING SPECIAL**Finance and Leasing Special****21 LEASING MARKET OVERVIEW****Bouncing back**

As we enter 2024 with continued economic and geopolitical uncertainty, what does this mean for the aircraft leasing sector? Gordon Smith reports.

26 RESIDUAL VALUES**Ups and downs**

Aircraft residual values are key to the financing of fleets. Bernie Baldwin reports on the current values and where they are set to go in 2024.

30 ENGINE LEASING**Coming full circle**

LARA sits down with elfc and AJW to get a snapshot of what 2024 might have in store for the engine leasing landscape.

42 CABIN CREW TRAINING**One too many**

The incidence of bad behaviour by airline passengers is on the increase, according to IATA. How can airlines and cabin crew cope with the rising tide? Alan Dron investigates.

47 LEADERSHIP PROFILE**Bold new frontiers**

ATR may well have huge challenges ahead of it, but the turboprop manufacturer's Chief Executive Officer, Nathalie Tarnaud Laude, is more than ready to meet them, as Lucy Powell reports.

50 FIVE QUESTIONS TO ...**... Steve Bleymaier, Ansys**

The CTO for Aerospace and Defence on how the use of physics-based simulation software translates into cost savings across the aviation product life cycle.

IN THE NEXT ISSUE

- Supply Chain and Logistics
- Propulsion Systems
- IT in MRO

LARA

EDITORIAL

tel: +44 1252 545993

Editor: Lucy Powell
lucy@hmg aerospace.com

Reporter: Elena Lodge
elena@hmg aerospace.com

Contributors: Bernie Baldwin, Alan Dron,
Emma Kelly and Gordon Smith

ADVERTISING SALES & MARKETING

tel: +44 1252 545993

Media Sales Executive: Callum Matthews
callum@hmg aerospace.com

Marketing and Communications Manager:
Anne Wallace
anne@hmg aerospace.com

PRODUCTION & DESIGN

tel: +44 1252 545993

Production Editor: Matthew Wilson
matthew@hmg aerospace.com

Senior Graphic Designer: Paul Firth
paul@hmg aerospace.com

Graphic Designer: Fiona Fraser
fiona@hmg aerospace.com

CIRCULATION

Subscription Enquiries:
subscriptions@hmg aerospace.com
tel: +44 1252 545993

MANAGEMENT

publishing@hmg aerospace.com
Managing Director: Mark Howells
Chief Commercial Officer: Becky Howells

LARA is published six times per year – in February/March, April/May, June/July, August/September, October/November and December/January – by HMG Aerospace Ltd. Distribution of LARA is carefully controlled for industry-related individuals.

Articles and information contained in this publication are the copyright of HMG Aerospace Ltd and may not be reproduced in any form without the written permission of the publishers.



Best Young Journalist Award, Lucy Powell, 2023

© HMG Aerospace Ltd 2023 ISSN 1753-0598

HMGaerospace

HMG Aerospace Ltd
Cody Technology Park, First Floor,
Building A8, Suite 1038, Ively Road,
Farnborough, Hampshire, GU14 0LX
United Kingdom
Tel: +44 1252 545993

www.hmg aerospace.com

Showdowns and throwdowns



As the dust settled on Dubai Airshow, it seemed that Boeing left Airbus buried somewhere beneath the sands, posting three times as many orders.

The appetite of Middle Eastern operators for the US aircraft manufacturer certainly complements the OEM's recent report that fleet size in the region is set to double by 2042.

But forget Airbus vs Boeing for a moment. Here, amidst the rising heat of the Middle East, the real showdown match lay between the United Arab Emirates (UAE) and Saudia Arabian

carriers' own order books.

And did it ever deliver.

The show saw Dubai carriers throw their significant financial weight down early, announcing up to US\$50 billion in Boeing jet orders in the first two days.

A highlight amongst this flurry of numbers was flydubai, who announced an order for their first ever widebody aircraft. Thirty Boeing 787-9 Dreamliners have now been added to its backlog, cementing the low-fare carrier's plans to boost its international travel route map.

Saudi Arabian carriers proved to have a more subdued order spree this year – with Saudia Airlines Group ordering a more conservative 150 narrowbody aircraft for Saudia Airline and low-fare carrier, Flyadeal.

Whilst certainly impressive, putting positive forecasts aside for a moment, it has to be said that Middle Eastern carriers are banking heavily on the appetites for future travel and a fleet that won't even exist until the middle of the next decade at least.

To focus on more immediate predictions, this issue's Finance and Leasing special takes a look at aircraft values, and aircraft and engine lessors' forecasts for 2024 as they survey the low-fare and regional markets.

Older engine types are getting a chance to shine a little bit brighter, as newer engine troubles continue to cause issues for operators, whilst stories of the turboprop market's demise are largely unfounded – something echoed by ATR's CEO in our Leadership Profile.

As ever, enjoy this issue!

Lucy Powell – Editor

Best Young Journalist 2023

The Aerospace Media Awards were created to honour journalists and publishers who have made a significant contribution to aerospace journalism and publishing.





**Leveraging 70 Years of Industry Expertise
to Bring You Exceptional EJET Support**

APS Airframe Program Launch

- ↻ EJETs dismantled
 - ↻ E170 MSN 151
 - ↻ E190 MSN 108
- ↻ Large stock of rotables
 - ↻ AR cores and OH/SV available

All Material has Full Airline Trace, and is Non-Incident

For all inquiries, please visit www.aircraftpropeller.com
or email sparesales@aircraftpropeller.com

**Inquire about our current stock of
ATR42-230 and EJET parts.
Available for immediate sale or exchange**



USA
595 Telser Road
Lake Zurich, IL 60047
P: 847-541-1133
W: aircraftpropeller.com

BRAZIL
Red. Dom Pedrol, S/n - Km87-
Bairro Jd. Kanimar,
Atibaia / SP - CEP 12954-260
www.aircraftpropeller.com.br

Industry News

easyJet rakes in record profits but warns of Israel-Gaza war impact

In its yearly earnings results, low-fare airline easyJet announced a record FY23 profit of £455 million before tax, far exceeding last year's loss of £208 million.

Yet it warned that its early winter results for 2024 would face a hit as a result of the ongoing conflict in the Middle East.

Whilst flights to this region (including Egypt, Jordan and Israel) account for only 4% capacity, it does not anticipate its current Q1 loss to improve year on year.

The carrier achieved record performance during summer 2023, despite high fuel costs and external operational difficulties.

It foresees a similar "positive outlook" for its 2024 summer period, based on

present booking strength.

Total revenue saw a significant rise of 42%, reaching £8,171 million, compared to £5,769 million in 2022.

Passenger revenue increased by 37% to £5,221 million, up from £3,816 million, whilst ancillaries saw the biggest rise at 51% increase to £2,950 million.

Commenting on the results, Johan Lundgren, easyJet's Chief Executive Officer, said: "Our record summer performance demonstrates the success of our strategy and that demand for easyJet remains strong as customers choose us for our network and value.

"We see a positive outlook for this year,

with airline and holidays bookings both ahead year on year – and recent consumer research highlights that around three quarters of Britons plan to spend more on their holidays versus last year, with travel continuing to be the top priority for household discretionary spending."

Notably, the airline disclosed its intent to exercise conversion rights for its current orderbook of 35 A320neo aircraft to be converted into A321neos.

This, along with its Proposed Purchase of 100 further aircraft, will deliver lower fuel burn, CO₂ emissions and operating costs per seat.

Porter Airlines rounds its Embraer E195-E2 order up to 75

Canadian regional airline Porter Airlines has announced a firm order for 25 further E195-E2 aircraft, adding to its 50 existing firm orders.

The deal brings the total to 75 firm orders, with 25 purchase rights remaining, with the deal valued at US\$2.1 billion.

The new aircraft are set to be used to extend Porter's service throughout North America. Porter has already taken delivery of 24 E195-E2s and recently announced new

destinations to Las Vegas, Miami, San Francisco and Los Angeles, with destinations to Mexico and the Caribbean planned.

Porter has chosen to configure the 146-seat aircraft in a comfortable 132-seat all-economy layout, with a variety of seat pitches on offer for their guests: 36, 34, and 30 inches.

Michael Deluce, President and CEO of Porter Airlines, said the jet was "exceeding our expectations" and that a "new era" was

entered when the carrier began operating the E195-E2 earlier this year.

Arjan Meijer, President and CEO of Embraer Commercial Aviation, added: "Porter Airlines is an exciting disruptor delivering an elevated passenger experience that's shaking up the North American market. Choosing the E2 to deliver an upgraded service is a huge endorsement of the jet's comfort and capabilities, and a further endorsement of the E2."

SMBC Aviation Capital order gives confidence boost to Airbus's A320 programme

With no orders from operators for the A320neo at the recent Dubai Airshow, lessor SMBC Aviation Capital has given the programme a much needed confidence boost with its order for 60 A320neo family aircraft.

The additional aircraft will ensure SMBC Aviation Capital has a continuous delivery stream of aircraft until the end of the

decade and into the 2030s.

"This transaction is further testament of sustained global demand for technologically advanced, fuel-efficient aircraft," said Peter Barrett, CEO of SMBC Aviation Capital, "and comes amidst the continuing strong recovery in air travel worldwide."

Christian Scherer, Chief Commercial

Officer and Head of Airbus International, expressed a similar sentiment in the renewed confidence of this programme.

"SMBC Aviation Capital's latest decision to reinvest for the long term in the A320neo family shows a great confidence and commitment to what is, and is continuing to be, the most successful aircraft programme ever," he said.



ERA General Assembly Parts of a whole

Held amongst the picturesque mountains of Innsbruck, Austria, two big topics were on the table for discussion at this year's ERA General Assembly – collaboration and sustainability.

ERA's Director General, Montserrat Barriga, said: "In a time when industry collaboration is more important than ever, this industry event continues to reinforce the association's ethos that the power of one collective voice, representing multiple businesses, to promote and protect one industry sector, is incredibly strong."

Whilst the industry at large faces a whole host of different challenges to overcome on its journey to be sustainable, from a global skill shortage to supply chain difficulties, it is often regional airlines and airports that are first in the firing line when difficulties emerge.

Whether it's facing competition from low-fare carriers, regulatory and operational challenges, or the growing spectre of airline consolidation in Europe, the feeling was clear throughout this Assembly that regional connectivity cannot become a casualty of this ever-evolving, challenging landscape.

Discussions focused on how the aviation industry should work with stakeholders to deliver sustainable and efficient air travel for consumers, and how sustainability – in all its forms – hinges on collaboration.

The importance of smaller regional aviation networks was emphasised by panellist Mary Considine, CEO of The Shannon Airport Group.

Newly appointed President of the ERA, Jesper Rungholm, also pointed out the need for politicians to be involved in this discussion, and for them to understand how crucial their involvement is so that regional

"In a time when industry collaboration is more important than ever, this industry event continues to reinforce the association's ethos that the power of one collective voice, representing multiple businesses, to promote and protect one industry sector, is incredibly strong."

**Montserrat Barriga,
Director General, ERA**

aviation can reach its ambitious goals and "chart a course towards progress".

"The overall outlook for air travel to Europe is bright," Barriga added, highlighting the ERA's responsibility to champion the needs of its members and the importance of promoting and defending the airline industry's role in providing sustainable air connectivity across Europe.

OPTIMISTIC OUTLOOKS

It was a positive time for the OEMs, who disclosed to the assembled press a host of recent acquisitions or milestones. Embraer announced Luxair as the latest airline to join the Embraer E2 family, with an order for up to nine E195-E2 jets, whilst Airbus discussed the growth of its A220 programme in 2023, and

ATR and Pratt & Whitney celebrated the Canadian certification of the engine manufacturer's PW127XT-L regional turboprop, which will power the ATR 42-600S.

Awards, notably absent from last year's event, also made a triumphant return.

Five airlines from across the continent scooped up the trophies in recognition of their hard work, performance and perseverance during what proved to be another tough year for regional airlines.

SKY express won two awards, taking home the ERA Innovation Airline Award and Airline Excellence Award, whilst Widerøe won the Sustainable Airline Award, and Air Nostrum took home the ERA Social Responsibility Award.

Ukrainian airline Air Urga won a special award for Outstanding Resilience – an award dedicated to its determination in the face of adversity.

Loganair won Airline of the Year 2023, having been praised for its impressive overall performance and meaningful environmental initiatives.

In an exclusive interview with *LARA* after the announcement, Loganair CEO Jonathan Hinkles said it was a "hugely encouraging" win for his team.

With fleet interior refreshes for its E145s, impending arrivals of new ATRs, and route consolidation, the CEO is still maintaining a positive outlook about what the coming year will bring.

"It's really all about the state of the economy and the wider state of customer travel demand," he said. "But there's a reason to be cautiously optimistic is how you'd sum it up."



MRO News

Flydubai inks plans for US\$190m MRO facility

Announced at the Dubai Airshow, flydubai is setting to work building its first purpose-built MRO facility in Dubai South.

Construction of the new hangar will start next year, and the facility will be built in 2026. This announcement reflects the airline's long-term commitment to enhancing its in-house capabilities and supporting its growing fleet.

In 2022, it received its CAR-145 Base Maintenance Approval from the General Civil

Aviation Authority (GCAA). This enabled the airline to perform C-Checks and Entry-into-Service for its Boeing 737 MAX aircraft.

Currently, the carrier has a team of 455 engineers working to ensure the airworthiness and safety of the fleet. More than 230 engineers will join flydubai's fleet in the next 12 months.

This recruitment drive will ensure the airline is well-positioned for the opening of

the MRO facility in 2026.

Ghaith Al Ghaith, Chief Executive Officer at flydubai, said: "Dubai has emerged as a thriving aviation hub that fosters connectivity, innovation, growth and setting benchmarks for the global aviation industry. The spirit of Dubai is in our DNA, and we are proud to announce today the plans for our MRO facility, which represents a new chapter in our journey."

Lufthansa Technik Philippines welcomes first Cebu Pacific A330neo

Lufthansa Technik Philippines (LTP) welcomed Cebu Pacific's first A330neo aircraft for its inaugural base maintenance. Cebu Pacific is LTP's inaugural base maintenance customer, and this visit marks the first in a series of maintenance events for the low-fare growing A330neo fleet.

LTP and Cebu Pacific have a long collaboration history, beginning back in 2011, when LTP undertook line maintenance for the carrier's narrowbody fleet. It has since expanded to include base

maintenance for its A320 and A330 fleets.

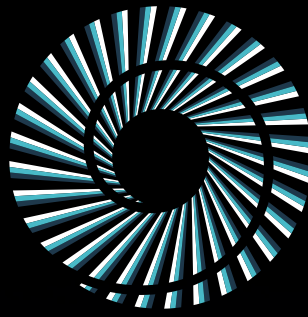
Cebu Pacific's Vice President of Engineering and Fleet Management, Shevantha Weerasekera, said: "This collaboration with Lufthansa Technik Philippines is a testament to our commitment to maintaining the highest standards of safety and quality in our operations. We are excited about the partnership and look forward to achieving new heights together."

LTP is also the first in its global

network to provide comprehensive A330neo aircraft maintenance services.

This A330neo base maintenance visit and partnership ushers in a new era of aviation maintenance services for the carrier, ensuring the ongoing safety and reliability of Cebu Pacific's fleet."





**AERO
NORWAY**
Quality Engines

Airbus commercial aircraft services market set to double by 2042



In its latest Global Services Forecast call, Airbus disclosed to assembled media its updated services outlook until 2042 where it expects its services to nearly double in value to US\$255 billion.

A shift in demand for services across the globe is expected by 2042. China is expected to become the largest services region at \$54 billion, followed by Europe, North America, and Asia Pacific.

From a CAGR rate, China will take the lead as the region with the highest services growth at \$22 billion, and a CAGR of 5.8%. South Asia and Asia Pacific will also follow, with a CAGR of 7.4% and 3.6% respectively.

Aircraft growth is also expected to continue apace, with 40,850 new deliveries estimated over the next 20 years. 95% of its fleet is expected to be next-generation aircraft by 2042.

Maintenance will remain the key focus for the aircraft manufacturer, accounting for 80% of its three-pillar plan, whilst the training and enhancement of services took up the remaining per cent.

Airbus expects the market for “Maintenance” to grow from US\$108 billion to US\$210 billion. The market to “Enhance” aircraft is expected to grow from US\$11 billion annually to US\$28 billion and the market for “Train and Operate” from US\$11 billion to US\$17 billion in 2042.

As a result, the company foresees a need for 2.2 million skilled people over the next 20 years, consisting of 680,000 new technicians, 590,000 new pilots and 920,000 new cabin crew.

“Airbus is well positioned to answer today’s and future services needs in order to support the industry doing more with less, increasing efficiency while reducing fuel consumption, emissions and noise,” says Cristina Aguilar Grieder, Senior Vice President Customer Services at Airbus.

Aero Norway is an independent engine MRO delivering globally recognised flexible, multi-release worksopes for CFM56-3/5B/7B series engines

It’s precisely why operators choose Aero Norway.



unequivocal precision
assured engine performance



laranews.net

aeronorway.no

Sustainability News

Green machine: ZeroAvia's engines to power Ecojet's fleet

Hydrogen-electric technology company ZeroAvia has signed an agreement with newly launched green airline Ecojet for 70 of its ZA600 hydrogen-electric engines, alongside a larger order for 80 of the ZA2000 engines.

Ecojet, unveiled by entrepreneur Dale Vince in July 2023, is the world's first "green airline". It plans to enter service using conventional propulsion regional aircraft in 2024, flying routes to and from Edinburgh.

Ecojet anticipates it will enter the market with green aircraft in 2025 with ZeroAvia's engine technology retrofitted on its existing fleet, subject to certification. This, if successful, will make it the world's first electric airline.

The powertrains have been financed via MONTE, a green finance and leasing provider, which ZeroAvia signed an agreement with for 100 engines back in June 2023. They will provide finance for

purchase, installation and operation of the engines for Ecojet. It will also make the green airline its first confirmed customer.

"The technology is here now. Carbon free, guilt free flying is just around the corner," said Ecojet's founder, Dale Vince. "We don't have to give up flying to live a green lifestyle or to get to net zero as a country – and this is big news."

It's worth noting that while ZeroAvia is on track to certification for its ZA600 powertrain, it still has over a year left to test and refine the final product. It recently completed a programme of 10 test flights of a prototype of this powertrain using a Dornier 228 aircraft at its base in Kemble, Gloucestershire.

ZeroAvia's CEO, Val Miftakhov, said: "Clean aviation will mean increased regional air travel and new routes, Ecojet can capitalise based on their clear focus on low-emission travel."



Air Nostrum places retrofit hydrogen order with Dovetail Electric Aviation



Spanish regional airline Air Nostrum has signed with Spanish/Australian electric aircraft conversion developer Dovetail Electric Aviation to purchase 10 battery and hybrid-electric retrofit "drive trains".

As part of the agreement, Air Nostrum and Dovetail will work together to identify applicable regional routes where the introduction of electric aircraft would be viable.

This partnership demonstrates the growing need for zero-emission conversions in the regional sector and builds on Air Nostrum's earlier commitment as a strategic investor in the company.

As an electric aviation company, Dovetail is working on converting combustion engine aircraft to electric and enabling aircraft operators to fly regional routes using zero-emission, electric-powered aircraft.

Dovetail is targeting certification of its first battery-electric powered aircraft in late 2025 to early 2026. The company will then focus on certifying electric-hydrogen conversions. The purpose of the latter conversions will be done to help extend the range of battery-powered aircraft.

Dovetail has a growing number of regional airline investors, including Spanish carrier Volotea, and Australian carrier Rex.



Complimentary subscription

Apply now for the latest insight from the media portfolio
dedicated to the business of low-fare and regional airlines



Visit our website to subscribe to our magazine and e-Newsletter:

www.laranews.net

Worth the Kuwait

Kuwaiti low-fare carrier Jazeera Airways is holding its own amongst legacy and low-fare carriers in the region, while nurturing ambitious plans for the future. Lucy Powell reports.

With outbound tourism expenditure on the rise again and inclement weather for six months of the year, Kuwait's low-fare carrier Jazeera Airways is well-placed to cater to the demand of a travel hungry population.

Established in 2004, Jazeera Airways is the first private airline in the Middle East. It's

also a forward-thinking airline that has built up a strong, resilient profile throughout its years operating in the Persian Gulf region amidst a tough regulatory, geo-political and regional landscape – an image that its CEO, Rohit Ramachandran, is certainly keen to emphasise.

Amongst a spate of recognisable carriers,

like Emirates, Etihad, Air Arabia, or state-owned flydubai, Ramachandran envisions Jazeera Airways as a company that can hold its own against airlines owned by deep-pocketed governments.

“As a listed company that doesn't have a rich daddy and that needs to stand on its own feet, we compete quite well with these other carriers,” he says.

Its recent nine-month review saw a mixed return for the airline. Whilst it closed out the period with an improved number of passengers and load factors, the former up 28.1% year-on-year (YoY), and saw a 12.85 % increase in revenue YoY, it also saw a net profit loss of 48% from 3Q 2022.

Still, this is not something that has phased its CEO, whose outlook remains positive. It still closed the first half of its year strongly, something which he credits to “fantastic work by our team, the dynamic of our network and the very rich potential of our home market, which is great.”

Jazeera Airways has announced the expansion and upgrading of Kuwait International Airport's Terminal Five.





Watch Interview

“As a listed company that doesn’t have a rich daddy and that needs to stand on its own feet, we compete quite well with these other carriers.”

Rohit Ramachandran,
CEO, Jazeera Airways

Reflecting this rich potential, the airline enjoys a 35.78% market share in the region, 17% higher than the same period in 2022.

MAKING THE WEATHER

Jazeera Airways is not afraid to be the change bringer in the region either.

The launch airline for the A320neo in 2018, the airline currently has an Airbus order for 28 aircraft which was signed back in 2021 for eight A321neos and 20 A320neos – effectively doubling its fleet.

“I think we’re quite disciplined and focused in maintaining a single aircraft type,” Ramachandran says.

At present, the airline has 22 aircraft in its fleet, which is a mixture of A320-200s and A320neos – with the latter making up the

majority. Two aircraft were added to its fleet last quarter.

Two A321ceos will join the fleet in December and January, and Ramachandran confirms that the airline is still considering A321neos – taken from its MoU for eight options – but has no interest in the LR or the XLR going forwards, despite some discussion of upgrading to the former back in 2019.

The newly arriving A321s will, according to Ramachandran, give the airline a significant competitive advantage – both in terms of seats per kilometre, but also when considering its usage on high density routes like Jeddah or those in the subcontinent.

Additional lift has already been processed through lessors to address potential delays from Airbus’s backlog.

When asked whether he expects the 2026 date from Airbus to hold, Ramachandran is pragmatic.

“It’s always prudent to assume that there will be some slipping of delivery dates. So while we are supposed to have the deliveries commence in the first quarter of 2026, I fully expect that to slip by at least a couple of quarters.”

He adds: “We have a great relationship with the top six or seven lessors in the world and they’ve been a huge support.”

While PW1100G GTF engine troubles loom for other A320neo operators, Jazeera Airways has the CFM56 engine powering its fleet of A320 family aircraft.

“We’re fortunate not to be plagued with many of the problems that are faced by our peers,” Ramachandran says.

“Although the LEAP is not without its share of problems, we have received excellent support from CFM and are fortunate to have a comprehensive maintenance agreement with them.”

NORMALISED DEMAND

As passenger traffic has lifted for all airlines in the industry, Jazeera Airways has been enjoying a more normalised return to demand after it **»»»**



aggressively drove load factors – resulting in a notable increase from five or even six years ago, when average load factors were in the low seventies.

“We are actually aiming towards having it year-round in the high eighties at the very least, in line with low-cost airlines or good low-cost airlines around the world,” says Ramachandran.

Together with growing passenger loads, a number of new routes have opened this year, including Tirana in Albania, Tehran in Iran, and to the Sphinx International Airport in Egypt, the country’s second airport.

But what makes passengers choose Jazeera over its competitors?

“With our ability to drive fares lower and still make a profit, it’s essentially a choice for passengers between having a meal in a fancy restaurant in Kuwait versus a weekend away in Antalya in Turkey,” Ramachandran says.

“We are not necessarily always competing with another airline. We know we are competing with another lifestyle choice or options to spend one’s money. And if you see the region, there are a number of large government owned state-owned full-service carriers that operate.”

“As long as you don’t need a flat bed on a long intercontinental service, Jazeera is the preferred choice out of Kuwait.”

Jazeera Airways currently flies to over 50 international destinations, operating a variety of route lengths from short-haul flights up to long-haul destinations of over five hours plus.

At least 15 new routes are expected to be launched during the course of 2024. Three main cities in Iraq – Baghdad, Basra and Erbil – are on the list, as is further expansion into Saudi Arabia, a land that has proven rich with opportunity for the carrier.

Jazeera Airways flies direct to eight cities in Saudi Arabia and, according to the CEO, expects at least another four destinations to be added to its list soon.

“There’s a lot of economic activity happening in Saudi Arabia, as you’re no doubt aware,” he says. “Our expansion, particularly to the smaller cities in Saudi Arabia, has been phenomenal.”

However, global events can have an effect on routes. Whilst Egypt is a major destination for the airline, its border with Israel and Gaza and the unfolding geopolitical conflict is something that the

CEO is keeping a close eye on.

“At the moment, our operations to Egypt and its surrounding areas [Lebanon and Jordan] remain unaffected.

“We are however, continually monitoring the situation and operating with the highest levels of safety and security in the interest of our passengers as well as our employees across the region,” he says.

Moreover, opening new routes and keeping others stable is not without the challenge of getting the pilots to fly on them – something Ramachandran is all too aware of.

The carrier is in talks to set up a full training academy for pilots and cabin crew, mainly to “ensure a pipeline of trained talent for Jazeera,” he confirms, but also to ensure that its route expansion remains a profit-making venture.

NEW TERMINAL

Supporting the ever-growing list of destinations, is Kuwait International Airport which feeds all of this outgoing and incoming traffic.

Jazeera Airways is unique in that it is one of the few airlines in the world to own its own terminal at the airport: Terminal Five.

This allows the airline to not only control and improve the passenger experience but monetise the business – from lounges to duty-free to parking – end to end.

This is a huge boon for the low-fare carrier, for which ancillary revenues help to bolster the bottom line. Its duty-free

“As long as you don’t need a flat bed on a long intercontinental service, Jazeera is the preferred choice out of Kuwait.”

As well as continuing to grow its passenger loads, Jazeera Airways has opened a number of new routes this year.



“We have a great relationship with the top six or seven lessors in the world and they’ve been a huge support.”

revenue has seen another yearly increase of 22% at KD4.02 million.

As a result of its success, a new greenfield terminal project – Terminal Six – is now in the works and going through “various stages of government approval”, according to Ramachandran.

The first half year’s statistics showed an operating revenue for Terminal Five of KWD5.81 million, 25% higher than last year and this is only set to grow.

The aim for Terminal Five’s expansion and eventually the new Terminal Six, Ramachandran notes, will be to boost passenger numbers.

An increased capacity of six million passengers is anticipated for Terminal Five, whilst Terminal Six, once built, will have the capacity to handle 10 million passengers annually.

Terminal Five accounts for around 30-35% of total group profit, a percentage that its CEO is keen to increase.

“It’s not insignificant and really is a competitive advantage for Jazeera moving forward to next year,” says Ramachandran.

CHICKEN AND EGG

When questioned about its sustainability goals, Jazeera Airways, along with airlines across the globe, is committed to meeting its 2050 net zero target.

However, Ramachandran is keen to demonstrate that the Kuwaiti airline’s sustainability measures are being taken seriously, leading the way in the Middle East.

As mentioned, the airline was the launch customer for the A320neo in the Middle East



Jazeera Airways was the launch customer for the Airbus A320neo back in 2018 and has 20 more of the type on order.

back in 2018 – an aircraft that demonstrates an 18% fuel burn improvement – and the building of its new Terminal Six is going to be a green terminal.

It also has eight different types of fuel-saving initiatives during flight operations, and in 2021 partnered with climate and technology company CHOOOSE.

This new service, which has been integrated into Jazeera Airways’ booking process, allows its customers to choose to offset their journey.

However, the topic of the day for the CEO when it comes to sustainability still very much revolves around sustainable aviation fuel (SAF).

“We’ve been keeping a close watch on SAF,” Ramachandran says. “It being a chicken and egg situation where you’re not able to drive down the unit cost of SAF to a point where it’s compatible with traditional aviation fuel.

“Q8 [a Kuwait SAF petroleum company] was one of the pioneers as far as SAF was concerned, predominantly in Europe, but that’s less than 50% [of our operations] and it’s not just Kuwait that needs to look into it.”

The support of governments will be crucial to help airlines like Jazeera Airways drive up the volume of SAF when it becomes available. But until such time, the circular impasse created by the price and volume of this fuel cannot be broken until a solution is found.

Turning to the cabin, last quarter Jazeera Airways became the first low-fare carrier in the Middle East to switch from plastic to eco-friendly food service ware in-flight, reducing 300kg of its plastic waste on flights every month.

It is also working on efficient interior upgrades to help reduce cost and improve fuel savings.

As the launch customer for Expleseat’s Ti T2 seat, announced at AIX in June 2023, Ramachandran explains that there were three main reasons why it was chosen: reducing aircraft weight, adding an additional row of passenger seats, and reducing jet fuel consumption.

“It helps increase revenue through additional seats on the airplane” he says. “And, increasingly importantly, it is good for the environment with a measurable impact on emissions.”

With a weight saving of 1.2kg per aircraft, these lightweight seats are a major investment for the low-fare airline that wants to keep its cabin simple, and economical.

The airline expects to receive over 2,000 seats by 2024 for its nine A320s, which includes an A320neo and A321.

In short, the Kuwaiti airline certainly has its hands full over the course of 2024, and is confident that with consistent travel demand, its rise can continue. ■



All the angles

Flight planning is becoming ever more complex, with a multitude of factors to take into account. Photo: Airbus

With world events increasingly impacting on airline flight planning, Emma Kelly looks at some of the options available to ensure airlines operate safe, efficient and direct air routes.

With conflicts ongoing in various parts of the world, coupled with military exercises, volcanoes erupting, falling space debris and other disruptions necessitating airspace restrictions and closures, flight planning is becoming increasingly complex, with a multitude of factors to consider and the need to be prepared for all eventualities.

For more than a year, airlines have been dealing with Ukraine-Belarus-Russia airspace closures as a result of the Ukraine conflict, pushing traffic flow south and west, and more recently the Middle East has become an increasingly complicated landscape due to the latest conflict.

With growing complexity and ongoing uncertainty around the future, airlines are turning to automation and digital tools to make flight planning more manageable and ensure they can fly the safest routes, meet all regulatory requirements and also operate as efficiently as possible.

Osprey Flight Solutions works closely with airlines to help them understand risk and enable safe and efficient flights.

The company supports a large number of airlines, ranging from single aircraft

operators through to the two largest airlines in the world, and everything in between. Low-fare carrier customers include Ryanair, Wizz Air and easyJet.

“There is an increasing desire for operators to have clear understanding of their risk profile and bring this into their operational picture,” says Chief Executive Officer, Andrew Nicholson.

“Understanding risk is important in the planning stages of flights, but also with ongoing monitoring to understand any changes and how events impact their operation.”

Osprey provides aviation risk management solutions, combining advanced intelligence and real-time data, allowing airlines to make informed decisions and enhance operational safety.

The company’s Sentinel, for example, is an automated tool that collects conflict overflight notices from major aviation regulators, including the United States, United Kingdom, Canada, France, Germany and the United Arab Emirates.

“The tool automatically ingests an airline’s planned flights via flight planning tools or AFTN/AMHS, as well as data feeds

direct from the Federal Aviation Administration and Eurocontrol, and immediately notifies if any planned flights breach prohibitions the operator must comply with, and highlights any advisories that should be considered,” Nicholson says.

PREDICTIVE ANALYSIS

Osprey also operates EASA’s Conflict Zone (CZ) Hub, which is available to all European states and operators and provides comprehensive and dynamic reporting on the threats that operators face when flying over or near conflict zones anywhere in the world.

The EASA/Osprey platform provides threat identification and monitoring, associated alerting capabilities, access to regulatory and advisory documents, and information relating to conflict zones.

All EU operators and member states have access to the CZ Hub.

“This product has been hugely popular and will likely continue to be developed within the scope of EASA’s remit,” says Nicholson.

Being forewarned is forearmed and Osprey’s predictive analysis and disruption forecasts also inform airlines on where the potential for risk is becoming increasingly likely, supporting improved planning and mitigation, reducing the impact of a disruptive event when it occurs.





NAVBLUE's N-Flight Planning system can be fine-tuned to fit with airlines' requirements.

Photo: NAVBLUE

“Having planned back-up routes can prevent costly last-minute diversions and ‘flights to nowhere,’” adds Nicholson.

In the case of the current Gaza conflict, for example, Osprey has been gathering data on the region for many years and used its artificial intelligence tools and expert human analysis to monitor the escalation of the crisis.

Osprey collects over 200,000 sources of data every 15 minutes and uses machine learning to structure it, with deep learning artificial intelligence tools and human analysis verifying it.

As a result, according to Matthew Borie, Osprey's Chief Intelligence Officer, Osprey was warning about the likelihood of rocket fire and drones in southern Israel 12 days ahead of events.

It's not just about avoiding risk, with Osprey's solutions also contributing to flight efficiency.

“Osprey is critical in selecting the most efficient route within an airline's risk threshold,” says Nicholson.

“Understanding risk is as much about where it isn't as where it exists. Osprey provides an extremely high-resolution picture of risk, defining airspace risk only where it exists, and not restricting to whole flight information regions or country borders.

“This allows operators to plan accordingly and not avoid airspace unnecessarily. This

shortens flight time, saves on fuel costs and can dramatically reduce the carbon footprint of the operator.”

FINE TUNING

NAVBLUE's N-Flight Planning (N-FP) is a fully scalable and highly configurable system that can be fine-tuned to meet any airline-specific flight planning requirements, including efficiency benefits, says Arnaud Voermans, NAVBLUE Vice President Customer Fulfilment.

“N-FP is a flight planning system designed to swiftly compute highly optimised flight trajectories, factoring in payload, aircraft performance, current weather and air traffic constraints, with the ability to optimise for minimum flight time, fuel burn or total cost,” Voermans explains.

Automation is crucial when it comes to flight planning today, says NAVBLUE, which has more than 150 customers worldwide using N-FP, including LFCs and regional operators, with more than 10,000 flight plans produced daily, which are computed in 5.03 seconds on average.

Automation is heavily ingrained in N-FP, says Voermans.

“Critical, of course, is the proper configuration and use of automation. On top of this, the flexibility afforded by the N-FP API allows satellite OCC solutions to integrate, ingest and digest data more efficiently

between critical OCC solutions and other third-party or in-house digital software.”

Furthermore, N-FP supports both scheduled and event-driven automation, including re-computation of the flight plan in the case of changes in crew, aircraft or departure time.

N-FP offers numerous features that other solutions don't, according to Voermans. N-FP is a browser-based, full SaaS service solution with a wide range of features and functionalities due to the breadth of its customer base.

The solution computes highly optimised flight plans to minimise flight time, fuel burn or cost, at the same time as being safe and regulatory compliant. N-FP is manage-by-exception (MbE) with configurable automation and alerting.

“Airline dispatchers and flight planners can streamline their day-to-day workflows using N-FP features and functions and thereby focus on the value-add areas, while depending on the system to handle the rest,” says Voermans.

The system can also be integrated with a wide range of third-party and in-house software to seamlessly transfer or ingest data, while round-the-clock customer support is available, including a dedicated NOTAM team.

“NAVBLUE is one of only a handful of major navigation data aggregators in the world”



today and thus includes navigation data with the system,” says Voermans, adding that its ownership by Airbus also contributes to it being one of the most complete flight operations solutions providers.

HUMAN TOUCH

Flightworx Aviation, meanwhile, is offering a cost-effective and efficient alternative option to the more traditional operational set-ups for an airline, which often are accompanied by heavy overheads and manpower costs, says Director Christian Anderson-Jones.

The company provides a full suite of flight planning options, configurable depending on what an airline wants and needs. It can, for example, “supercharge a new start-up carrier to allow them to start performing from the word go and on a 24/7 basis using a skilled workforce”, says Anderson-Jones.

“We offer a full solution using any preferred software options in the market or where we can advise we can suggest better or cheaper solutions to fit the client’s actual need or we can provide a part service to ‘gap’ fill any need, be that personnel cover through to making the set-up more efficient in cost and time,” he explains.

Flightworx currently works with 12 airlines of various sizes and forms, including LFCs, start-ups and cargo carriers, delivering hundreds of sectors daily.

The company’s solutions are particularly appealing to LFCs due to the cost-saving measures and efficiencies Flightworx can deliver, says Anderson-Jones.

Flightworx solutions have the “ability to morph to an actual client’s procedures and standard operating practices to become fully absorbed into their infrastructure”, he says.

Further development of flight planning solutions is under way.

“We are always looking at technology and a blend of human oversight, as there is nothing better than a human at the end of a phone,” says Anderson-Jones.

He adds that Flightworx is currently developing its crew logistics solution so that

“Airline dispatchers and flight planners can streamline their workflows using N-FP features and functions and thereby focus on the value-add areas.”

**Arnaud Voermans, Vice President
Customer Fulfilment, NAVBLUE**

the user can manage their own booking.

“All of our solutions we try to have talk to each other, making a seamless offering where the airline can see what we are doing and is instantly comfortable, but above all holds on to that all important ‘operational control’ status,” he says.

Flightworx is trying to take away the pain involved in time-consuming areas for flight departments, including crewing, rostering and crew logistics services, in a combined offering.

“We are a fixed cost per month, easy to budget for, bolt on or use in its entirety [solution],” he says.

SOLUTIONS TARGETING

As the industry is moving towards harmonised and cloud-native, service-based digital platforms, NAVBLUE is following this approach.

“We are taking a portfolio-based approach to our system, whereas multiple systems can benefit from shared components, which reduces our footprint and speeds up our timelines from design to deployment,” says Voermans.

In addition, the company is working on projects that will make operational decisions easier, based on improved predictability – “to make proactive decisions rather than reactive ones”, he adds.

NAVBLUE’s hardware has also undergone an upgrade, with the hosting platform redesigned from traditional server-based hosting to cloud-based.

“We are now taking that a step further and are improving our cloud hosting by adding cloud services and scalable resources based on an on-demand model,” says Voermans.

These developments are in direct response to airline requirements.

“Airlines are asking for management-by-exception [MbE] solutions targeting, reducing the burden of process-oriented tasks and empowering flight dispatchers by increasing levels of automation to focus on critical operational disruptions,” says Voermans.

Its response is a new state-of-the-art and user-centric harmonised digital platform, which Voermans says “is challenging the current legacy way of thinking with regards to flight operations enterprise architectures”.

NAVBLUE’s first solution of the MbE HUB is an alerting solution promoting “seamless contextual collaboration, with user centricity at the top where flight dispatchers and other airline operations departments can collaborate, with full historical context for each flight”.

Further developments will follow, says Voermans.

For Osprey, meanwhile, innovation is at the heart of everything it does, says Nicholson.

“We will continue to provide solutions to the industry’s challenges and integrate with other technologies that make sense.

“Currently, Osprey is developing a first-to-market capability to ensure the ‘gold standard’ Security Risk Management process.

“Osprey is working with a number of the world’s largest airlines through an early access group to define and fine tune this product that will be launched in 2024.”

With uncertainty in many parts of the world, airline flight planning departments need flexibility and the latest digital tools to help ensure that flights reach their destinations in the safest and most efficient way possible. ■

Finance and Leasing Special

737-800

1515*

A320-200

1508*

A320-200N

695*

737-700

475*

A319-100

217*

737 MAX 8

437*

A321-200NX

366*

A321-200

329*

Most popular active aircraft models with low-fare carriers
Source: IBA Insight

*Number of Active Aircraft.



AJW®

Upcoming engine shop visit?

We save you money
with optimised inventory
management

AJW Group is the world-leading, independent, parts, repair, lease, engine, flight hour programme and supply chain solution integrator, transforming efficiency in commercial, business and defence aviation.

With hubs and offices on every continent - including AJW Technique, a state-of-the-art component MRO facility in Montreal - nose to tail, we have you covered.

ajw-group.com

Bouncing back

As we enter 2024 with continued economic and geopolitical uncertainty, what does all of this mean for the aircraft leasing sector? Gordon Smith hears from some of the industry's key players to help set the scene for what promises to be a fascinating year ahead.



Yes, it's that time again. As many of us look forward to hanging up the Christmas stocking, it's also a valuable opportunity to take stock – both of the year that's been and the 12 months that are to come.

Aircraft leasing has been one of the most dynamic corners of the market in recent years, with most major firms successfully riding out the Covid storm and associated post-pandemic turbulence.

While global skies remain unsettled, there are plenty of bright spots according to John Evans, the CEO and founder of Florida-based lessor Azorra.

"For regional and crossover aircraft, the strongest demand is currently in Europe," he says. "Part of this is because the pandemic showed passengers the value of having more choice and frequency of flights.

"Today, a higher number of people work remotely, and some have changed their lifestyle completely. Regional aircraft can more efficiently cater to these new travel patterns in a way that larger jets cannot."

Evans highlights Asia as an area to watch, as countries across the region invest in new airport infrastructure – which is in turn serving to accelerate demand for

smaller passenger jets.

This perspective is echoed by Angus von Schoenberg, Industry Officer at TrueNoord, who confirms that the continent has bounced back from its recent lows.

"Asia has fully recovered from the pandemic and usage is back at 2019 levels, with turboprops marginally ahead of regional jets. We're also seeing strong growth in the Middle East and Africa, which is currently ahead of, or at 2020 levels, for regional aircraft leasing."

Shane Matthews, Head of Strategic Market Analysis at SMBC Aviation Capital, adds that pent-up demand in and around Asia has played a role in recent developments.

"The fastest traffic growth in percentage terms is being seen in Asia-Pacific as Covid-linked restrictions were slower to be removed and growth is therefore from a lower base. However, we have also seen very strong demand from EMEA where some low-fare carriers have been quick to build out their operations into new markets as airports, regions, and government have worked proactively with them to drive traffic recovery."

Meanwhile, Mark Hughes, CCO at Falko Regional Aircraft, reports good demand

"Regional aircraft can more efficiently cater to these new travel patterns in a way that larger jets cannot."

John Evans, CEO and founder, Azorra

across all major markets.

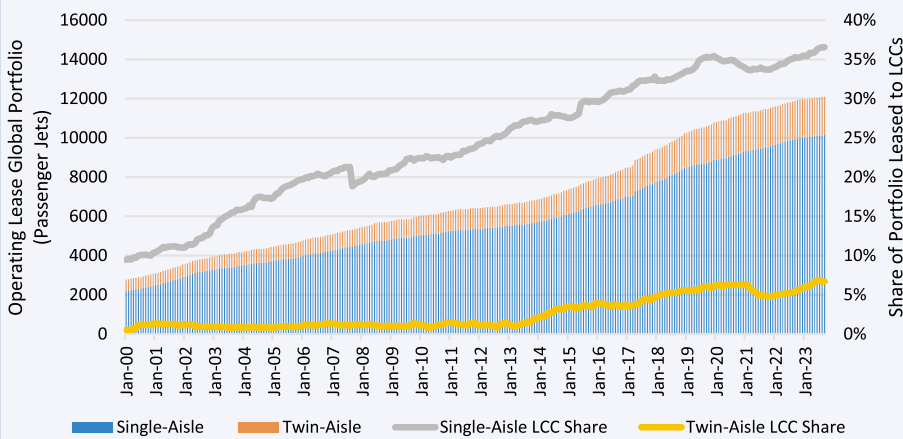
"Africa has been particularly strong for us with a significant number of aircraft placed on lease there and we've also seen airlines in Europe and the Americas extending leases with some adding additional capacity. Asia has been lagging behind a little until recently but we're now seeing a pick-up in demand for both lease extensions and placements."

TALKING TRENDS

With the current leasing hotspots established, what do our industry heavyweights make of the prospects for 2024?

TrueNoord's von Schoenberg tells *LARA* that industry-wide capacity restraints could hold back near-term growth opportunities. >>>



Chart 1: Trend Summary 261023 Lessor Portfolio with LCC Share

Source: The Cirium Core, data filed 26 October 2023

According to Cirium, the aviation analytics company, this data (see Chart 1) sets out the global passenger portfolio managed by operating lessors, and the following share of their portfolios which are leased to airlines classed as low-cost carriers (“LCCs”).

According to Cirium data, this share has risen from 10% of single-aisle portfolio in 2000, to more than one-third in 2023.

“Strong demand is currently hindered by supply chain issues and a lack of pilots,” he says.

“A particular problem is the amount of time that shop visits are taking with aircraft remaining on the ground for longer. If they are parked for too long, the work simply becomes uneconomical to perform.

“We also see the sale and leaseback business increasing in 2024 as deliveries of new orders impact the global fleet. Operators with mid-life aircraft will want to

reduce their residual value exposure, and leasing can present the ideal solution for current generation aeroplanes.”

Hughes broadly agrees, noting that the supply chain is impacting “everything from new aircraft deliveries to returning older aircraft to service”. He describes the problem as “a constraint on airline capacity that will definitely continue into 2024”.

Although the Falko CCO predicts some softening in the economic climate, he strikes an optimistic note in suggesting that air travel overall is looking relatively resilient.

Matthews from SMBC also notes that within the low-fare sector, a shift towards

upscale options is also worth watching.

“There have been some moves by LCCs to introduce more premium services and products and we think this will continue in 2024, as consumers seem willing to pay for more space, baggage or convenience,” he says.

“While LCCs may also look to increase their operations at the primary airports, this may be restricted by the fact that the full-service carriers are building up their long-haul operations and slots may become more scarce.”

EMBRAER INSIGHTS

Firmly established as a mainstay of the regional scene, Embraer’s E-Jet Family continues to prove hugely popular.

Despite the arrival of the more modern E2, its older sibling remains a top choice for many global operators, says Evans.

“We’re seeing demand for E1 jets from across multiple markets, including flag carriers such as SAS.

“We believe the aircraft has proven itself to be very reliable, having experienced the same teething issues as most new-generation aircraft.

“Crossover types such as the E1 are an attractive option for regional airlines as they typically offer lower cost-per-trip than narrowbody jets, for a similar cost-per-seat. However, from a leasing perspective, the crossover market is currently much less competitive than that for narrowbody jets.”

The E1’s popularity is likely to continue, says von Schoenberg.

“The E1 is not an old aircraft – it uses 21st



“Operators with mid-life aircraft will want to reduce their residual value exposure, and leasing can present the ideal solution for current generation aeroplanes.”

Angus von Schoenberg, Industry Officer, TrueNoord





“The fastest traffic growth in percentage terms is being seen in Asia-Pacific as Covid-linked restrictions were slower to be removed and growth is therefore from a lower base.”

Shane Matthews, Head of Strategic Market Analysis, SMBC Aviation Capital

century technology and fulfils its role admirably. It’s a reliable model with flexible seat capacity, and although there is some availability it is tightening due to demand.”

The TrueNoord Industry Officer believes two key factors will contribute to ongoing interest in the E1 as we enter 2024: delayed Airbus A220 and Embraer E2 production, and A320 shop visits for GTF engine repairs.

“These will drag the E190 and E195s further into the limelight for operators seeking to maintain capacity,” he says.

While much has been said about lacklustre interest in the Brazilian OEM’s flagship passenger jet, in 2023 it felt as though the E2 finally made substantial progress.

In June, Falko accepted its fifth E195-E2, representing the final delivery in a five-aircraft sale and leaseback transaction with Porter Airlines.

The Canadian regional was the North American launch customer for the type, while the Porter deal heralded Falko’s first foray into the E2 market.

E2 EVOLUTION

Azorra too has been busy with the E2 in Canada, striking a major deal with Porter.

“When the E2 was first developed, the aircraft was before its time and struggled to gain a foothold in the market, partly because there wasn’t enough drive to replace current generation E1s,” says Evans.

“Most airlines between 2015 and 2019 were looking to upsize their fleets to include bigger aircraft, placing downward pressure on the value of E-Jets.”

The Azorra founder and CEO believes that recent global events have ultimately helped bolster interest in the E2.

He highlights that there are currently more than 70 operators globally that have E1 jets in their fleets, but eventually these will need to be replaced.

While the A220 is often a viable alternative, there is a well-documented backlog of orders at the European OEM.

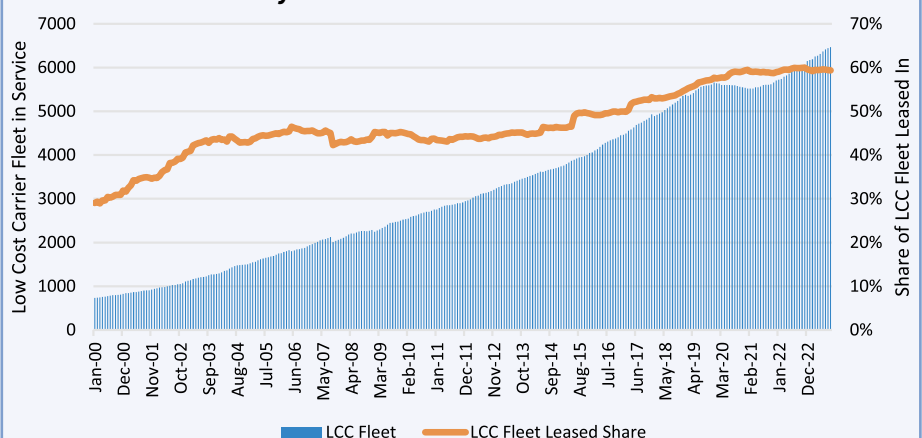
The earliest official slots for new deliveries of the A220 are currently in 2027. By contrast, Embraer has more diary flexibility for additional units from smaller regional players.

Von Schoenberg from TrueNoord describes the E2 as having had “some significant order success” to the point where it is “beginning to catch up with the A220”.

Alongside Azorra, the lessor has also played a key role in facilitating Porter’s E2 fleet, with the Toronto-based airline representing TrueNoord’s first Canadian lessee. Despite a lengthy backlog putting the A220 out of immediate reach for some lessors and lessees, 2023 saw sustained interest in the type.

Given his firm’s existing exposure to both the -100 and -300 variants of the crossover jet, LARA asked if Evans welcomes the launch

Chart 2: Trend Summary 261023 LCC Leased Share



Source: The Cirium Core, data filed 26 October 2023

This chart shows the evolution of LCC fleet in service globally, and explains the share of those aircraft leased from operating lessors.

According to Cirium data and analysis, although the share of fleet leased has always been high because LCCs sought to retain fleet flexibility, it has grown through the last part of the cycle. In 2023, it is around 60%.



of a possible -500 “stretched” version in 2024?

“The A220 is a great aircraft and the newest technology aircraft in service today,” he says. “We believe it has room to continue developing, although Airbus may be reluctant because it crosses into their A320 markets and has already replaced the A319, but the -500 variant would be a terrific market for that aircraft.”

The latest Airbus model is also on the radar of TrueNoord.

“We want diversity across our fleet,” says von Schoenberg. “Some of the A220 crossover jets currently flying are reaching three to five years old now – likely the right vintage for TrueNoord. We keenly anticipate adding such aircraft to our fleet over time.”

THE OLD FAITHFUL

With so much industry chatter focussed on the latest models from Airbus, Boeing, and to a lesser extent Embraer, what might 2024 hold for the turboprop scene?

For Mark Hughes from Falko, predictions of the sub-sector’s demise are largely unfounded.

“There’s been a misconception that the turboprop market went away in some form, but demand has always been strong and it will continue,” he says.

“Part of this has been the incorrect association that the number of aircraft in storage reflects demand for the type, which is wrong.



“Most databases show upwards of 200 ATRs in storage, but the reality in the market is that there are almost no serviceable aircraft available today if you’re an airline that is looking. There’s a story behind every single one.”

The Falko CCO highlights MRO constraints as being an important factor in turnaround times for turboprops re-entering the market.

“There are a number of aircraft where the time needed to return the aircraft to service is very protracted, as unserviceable components have to go through overhaul with almost no spares available.

“We manage a number of aircraft where there is demand but we can’t get them into delivery condition in the time frame needed for the operator. They are in storage but not available and we’re working to get them back to service.

“Add in the fact that there’s a very small number of ATRs on order and it will be tough to even maintain supply to meet current levels of turboprop demand as the fleet ages.”

Meanwhile, von Schoenberg reports that although turboprops serve a valuable role within many markets, as a type they are lagging behind the European industry average.

“The rest of the world is fast approaching recovery,” he says. “However, turboprops remain around 20% down in Europe – mainly due to a number of carriers no longer operating the Dash 8-400 including airBaltic and LOT Polish Airlines. The demise of Flybe, previously the world’s largest operator of the type, has also been a factor.”

According to TrueNoord, the ATR 72 is the turboprop with the highest demand globally

thanks to its low operating costs.

However, as Evans explains, the market isn’t for everyone – even among lessors who currently hold the types.

“Turboprops aren’t currently of interest to Azorra, and while we do own turboprop aircraft, we don’t plan to grow our fleet any further and may even look to sell those we do own.”

MORE SUSTAINABLE

After losing some momentum during the peak of the pandemic, sustainability has returned as one of the hottest topics in the industry, and it looks likely that this drive for change will only intensify as we enter 2024.

Orla Benson, SVP of ESG at SMBC Aviation Capital, confirms that sustainability is becoming a higher priority for the company’s customers, particularly those based in Europe and the United States, and that this demand would continue into 2024.

“This has been evident in RFPs from airlines where there is a sustainability element in the request,” she says.

“It could range from a request for sustainability credentials to requirements on how we can provide an innovative solution to assist an airline with its decarbonisation objectives.

“It is very positive to see these types of developments and we hope in time to be in a greater position to offer a basket of sustainability solutions to airlines and to tie these into our leasing products.”

However, as Mark Hughes from Falko explains, there aren’t many straightforward, quick fixes.

“At this stage there are very limited

“There’s been a misconception that the turboprop market went away in some form, but demand has always been strong and it will continue.”

Mark Hughes, CCO, Falko





“It is very positive to see these types of developments and we hope in time to be in a greater position to offer a basket of sustainability solutions to airlines and to tie these into our leasing products.”

Orla Benson, SVP of ESG, SMBC Aviation Capital

options outside of aircraft powered by jet fuel and we’re unlikely to see major shifts in demand until it’s clear what the long-term replacement options will be. That said, we’re keeping a close eye on developments so we can understand how to help that transition when the industry is able to successfully and safely introduce these new technologies.”

Von Schoenberg is similarly pragmatic, emphasising the need for technology to catch up with the needs of the industry.

“It’s too early to say that demand is changing because new technology aircraft do not exist yet,” he says. “They are not flying and they are not certified. Wealthy countries like Norway may pay a premium for these options as soon as they are viable,

but we are still a long way off.

“With current engines, not much more can be achieved, but in the meantime there are incremental things that can be done to improve operational efficiency – such as better flight path management to shorten journeys and weight reduction of aircraft overall.” ■

We're in the Market for Aircraft

Purchase or SLB Options Available

✈️ A320ceo / ✈️ 737NG

Explore Exciting Opportunities With Us

Contact us at:

www.elfc.com/contact-us



Going Further Together





In demand: the market for narrowbody aircraft such as the A320neo is currently robust.

Ups and downs

Aircraft residual values are key to the financing of fleets. Bernie Baldwin reports on the current values and where they are set to go in 2024.

Fleet changes are a regular occurrence for airlines, sometimes simply refreshing with newer aircraft of the same type and at other times switching to types with better specifications.

When doing so, the aircraft owner will want to get the most out of its residual value – a trade-in price if the airline owns it, or the best lease rates if a lessor owns it and wants to re-lease to a different operator.

Residual values (RVs) hinge on many parameters. Jason Zilberbrand, President and CTO of VREF Inc., outlines “the factors that can influence those values” as follows:

- **Age of the aircraft:** “Newer aircraft generally have higher RVs due to longer remaining operational life and often better fuel efficiency and technological features.”
- **Fuel efficiency:** “Aircraft that consume less fuel or those that can operate using alternative fuels might have better RVs.”
- **Maintenance history:** “Aircraft with comprehensive, consistent and high-quality maintenance records will often have higher RVs.”
- **Economic factors:** “Economic downturns can depress demand for air travel and thus aircraft values. Conversely, booming economies can increase demand.”
- **Supply and demand:** “If there’s a surplus of a particular type of aircraft on the secondary market, its RV might decrease.”
- **Technical advancements:** “Newer technology and features can make older models less attractive, decreasing their RVs.”
- **Regulatory and environmental factors:** “Changing regulations, especially those related to environmental concerns, can affect the RVs of aircraft, particularly older models that might not meet new standards.”
- **Aircraft versatility:** “Aircraft that can be easily configured for various roles or that can operate from a wider range of airports (for example, with short take-off and landing capabilities) might retain value better.”
- **Manufacturer reputation:** “Aircraft

from manufacturers with strong reputations for quality, reliability, and customer service can have better RVs.”

- **Global and regional factors:** “Political instability, regional conflicts or health crises (like the Covid-19 pandemic) can impact the demand for certain aircraft in specific regions.”
- **Original production run and fleet size:** “Aircraft types that had a limited production run or smaller global fleet might have less demand in the secondary market, affecting RVs.”
- **Availability of parts and service:** “Aircraft that are easier and cheaper to service and maintain, with readily available parts, will generally have higher RVs.”

STRONG RECOVERY

Douglas Kelly, Senior Vice President – Asset Valuation at AVITAS, offers an insight into the current residual values for the aircraft types operated by low-fare and regional airlines.

Reviewing the figures in the AVITAS RV summary table, he says: “The market for narrowbody aircraft such as the A320ceo and neo, 737-800 and MAX 8 is currently



AVITAS RV summary

Aircraft	Engine	Vintage	Seats	Current Market Value (US\$ in millions)	Base Value (US\$ in millions)
A320neo	PW1127G	2023	150	54	54
737 MAX 8	LEAP-1B27	2023	162	53.8	53.8
A320-200	CFM56-5B4/3	2013	150	23.4	21.6
737-800	CFM56-7B26E	2013	162	27	24.5
ATR72-600	PW127M	2018	74	13	13
DHC-8-400	PW150A	2018	78	11.5	13.5
CRJ900LR	CF34-8C5	2018	88	16	17.4
E175LR	CF34-8E5	2018	78	16.6	18.4

Source: AVITAS

robust due to the strong recovery in passenger traffic from the effects of the Covid-19 pandemic.

“Domestic passenger traffic now exceeds 2019 levels, while international traffic is still about 10 per cent below pre-pandemic levels. Values are also benefitting from the inability of Airbus and Boeing to increase production significantly due to supply chain and new generation engine issues. AVITAS expects the narrowbody shortage to continue for at least a few more years.”

He continues: “The number of regional jets and turboprops in service has recovered to 75 per cent of pre-pandemic fleet levels, as of July 2023, and close to 2,800 aircraft remained parked or in storage compared with about 1,800 units in January 2020.

“North America, where pilot shortage issues in the USA are affecting regional aircraft utilisation, accounted for nearly 1,300 of the parked and stored fleet.

“Consultants Oliver Wyman predict there may be a shortage of up to 34,000 pilots by 2025 worldwide, with the largest impacts experienced in North America and the Asia-Pacific region.

Kelly also warns about the challenges and long-term market demand facing regional aircraft manufacturers, as operators up-gauge their fleet, and increasingly look to boost efficiency and meet their ESG goals.

“The regional market has also recovered from the pandemic, but still faces a few challenges which are restricting growth prospects.

“Embraer is the only regional jet manufacturer left in the space with no current technology aircraft that meets scope restrictions in the US, the largest regional jet market. Pilot shortages are also challenging this segment.

“ATR is the only manufacturer currently producing large commercial turboprop

aircraft outside of China and Russia. Its ATR 72-600 has been a popular successor to older models and has established a convincing market presence, as has the ATR 42-600, the latest variant of its smaller sibling. The first ATR 72-600F, the factory-built cargo version, entered service with FedEx in 2020 – the first of 30 aircraft held on order.

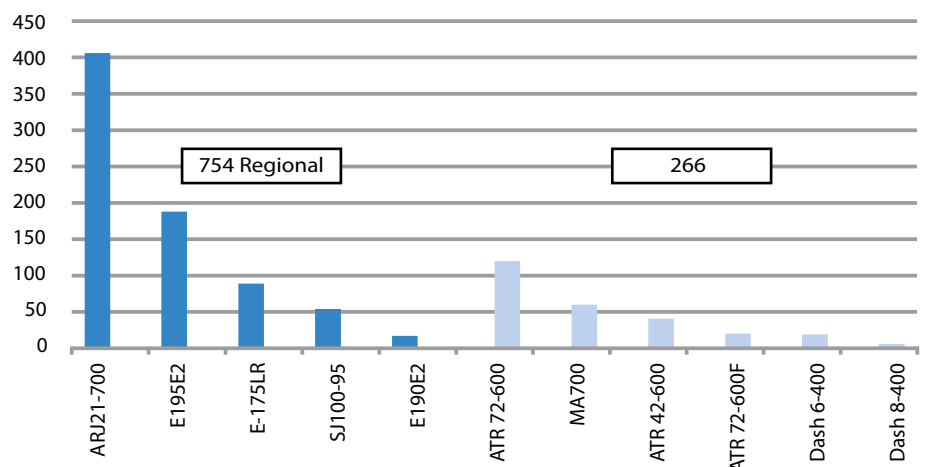
“De Havilland of Canada is proceeding with plans to set up a new plant east of Calgary, Alberta, to be known as De Havilland Field and expected to open in 2027. Manufacturing lines for the DHC-6 Twin Otter and Dash 8-400 will be established there.

“In the meantime, the DHC-6 Twin Otter Classic 300-G was launched at the 2023 Paris Air Show. The Classic 300-G will be lighter in weight, enabling it to have increased payload range with lower operating costs. Deliveries are projected to begin in 2024.”

AIRCRAFT BACKLOGS

The chart showing the sector’s “Firm Order Backlog for Selected Regional Aircraft as of July 2023” illustrates the imbalance in the regional aircraft order backlog, with the backlog for regional jets almost three

Firm order backlog for selected regional aircraft as of July 2023



Source: AVITAS

Note: includes aircraft less than 120 seats, single-class, 32-inch pitch.





Versatile: De Havilland Canada's Dash 8 is one of a number of turboprops capable of being converted for cargo use.

times larger than that for turboprop aircraft.

“The growth of the e-commerce market has made regional aircraft more attractive for cargo operations,” Kelly says, highlighting another area of use that helps to maintain aircraft value.

“Numerous turboprop types have had the option of being converted for cargo use, including the ATR 42/72, BAE Systems ATP, Dash 8, Embraer 120, Saab 2000 and Saab 340A/B.

“There are also conversion programmes available for CRJ and Embraer regional jets. Embraer also launched a new freighter conversion programme for its E190/195 models in March 2022 and the first E190 converted freighter is expected to be delivered in 2024 to Nordic Aviation Capital.

“Freighter conversions, combi aircraft and factory-built units combined made up more than 800 turboprop aircraft in a cargo or semi-cargo role as of July 2023, including parked and stored aircraft. The comparable number for regional jets is around 60 units.”

Mike Yeomans, Director of Valuations and Consulting at IBA, indicates that aircraft models from the current and previous generations of Airbus and Boeing narrowbody aircraft families are the most popular in active use by low-fare carriers.

“The market values of the current technology narrowbodies, including the Airbus A320neo and Boeing 737 MAX family models, have already recovered to their pre-pandemic level, with those for the A320neo, A321neo and 737 MAX 8 having risen by between three and five per cent compared with 2019,” he says.

“The escalation in labour and materials costs that drive new aircraft delivery pricing,

combined with strengthening demand and tight supply, have contributed to the value growth of the new narrowbodies.

“The RVs of previous generation mid-life aircraft have benefited from the delivery delays of new aircraft, as airlines have retained aircraft and extended leases, limiting supply in the secondary market.”

2024 OUTLOOK

All the issues mentioned – OEM backlogs, supply chain issues, likely engine-related AOGs – will affect the outlook for RVs in 2024. And Yeomans believes their effects may go further.

“OEMs will continue to face supply chain challenges into the second half of this decade, and with the length of current

order backlogs there is little availability of new single aisle aircraft this side of 2027/28,” he says.

“The requirement for airlines to inspect their Pratt & Whitney GTF-powered Airbus A320neo aircraft will cause significant disruption to airline schedules over the next 24 to 36 months. Carriers with the greatest exposure will likely have to reduce capacity next year.

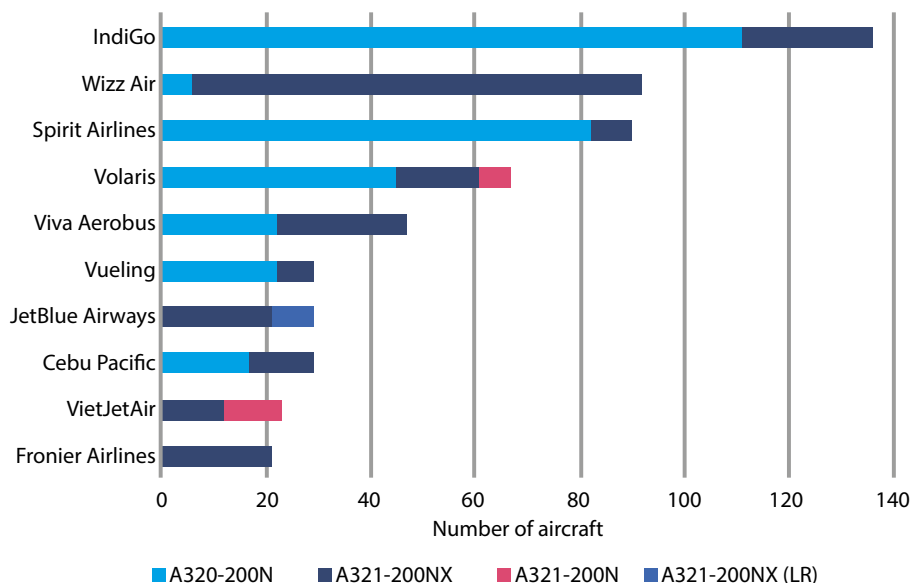
“IBA forecasts that residual values will continue to rise into 2024, with annualised double-digit percentage gains expected to January 2024. If demand remains robust, we could see further increases in value driven by the ongoing capacity constraints.”

Addressing the outlook for RVs in 2024, VREF’s Zilberbrand admits that predicting the future of airline profitability and equipment residual values with precision is challenging.

“Current market insights suggest that we should expect minimal shifts in the upcoming year, given the unprecedented levels of uncertainty being experienced, particularly with an impending US election on the horizon,” he says.

Should the Federal Reserve reduce rates

The 10 low-fare airlines with the greatest number of GTF-powered A320neo family aircraft



Source: IBA Insight





Older examples of the Boeing 737-700 are reaching the end of their working life due to the strong demand for parts.

by the latter part of 2024, the resale market might become even more competitive. The OEM backlogs, meanwhile, can be both a boon and a bane for RVs.

“On the one hand, if airlines cannot acquire new aircraft due to delivery delays, it might buoy the demand (and thus RVs) for used aircraft in the short term.

“On the other hand, if airlines cancel orders due to economic reasons or switch to different models or manufacturers, it might cause a future glut in supply, potentially depressing RVs.

“Persistent supply chain issues can delay new aircraft deliveries, further emphasising the importance of existing aircraft in airline fleets.”

In the short term, this can lead to increased demand and potentially higher RVs for used aircraft, especially newer used models that can replace or complement delayed new deliveries.

“Regarding AOGs for GTF-powered A320neo family aircraft, if these become significant, airlines might seek alternatives,” says Zilberbrand.

“This can increase demand for alternative powerplant versions or different aircraft types, potentially impacting their RVs.

“It’s also worth noting that prolonged or recurrent technical issues with a particular aircraft model or engine type can reduce its attractiveness in the resale market, depressing its RV.

“As the global focus on sustainability and ‘green’ issues intensifies, there’s a push towards more fuel-efficient, environmentally friendly aircraft.

“Older models not aligning with these criteria might see reduced RVs, while newer or retrofitted models that meet stricter environmental standards could command higher RVs.”

Zilberbrand also notes that older aircraft types might see their RVs rise if the GTF-

powered A320neo situation persists.

“Some carriers, especially start-ups or those operating in economically challenged regions, might find older aircraft with lower acquisition costs attractive,” he explains.

“If their RVs have significantly depreciated, they could represent cost-effective fleet additions for such carriers.

“Also, as mentioned, backlogs and delays in new aircraft deliveries might lead airlines to consider older, available aircraft as temporary solutions to meet immediate fleet requirements.”

THE OLD GUARD

At AVITAS, Kelly confirms that some older types are performing strongly.

“We have already seen increases in A320-200, A321-200, and 737-800 values and lease rates over the last year,” he says.

“We expect this trend to continue for the next few years until Airbus and Boeing can increase production rates and resolve the engine issues.

“Older smaller jets are coming to the end of their useful life as regional airlines face pilot shortage issues and pressure to reduce unit costs with bigger jets. The smaller turboprops will face pressure from

the new electric or hybrid technology aircraft being developed.”

For his part, IBA’s Yeomans also expects the previous generation of narrowbodies to perform well.

“When you look at those low-cost carriers that are most exposed to the GTF issues (see chart), they will look to retain their previous generation aircraft to maintain capacity to the extent possible,” he says.

“Wizz Air has been vocal about the issue and signalled a potential 10 per cent reduction in capacity in H2 2024, whilst ANA has similarly declared an impact on capacity and revenues.

“The larger capacity narrowbody variants will perform strongly and will be the most attractive to retain, with fleet exits in the coming years most likely to be centred around the older and smaller variants.

“Some older examples of the Airbus A319-100 and Boeing 737-700 will come to their end of life, particularly in light of the strong demand for parts.”

Residual values across the range of aircraft flown by low-fare and regional airlines are mostly likely to stay at solid levels, with a few likely to come under pressure for the reasons explained above.

The longer-term outlook looks promising, depending on supply chains becoming smoother. ■

Regional airlines are coming under pressure to reduce unit costs by using larger jets. Pictured: an Airbus A319-100.



Coming full circle

LARA sits down with elfc and AJW to get a snapshot of what 2024 might have in store for engine leasing.

As airlines operating new-generation narrowbody engines brace themselves for upcoming aircraft groundings, this is but one in a mass of growing challenges littering the OEM landscape. Challenges which seem to spell good news for engine lessors with older-generation engines in their portfolio.

However, the number of older engines typically stocked by lessors, like the CFM56 and V2500, is not infinite. Coupled with a growing need for maintenance and repairs on these types, the demand for services are only emphasising the already tough issues in the supply chain.

What's more, there is still the need for lessors to grow their new-generation portfolios with engines such as the LEAP and GTF, as the engine issues experienced now – whilst still a hammer blow in the short term – will not last forever.

So, what does this all mean for lessors as we go into 2024?

For world-leading engine finance and

leasing company, and a group company of Mitsubishi HC Capital, Engine Lease Finance Corp (elfc) it's currently all about investing for growth.

With the financing power to help satisfy long-term financing needs for over 80 operators, OEMs and MRO organisations worldwide, elfc currently has a portfolio of 360 engines, which include most narrowbody and widebody engine types.

The company's Chief Commercial Officer Julian Jordan confirms that at present it is investing heavily – to the tune of US\$1 billion in 2023 – in current technology narrowbody engines, which includes the LEAP-1A, LEAP 1B and PW1100.

Jordan says elfc “expects growth to continue”.

But how have supply chain demands, MRO bottlenecks, rising costs and OEM delays affected overall engine availability in the market in general?

In short, massively.

“Demand [for LEAP and GTF spare engines] is unprecedented with market availability close to nil,” says Jordan.

To drive the point rather sharply home, as operators anticipate prolonged issues and

uncertainties in the market, Jordan says that elfc has seen the time requested for the length of lease change dramatically.

It is now no longer being measured in months, he says, but in years.

“Operators are seeking to reserve spare engines up to 12 months in advance,” he adds.

OLD AND NEW

It's not just new-generation engines that are in the firing line, but older engine models too.

Offering bespoke engine leasing solutions to a variety of operators, AJW's Director of Engines, Wasim Akhtar, says that the company – whose portfolio consists of older engines types, such as the CMF56 series, V2500, PW4000 and RB211 – has seen massive demand for what it considers these “bread and butter” engines.

“Demand for narrowbody engines, specifically for the Boeing 737NG and Airbus A320, has experienced a significant resurgence, representing a crucial aspect of AJW's business operations,” he says.

elfc's Jordan agrees. The lessor has also seen a significant increase in demand for the CFM56 and V2500 engine models, as 737NG and A320ceo aircraft remain in service to



Julian Jordan says elfc is investing heavily in narrowbody engines such as the PW1100 and CFM's LEAP-1A and LEAP-1B

AJW's Wasim Akhtar says that the company is seeing 'massive demand' for older engine types like the CFM56 and V2500.

combat the shortfall in capacity that can't be met by lagging aircraft deliveries.

"Supply and demand are tightly matched," he adds, citing the CFM56-7B engine to illustrate his point.

"The number of available CFM56-7B engines advertised globally in October 2023 reduced by almost 75 per cent since the start of the year to the lowest number since July 2019."

So it should come as no surprise that leases for the majority of elfc's older engine types – CFM56 and V2500 – are extending.

Jordan mentions that the average extension rate year-to-date (YTD) for the company is 75%.

"For context, this rate dropped to 38 per cent in 2021, and is actually higher than in the year prior to the Covid crisis," he says.

There are both good and bad sides to this rate change, as Jordan explains.

"Fortunately, we are finding broad agreement by lessees to rental rate adjustments at the time of extensions to enable us to reset to post-pandemic market rates," he says.

"The downside to this high level of extensions is that it is contributing to the low

numbers of spare engines available to lease by elfc and other engine lessors and the trend is actually increasing so far during Q4."

AJW's Akhtar shares a similar outlook.

"There's a growing inclination among operators to extend leases on aging engine types, such as the CFM56 and V2500," he says.

"This trend of lease extensions on older engines is likely to continue for at least another 24 months, as the aviation industry undergoes a transitional phase."

He adds that AJW's ability to facilitate lease extensions for operators has proved "a crucial solution" for operators looking to maintain their fleets' operational continuity.

BALANCING ACT

Considering capacity limitations in the engine MRO section, elfc's Jordan also envisages this continuing for the next 24 months.

And given these limitations, it's not just extension requests increasing. The types of engine lease requests are changing too.


Akhtar comments that the industry is seeing a "strategic shift" towards maximising the operational life of engines, pivoting away from short-term leases towards longer ones due to heavy market demand.

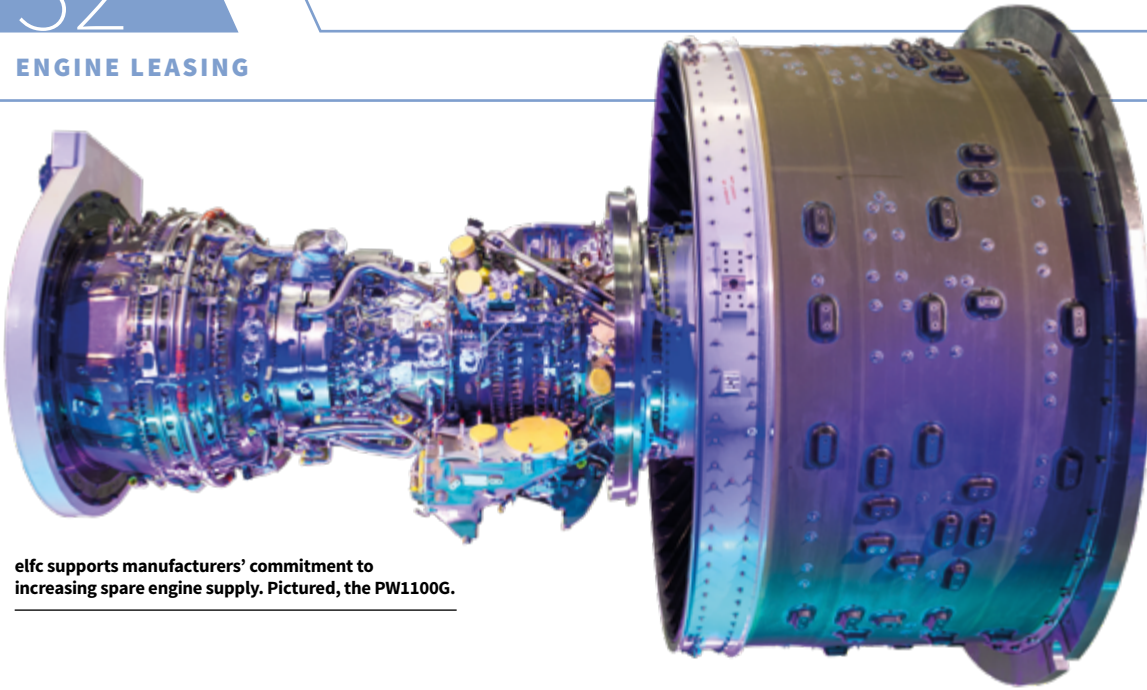
Short-term leasing requests from operators to cover a single engine removal are "significantly reduced" according to elfc's Jordan, who says that post-production engine operators (i.e. CFM56 and V2500) are "reacting prudently" to the diminishing availability of these spare engines.

Here, Jordan adds that demand has pivoted to securing longer-term operating leases of engine stock – as a way for operators to ensure that any ongoing maintenance disruption to its fleet does not disrupt operations.

As for how this is affecting low-fare and regional carriers, AJW's Akhtar says: "Low-fare and regional operators are leaning towards longer-term engine leases and they provide a more extended duration."

"The recovery in travel demand necessitates a reliable and consistent engine supply to meet operational requirements, favouring longer-term agreements that provide a more stable and predictable engine fleet."

As such, when it comes to ongoing issues with the GTF PW1100 and CFM engines, elfc's Jordan offers a pragmatic view on its resolution. 



elfc supports manufacturers' commitment to increasing spare engine supply. Pictured, the PW1100G.

"We support both Pratt & Whitney and CFM's commitment to increasing spare engine supply in the short term despite the pressure that both OEMs are experiencing," he says.

Jordan adds that in the more immediate term, the engine lessors' shared task with the OEMs is to "satisfy the spare engine demands of our customer base".

"We have every confidence that as the current production and maintenance issues are resolved over the next few years, they will get the balance right."

However, as of right now, such issues are already having a knock-on effect for operators.

This includes the likes of low-fare carrier Wizz Air, which anticipates at least 10% of its fleet being grounded by the second half of 2024 and has recently trimmed its profit forecast accordingly.

Simply put, operators of these engine types stand to lose out in the coming year. This being something that, despite its heavy investment in growing its narrowbody and widebody current technology portfolio, engine lessors like elfc are also all too aware of.

"The majority of the engines being acquired will be on long-term leases," says Jordan. "However, many will be used to cover immediate airline requirements in support of OEM programmes."

By comparison, Akhtar adds that the delays with these engines is creating demand elsewhere.

"The OEM delays for new-gen engines have created a surge in demand for our services," he says. "Higher lease rates further underscore the increased demand for engine leasing," which make providers like AJW "a viable and attractive option for airlines and operators seeking to bridge the gap."

VALUE ADDED

The overall outlook for 2024 is therefore a muddled one.

The aircraft engine leasing market is undergoing rapid growth, as airlines choose to lease and avoid high costs associated with buying engines or extended pre-existing leases on older engines. But availability and values of those engines will still prove a stumbling block.

AJW's Akhtar sees "rates going down to pre-pandemic levels" due to the mass of demand for engines.

"Our company is confident in the sustained market demand for narrow-body engines, which underscores our commitment to maintaining and possibly expanding the Group's presence in this sector of the aviation industry," he adds.

elfc's Jordan takes a broader view, given the variety in its portfolio.

"Clearly we foresee issues with meeting market demand for certain engine types as demand outstrips available supply of current technology engine types," he says.

Yet he reiterates that elfc is keeping a close eye on engine values.

"As a long-term engine investor, elfc's business model remains underpinned by the long-term residual value of our assets, and we are therefore closely monitoring aircraft and engine production rate forecasts to ensure that oversupply in the very long

term does not impact engine market values."

Despite difficulties in the short term, there is much in the way of positive activity for the lessor.

Sale leaseback (SLB) of engines has been a massive boon to both operators and lessors like elfc. The company is also working on acquisition programmes for older engine types, such as the CFM56 and V2500, and building up its delivery timelines.

"We are ready to step up again in 2024 with significant funding of new spare engine deliveries, particularly through sale leaseback of engines which operators bring forward to combat their current issues and may not therefore have budgeted for next year," Jordan confirms.

Demand for used service material (USM) is also at a "high level" for lessors, as operators seek to manage their overhaul costs and material supply for older engines to maintain their 737NGs and A320neos.

As a result, elfc's subsidiary, INAV, is currently seeking retiring engines to feed its USM supply programmes to support MRO shops and airlines.

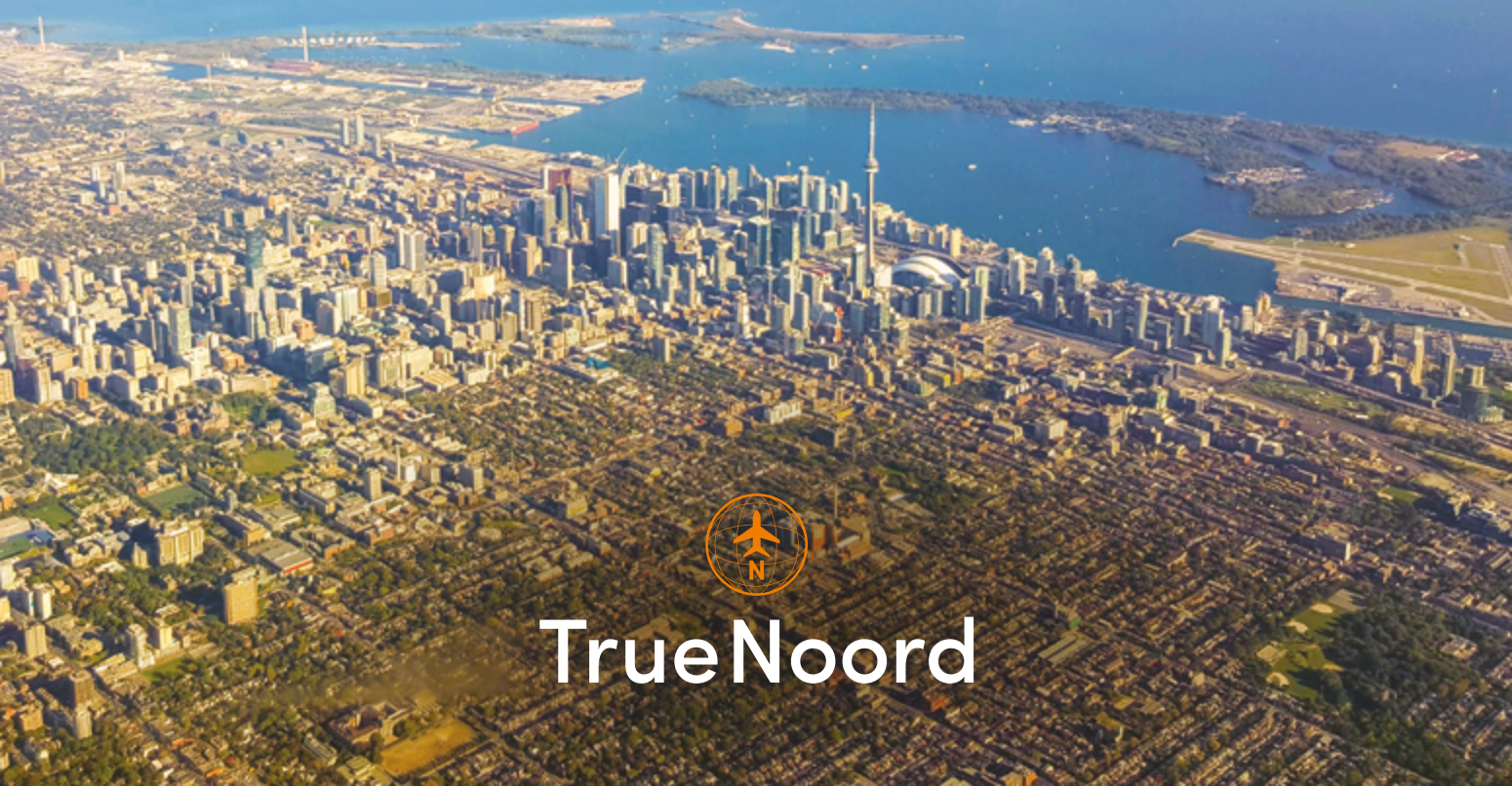
"We see this as a great opportunity for elfc to acquire retiring aircraft and mature engines as a means to financially and operationally support operators in their fleet transition plans," says Jordan.

Increasing its spare engine availability for customers in the short term is also a priority for elfc, before the company releases unserviceable ones to its subsidiary. ■





New horizons



TrueNoord

A Targeted Approach

With four specially themed editions each year, *LARA Specials* offer a unique opportunity for your brand to reach a targeted segment of key decision makers within the low-fare and regional airline sector.



Contact Callum Matthews to discuss upcoming opportunities: callum@hmg aerospace.com

Turning the corner

Specialised: Iberia Maintenance's La Muñoza engine shop is now focusing on four main types.

Iberia Maintenance has begun the next chapter in its 10-year transformation plan. Lucy Powell went on tour of its maintenance HQ facility, La Muñoza, to find out more.

Nestled next to the bustling Madrid Barajas Airport lies the maintenance headquarters of Iberia, La Muñoza.

A sprawling complex spanning over 220 square kilometres in size, this MRO facility supports more than 100 airlines with regular engine and aircraft maintenance.

From key customers including IAG – of whom Iberia, its regional subsidiary Iberia Express, and low-fare carrier Vueling are members – to airlines further afield such as Rwandair and HK Express, the company has cemented its place as a leading MRO service provider.

At the end of 2022, to adapt to new challenges in the market, Iberia Maintenance unveiled its ambitious 10-year strategic plan to level up the business. In summer 2023 the company set to work on the next chapter of this plan, aptly named “Iberia MRO Next Chapter”.

At the core of this ambitious three-year transformation programme sit five objectives, assessing the MRO's performance,

financial robustness, operational scale, people, and sustainability.

Interconnected with both plans, and not to be overlooked, is also a focus on the day-to-day running of the business. Here, Iberia is focusing on improving three Ps: People, Processes, and ERP systems.

LARA went on a tour of the company's HQ to find out more about how the MRO provider is levelling up to make this next chapter in its story a great one.

SHOP FLOOR

At 52,500 square metres in size, the engine shop is a key part of the MRO facility. Like the finely tuned inner workings of the engines themselves, every section of the maintenance shop needs to work like a well-oiled, calibrated machine to serve its customers.

Whilst the MRO once served 11 engine types, it has since reduced that number to just four: IAE's V2500, the CFM56, the RB211-535, and most recently, Pratt & Whitney's PW1100 GTF.

In October 2022, Iberia obtained its licence to work on the GTF engine, and in November 2023 the company finished training 30 engineers in preparation for induction at its facility.

Around 1,200 tools have already been

purchased for work on the GTF, and the MRO plans to scale up the number of engineers working on this type in 2024.

The CFM LEAP-1A is the next engine to be introduced at the facility and will be inducted in 2025, Engine Services Business Manager, David Alejandro Fernandez, confirms.

However, Iberia Maintenance's work on the Rolls-Royce RB211 – used on widebody aircraft like the Boeing 757 and Boeing 767 – is due to be gradually phased out over the coming years to consolidate its narrowbody engine portfolio.

Fernandez says: “We're still very competitive and are one of the few shops that are still servicing it, but we're foreseeing a market where the RB211 will be phased out.

“We want to remain as flexible as we can, but also as dedicated to our plan to end up with these four platforms [CFM56, V2500, GTF and LEAP-1A] to drive capacity and [add to our] value proposition.”

Iberia Maintenance is already an established centre of excellence for the V2500, having been awarded the accolade in 2022. Over 50% of engines inducted by the MRO are V2500s.

Yet when it comes to narrowbody engines, both old and new are still high in demand.

“There is a boost in need for these new engines, but the old ones are still not >>>



leaving the market,” says Fernandez. “Therefore, these four platforms are the ones that will be configuring our portfolio in the upcoming years, and I would say for the next decade.”

OPEN THE GATES

First impressions of the engine overhaul process are that it is well optimised.

Split into four gates, the shop’s layout ensures a streamlined process for each engine that passes through La Muñoz.

One gate closes when a specific objective has been completed before moving on to the next section.

Gate one focuses on disassembly, which takes around 12 days to close, whilst gate two has engineers look at specific parts within the engine that can either be kept as is, repaired, or replaced entirely.

Fernandez comments that this is the gate that has come under significant pressure in terms of turnaround time (TAT), due to supply chain constraints and a lack of parts.

Gate three focuses on reassembly, which is seeing a busier output due to the backlog of engines exiting gate two, and gate four is the test cell for testing and certification before engines are returned to the operators.

To keep everything flowing through the shop and the four gates, the MRO’s TAT time “philosophy” is key to pushing forward its performance improvements.

“We’ve capacity to induct an engine every

two days – whether it’s a V2500 or a CFM56,” says Fernandez. “Every two days everything must move forwards.”

Indeed, reducing TAT remains a huge focus for the MRO.

One of the ways in which Iberia is working to improve its TATs on engine overhauls is through improving its internal repair capabilities, particularly for the critical parts of the engine.

New and additional machinery, such as a third grinding machine in anticipation of the GTF engine, has been installed in the shop. This allows more of the repair work to now be done internally, instead of shipping parts outside of the facility.

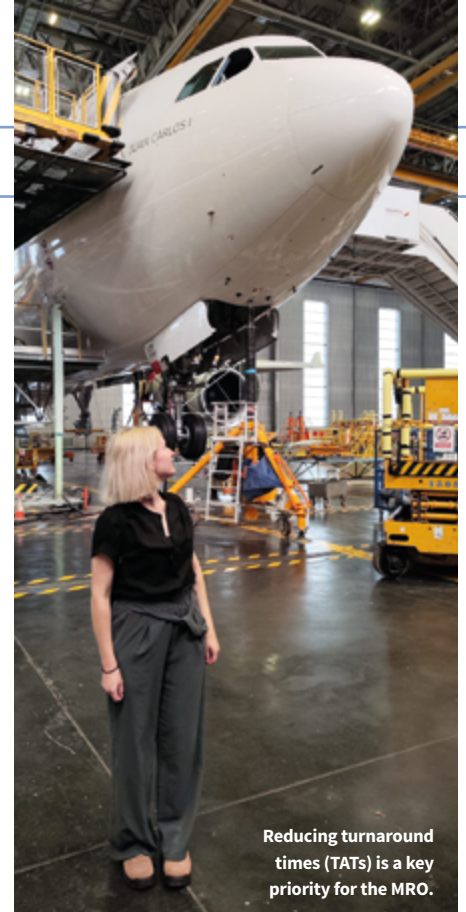
Currently around 30% of the engine parts can be kept in the engine shop repair section, with this percentage set to increase.

One example shown to LARA was a laser cladding machine for repairing compressor blades. Whilst the MRO has undertaken this for the RB211 for 15 years, it has recently introduced it for the V2500, while capabilities for the CFM56 will be introduced next year.

“The idea is that because we’ve been doing this with the RB211 for so long, it’s just getting along with other OEMs to be allowed to do this for other platforms,” Fernandez explains.

“The level of capability and capacity in our repair shops is more competitive than outside,” he adds, albeit with a caveat.

“We also need to rely on regional partners



Reducing turnaround times (TATs) is a key priority for the MRO.

and vendors so we find the right balance between what can be done in-house and what we run out.”

Tracking the testing of the engine via manual paperwork will also be reduced, improving storage for the MRO, as a new ERP (Enterprise Resource Planning) system for this task is due to be introduced next year.

FLEXIBILITY AND FOCUS

Even with these improvements, planning a shop this large with this many customers and engines moving through it is no small feat. Aligning operational scale to meet demand is one of its three-year transformation objectives as Engine Shop Director, Eylo González, explains.

“It’s busy,” she says. “It’s been more variable since the pandemic, and flexibility now is key.”

Whilst demand outpaces capacity, being able to expedite the engines through the shop and anticipate operators’ needs is critical for Iberia Maintenance as its customer base continues to grow.

Like playing a giant, fast game of Tetris, in an environment when last-minute changes to which engine types or number of engines are entering the facility can happen, González notes that it is the MRO

Despite knock-on effects from the pandemic, Iberia Maintenance is on course to return to 2019 levels of output.



provider's long-standing experience that keeps it running.

"We don't have any problem swapping between CFM56 and V2500, because we've grown enough, and we don't have a constraint on skills," she says. "It's just a question of planning and going really fast to react. That's the game."

The current climate, with supply chain difficulties and issues sourcing components, has caused a strain on operators and MROs alike, particularly when the demand for engine maintenance hasn't slowed down. But the MRO stands ready and willing to help – particularly looking to the induction of the GTF engine at its facility at the end of 2023.

"Operators are suffering a lot [with this engine type on wing] and will be suffering more. We really need to support the network and support our airlines," says González.

UNDER THE ARCHES

Across from the engine shop, with its distinctive yellow arch, is Hangar Six, the facility's largest and most distinctive maintenance hangar, where major maintenance checks for Iberia Maintenance's customers take place.

The hangar has space to fit up to a total of 10 narrowbody aircraft, or eight narrowbodies and one widebody, and is split into five docks – each one specialised in one type of aircraft.

Knock-on effects from the pandemic, issues with the supply chain, and slower component support meant that last winter season proved difficult. But this year, despite ongoing industry-wide issues, there are now some bright spots.

"We're on the right path to go back [to 2019 output]," says Airframe Services Director, Natalia Martinez.

Priorities for the winter season include reaching its target of 250 aircraft maintenance checks, sticking to timetables of checks on aircraft entering the hangar, and streamlining the company's internal processes.

Last year around 190 heavy maintenance checks were carried out, and the desire soon

is to not only increase that number but to work on aircraft that come from flight rather than a mix of flight and storage.

The company's work with Airbus has improved too. Additional technical information around common technical requests have been supplied, and communications around technical requests have sped up.

"We have been working with them [Airbus] on how we prioritise the technical requests we open," says Martinez. "How we can work together to prioritise in the best way to allow them [Airbus] to provide the answer on time and to allow us to not stop the works [on the aircraft]."

Martinez is optimistic about the progress the MRO has made so far, particularly with its performance.

One recent internal adjustment that has reaped benefits has been aligning the production, planning and engineering teams.

For one thing, information as to which member of engineering has been allocated to which aircraft has been made more transparent for production.

"We've worked a lot to identify to bottleneck in this process to make it easier to mitigate," says Martinez.

Iberia is also continually working to bring in more talented, knowledgeable staff.

The MRO has hired 150 new staff within the last year and is looking to increase that number. It also currently accepts more than 100 students per year with DUAL training, divided into four locations.

Iberia Maintenance has agreements with the Spanish government to bring in young talent as part of its apprenticeship programmes, and works in partnership with colleges, vocational training centres and universities.

A jointly developed Aeroskills project, which started in 2022, was financed by the Ministry of Education and Vocational Training and by the European Union Next Generation EU.

"Hiring [the staff] is not a problem for us," González says. "This is complimented with



Last year around 190 heavy maintenance checks were carried out, with 250 the target for this year.

specialised training, which is split into 30 sections across the shop. We're really building the business of the future and creating jobs for the Spanish economy."

A SUSTAINABLE BOOST

Coupled with this focus on staff sustainability, the MRO's environmental footprint is crucial too.

La Muñoza already gets 100% of its power from renewable sources, and in the last year it successfully installed solar panels on the roof of its engine shop building, where it expects to save 32,000 tons of CO2 a year.

Next in the sustainability roadmap will be its new Eco Hub, where work is due to start in 2025. Powered by green sources of energy, including solar, this project will house a large complex with a state-of-the-art engine shop with capacity for up to 500 engine overhauls and up to 24 bays in a new heavy maintenance hangar.

The plan is for full narrowbody engine capability to reach 60% of the global market on the CFM56, V2500, LEAP and GTF.

Whilst Iberia Maintenance may have a huge task ahead of it, with planning, foresight and focus on improvements set against harsh industry conditions, the MRO provider seems more than ready to rise to the challenge. ■





True colours

IAC has provided painting services for a variety of low-fare carriers.

Elena Lodge explores how painting companies are improving their operations and painting technology to protect and repair operators' aircraft.

Aircraft liveries are one of the most recognisable parts of an aircraft. In fact, if you stand under the flight path of an aircraft making its descent, you'll likely be able to pinpoint the airline just by the telltale colours of its livery, or perhaps for the more seasoned plane spotter, by the aircraft model itself.

A livery, with its vibrant colours and logos, shows personality, celebrates milestones and represents a strong pillar of an airline's branding and can be used to distinguish a place and time in its history.

However, an aircraft's livery and paintwork plays a larger role than mere aesthetics. Using the right paints and coatings provide protection and longevity to an aircraft's exterior, minimising downtime and maximising efficiency for the airline.

Here, some of the companies making and using these paints and coatings explain how.

PRIMED TO PAINT

Before any painting can begin, painters carry out inspections on the aircraft's

exterior to flag any damage or technical issues from the get-go.

Painting, interiors and graphics specialist IAC has provided its painting services for a variety of low-fare carriers including Wizz Air, Southwest Airlines, Vueling and Pegasus.

The company's Chief Commercial Officer, Patrick Donnellan, tells *LARA*: "After these inspections, the aircraft is masked off in areas where the exterior coatings cannot be removed or any areas which IAC will not be working on. Chemical stripper is then applied to the fuselage of the aircraft.

"The aircraft is then primed using electrostatic paint guns. After this primer has cured, the aircraft will be painted with the customer colour scheme.

"The aircraft is then in the finishing stages where the technical markings, flags and any other relevant aviation authority markings are applied."

A standard narrowbody such as a B737 or A320 will typically take seven days to repaint, compared with 11 to 15 days for a widebody such as a B777 or an A350.

Aircraft are typically repainted every six to eight years, says IAC, although this paint cycle may reduce to four to six years for those with composite airframes.

IAC has 11 locations across the USA and Europe. When joining IAC's painting crew, new employees are enrolled on a 26-week training course providing them with the skills required to strip aircraft of existing finishes, prepare aircraft for refinishing and apply aircraft paint by hand and by spray gun in a safe and professional manner.

Throughout the course, 80% of learning takes place on the hangar floor, with the programme consisting of 20 modules across two elements, with 10 theoretical modules and 10 practical modules.

"On average, 90% of apprentices successfully complete the programme and begin work as a full-time employee with IAC," reveals Emmett Moran, the company's Head of Operations, Europe.

QUICK FIX

There are a number of potential causes of damage to an aircraft's exterior, ranging from lightning strikes to weather damage, tool impacts, local erosion and airframe stress.

In cases of exterior paint damage, airlines



have to ground the aircraft while it receives repairs which, depending on the extent of the damage, can take anywhere from seven to 15 days, or even a number of weeks.

One company has crafted a painting repair solution capable of significantly reducing the time taken.

Corso Magenta specialises in painting and coating solutions for aircraft, with the company's latest solution, the CorsoPatch Aircraft, providing operators and MRO companies with a quick fix solution for local paint impacts.

CorsoPatch Aircraft is a dry paint repair solution targeted at local damage on aircraft wings and fuselage.

It was originally developed with the French Army, Airbus and Air France Industry as a solution for fast paint repair during line maintenance or while in operation.

The solution works by sticking the patch – which is comprised of application tape, paint, adhesive and liner – on to the damaged part of the aircraft's surface as an alternative to applying different layers of paint for the repair.

The patch can be applied on all types of surfaces, including paint, metal and composites, and is 10 times faster than a liquid paint repair solution, taking 40 minutes as opposed to 10 hours to take effect.

"The repair is permanent," explains a spokesperson for Corso Magenta, adding that a "recontrol" is needed every two years.

"So far, the longest period has been a year, over 1,000 flight hours, but the aircraft were then repainted.

We will soon have

CorsoPatch Aircraft is a dry paint repair solution.

Photo: Corso Magenta



CorsoPatch takes 40 minutes to take effect as opposed to 10 hours for liquid paint repair. Photo: Corso Magenta

feedback from clients who have used it for a longer period of time."

France-based Corso Magenta tested CorsoPatch Aircraft with easyJet and Air Corsica in 2021, with nearly 10 other airlines using the patch since and more expressing interest, says the paint solutions provider.

TOP TO BOTTOM

Applying a quick fix isn't the only way to minimise downtime, with more preventative measures – starting from the application process – applicable to both the interior and exterior of the aircraft.

Hamburg-based Mankiewicz is a provider of painting solutions for the interior and exterior of aircraft, and serves a number of

low-fare, regional, flag carriers, luxury or cargo companies.

According to René Lang, Executive Managing Director Aviation, any aircraft painting or coating must meet a very high set of requirements, including resistance to environmental influences and high standards of design and functionality.

"Due to the aircraft's altitude, the surface is exposed to immense UV radiation, and the rapid temperature changes are also challenging," he says.

Lang explains that temperature fluctuations range from -40°C above the clouds to +40°C when landing in hot regions within a very short time.

"The highly durable ALEXIT ClearCoat offers ideal protection," he says. "This also ensures long-term durability in the second important area – gloss and colour stability – which increases the life cycle."

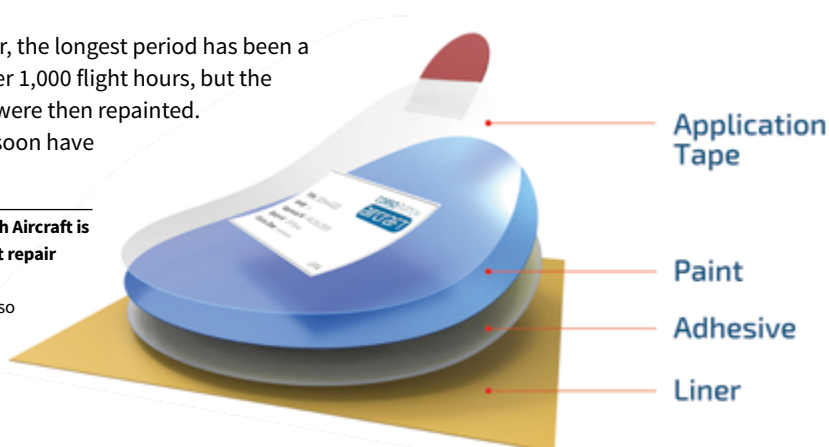
The requirements needed for paint and coatings on the wing are also important to consider. They can see damage from exposure to compression, fuels, hydraulic fluids and other chemicals on the upper surface that can lead to high chemical surface loads on the bottom of the wing.

Mankiewicz's ALEXIT WingFlex is a coating solution designed to protect both sides of the wing using one system, with a gloss that meets the fuselage at eye level.

In addition to managing the exterior forces of paint damage, Mankiewicz also provides paints and coatings aimed at preventing damage from interior forces – namely passengers.

In addition to fulfilling FST and heat release requirements for passenger safety, the interior of an aircraft has its own set of considerations.

"Excellent resistance to mechanical influences is vital in an area where passengers often do not handle surfaces carefully," says Lang. "But chemical influences, such as food on meal trays or frequent cleaning, can also potentially stress surfaces."





SAVING THE DAY

Also in the business of making paints and primers is Pittsburgh-based PPG, which manufactures highly specialised primers, topcoats and specialty products for the aerospace market.

PPG makes an electrocoat primer system, AEROCRON, which on application helps to apply a waterborne, chrome-free primer with more than 95% efficiency.

In addition, it controls the thickness of the paint layers, which in turn help with weight savings and fuel efficiency.

According to PPG, vying for weight savings and fuel efficiency aren't the only trends for airlines and operators seeking paintwork on their fleets, with the careful selection of colour also having its heyday.

"Some of the trends in the aerospace market now for paint are darker colours," explains Duane Utter, the company's OEM Segment Manager, Aerospace Coatings. "Which can be accomplished using PPG's solar heat reflective (SHR) topcoats."

These topcoats are made with technology that uses specialised pigments that enable UV to be reflected off the aircraft, avoiding any heating effects on the aircraft's exterior and interior from the UV.

Utter notes that airlines are increasingly selecting special liveries on their aircraft fleets. In response to this demand, PPG offers airline customers the use of its Livery Lab.

In collaboration with AeroBrand, the

"Due to the aircraft's altitude, the surface is exposed to immense UV radiation, and the rapid temperature changes are also challenging."

René Lang, Executive Managing Director Aviation, Mankiewicz

branding consultancy offering expertise on brand identity, aircraft livery design, cabin interior design and technical implementation, PPG offers colour and technical capabilities for airlines, whilst AeroBrand provides brand and livery design expertise to customers.

When asked about its plans for the coming years, PPG signals its intentions for growth.

"PPG's plans for 2024 are to continue to grow the sales of BCCC products," says Utter. "In addition, we are qualifying and introducing new chrome free primers into the market and will continue our work to develop products for the market that meet new and anticipated regulatory requirements."

In terms of specifics about upcoming products and innovations, PPG advises *LARA* readers to stay tuned, hinting at new product announcements come the new year.

VALUES ADDED

As the winter months continue, painting companies can expect a busy seasonal period from low-fare carrier customers.

MAAS Aviation is one such company, and counts both Ryanair and easyJet among its customers.

Tim Macdougald, the company's Chief Business Development Officer, says: "The MRO business is seasonal, and between

easyJet and Ryanair, because of the size of their fleets, they do tend to utilise pretty much all of our winter slots, which makes it difficult for us to accommodate for other airlines."

Macdougald also notes MAAS's challenges, including recent capacity shortages and difficulty finding aircraft painting slots.

He says: "Seasonality has been exacerbated in the post-pandemic era because airlines clearly are focusing on strengthening their balance sheets by having as many aircraft and filling as many seats as possible during the peak summer holiday months. Therefore their aircraft are just simply not available for any sort of ground time during this period, so it is a challenge."

Right now, the US-based company is completing the painting for easyJet's fleet as part of a multi-year programme that will see MAAS repaint all of the low-fare airline's aircraft.

MAAS Aviation has 11 paint shops

PPG manufactures an electrocoat primer system that controls the thickness of the paint layers. Photo: PPG



worldwide, with a number of partnerships with low-fare carriers including easyJet, Wizz Air and Ryanair.

Now celebrating its 40th anniversary, MAAS continues to plan for the future and is looking at exploring opportunities for expansion, the potential of automation, growing its network of partnerships, and transitioning to more sustainable practices.

“Climate change is like a new currency,” says Macdougald. “Up until now we’ve been acquiring materials based on quality and price, [but] price is probably going to become secondary, even tertiary. We’ll be targeting products with the lowest carbon footprint and that will allow us to pass on the benefit of a greener solution to our customers. That’s really what the whole



Aircraft are typically repainted every six to eight years.

Photo: IAC

aviation ecosystem needs to focus on.”

The company’s aim of adopting more sustainable operations has also seen it focus

on a number of operational improvements.

These include buying energy from renewable sources, eliminating gas heating powered by fossil fuels, and exploring options for heating including a heat pump, geothermal and photovoltaic panels.

MAAS also introduced a policy last year that requires all company vehicles to transition to low-emission or electric models.

Such monumental changes are not without significant financial investment, something which Macdougald admits.

“All of this comes with a cost,” he says. “There are commercial consequences.”

It may well be a new currency, but for Macdougald and MAAS Aviation, it is a price that’s worth paying. ■



05–06 March 2024
Za'abeel Halls 1-3
Dubai World Trade Centre, UAE

We pre-arrange meetings for exhibitors with key airline buyers at the show. Contact us to learn more.



CONNECTING THE AIRLINE SUPPLY CHAIN



Co-located with:
MRO
MIDDLE EAST

AIRFRAME MAINTENANCE | AVIONICS | CABIN TECHNOLOGIES | CLEANING | ENGINEERING | FLOORING | FUTURE CABIN CONCEPTS
GALLEY | IFEC | IT SYSTEMS | LIGHTING | SAFETY | SANITISATION | SEATING | SUPPLY CHAIN | TEXTILES | TOOLING

WWW.AIME.AERO



lارانews.net

December 2023/January 2024 | LARA

One too many

The incidence of bad behaviour by airline passengers is on the increase, according to IATA. How can airlines and the cabin crew on board cope with the rising tide? Alan Dron investigates.

Most of us will go through our lives without witnessing drunkenness or violence on board a commercial aircraft.

Airline representative body IATA points out that 99.9% of passengers behave perfectly well on flights.

However, the 0.1% who do not cause stress out of all proportion to their numbers.

If a fight breaks out on the ground, bystanders can usually quickly get out of harm's way. In a pressurised metal cylinder at 35,000 feet, that option is not available.

Tim Colehan, IATA's Director of External Affairs who leads IATA's Unruly Passengers Group, says it is pretty well accepted that both the frequency and severity of bad behaviour is growing.

IATA produces statistics on the issue from a group of around 40 airlines. In 2021, the incident rate was one in every 835 flights. In 2022, that had risen significantly to one in 568 flights.

It is important, Colehan says, to look beyond this headline figure. There is growing concern in the industry at incidents that feature violent or physical contact with cabin crew. It remains thankfully rare for in-flight situations to deteriorate to that extent, but they are increasing.

"Alcohol is identified as one of a number of triggers for unruly behaviour, which is why we make great efforts not to serve people who are becoming intoxicated," Colehan says.

Many airlines employ a "traffic light"

system whereby passengers moving from green to amber or red are served increasing amounts of non-alcoholic drinks or completely cut off from having any more alcohol.

One particular problem can be passengers buying duty-free alcohol at the departure airport, then opening it on board, despite this being illegal.

The UK now has a "One Too Many" campaign that brings together stakeholders including airports, duty-free providers, police and airlines that stamps messaging on duty-free bags.

Duty-free shops are also sealing bags containing alcohol. They can still be opened, of course, but the hope is that the physical barrier makes passengers think again.

But alcohol is not the only problem behind in-flight disturbances.

ROOT CAUSES

"We don't know what impact Covid has had on people's state of mind," Colehan says. "What's their view of authority? How do they view the world? What are their views of service disruption? There are a lot of issues that could be having an effect."

During the pandemic, many videos emerged of passengers – particularly in the US and particularly on low-fare carriers (LFCs) – arguing furiously with cabin crew over wearing masks. Many travellers objected to wearing them, seeing them as an infringement of their individual liberties.

The Federal Aviation Administration (FAA) handed out a disproportionately large number of fines for abusive behaviour to passengers on LFC flights.

However, IATA's Colehan says the organisation doesn't see any difference between its members who may be LFCs or its network carrier members.

Nor is unruly behaviour a problem confined to the "back of the bus".

99.9% of passengers behave perfectly well on flights.

However, the 0.1% who do not cause stress out of all proportion to their numbers.





“Incidents can be seen in all cabins,” says Colehan.

That said, he accepts that certain routes, at certain times of year, are known for their rowdiness.

Some carriers’ cabin crews dread flights to certain Mediterranean destinations in high summer, for example.

Several countries already employ strict sanctions. The US has a zero-tolerance approach to disruptive passengers and in 2022, US\$8.4 million in fines were issued in the US, with the most serious cases being referred to the FBI for prosecution.

Bad behaviour on board a UK aircraft can also result in hefty fines or even imprisonment.

However, there remains a “cult of impunity” among some people who assume they will “get away with it”.

In past years, many misbehaving passengers arrested at the arrival airport had to be released without charge because local police did not have jurisdiction over incidents that had occurred on foreign-registered aircraft in international airspace.

That loophole is being closed as nations ratify the 2014 Montreal Protocol (MP14), which gives police at the destination the ability to charge passengers wherever the offence took place.

One problem remains, says Colehan. In some countries, bad airborne behaviour does not meet the threshold for prosecution.

Incident Rate

2021

One in every 835 flights.

2022

Risen to one in 568 flights.

However, most countries also have civil or administrative penalties in their statute books. This means that passengers arrested after a flight can be given the option of paying a fine and not having a criminal record against their name.

Many airlines maintain lists of banned unruly passengers. However, data protection laws make it difficult for them to share this information. And individual bans can be circumvented with name changes and new passports.

“Bans can be an effective deterrent, especially where airlines can legally share that information,” says Colehan. “But there are challenges to improving the existing situation and, for the moment, focusing our efforts elsewhere will be more beneficial.”

TRAINING RE-EVALUATION

Teaching cabin crew how to deal with problematic passengers is becoming more important. This has taken on increased importance following the disruption caused by the pandemic.

“There are a lot of new crew that don’t have the experience or life skills to deal with

some incidents,” notes Jonathan Jasper, IATA’s Senior Manager for Cabin Safety.

“Training is constantly being re-evaluated to give all crew the best possible skills to deal with post-pandemic unruly passengers. This includes spotting behaviours before they escalate.”

IATA’s figures indicate a recent increase in bad behaviour, but the picture is not uniform across the industry. Some feel that incidents get blown out of proportion because they are now plastered across social media sites.

“We don’t see an increase,” says Aage Dünhaupt, spokesman for the TUI Group, which operates leisure airlines in several western European countries.

“What’s happening is that everyone has an iPhone and they film any incident. There’s not an increase, but it’s more visible.”

Katie Wood, head of training at airline personnel training organisation Skypeople, backs up Dünhaupt’s comments that the problem is not getting worse, particularly on LFCs.

“I think scheduled airlines have just >>>





as much [of a problem],” she says. “I absolutely agree with TUI. We work with a flag carrier and an LFC and those in between. We get a fair picture of what’s going on in the industry. There’s no difference any more in the rate of incidence between LFCs and scheduled airlines.”

One factor that makes it seem as though LFCs are worse affected is that LFCs’ aircraft have single cabins, “so [incidents] are more visible,” says Wood.


“Larger aircraft, particularly if it’s an Airbus A380 and cabins are more separate – you wouldn’t know what’s going on at the other end of the aircraft.”

Different airlines handle the problem in different ways, she notes.

“Training depends on the airline. Some airlines have handcuffs, the same as the police use, and give staff full training in how to use them. Other airlines have very thick tie-wraps that do the same thing. [But] getting the restraint kit out is the absolute last resort. Some airlines don’t have any restraints at all and are all about defusing the situation.”

Skills to defuse difficult situations are more essential than ever today, Wood says. “People’s stress levels seem higher when they’re flying. I just think people’s mental health has changed across the board since the pandemic. And a lot of people do find flying stressful.”

Physical abuse remains rare, but incidents did increase

61% 
over 2021

occurring once every 17,200 flights.

Henriette Nilsen, Denmark country manager for Norway-based airline crew provider AAP Aviation, agrees with Wood that the use of restraints by cabin crew is “an exceptionally rare occurrence”.

“Each airline has its own specific procedures for handling such situations,” she says. “Typically, if an incident escalates, the captain is involved and, if it becomes serious, the authorities may be called upon.”

“A typical procedure for an airline in handling an unruly passenger may include a

verbal warning, a written warning by the purser, involvement of the captain and, if necessary, involvement of law enforcement upon landing.

“In the case of an unruly passenger physically attacking a cabin crew member, it is advisable for the crew member to disengage and another trained member, such as the purser, to take over. This often helps to de-escalate the situation.

“In the event that a passenger becomes violent, efforts are made to separate the unruly passenger from others on the flight, although this can be challenging on a full flight. Providing a written final warning to the passenger often helps calm them down.”

Nilsen adds that the frequency of such incidents can vary significantly depending on the destination and the demographics of the passengers on board.

ON THE FRONT LINE

The whole topic of unruly passengers is one about which many training organisations and airlines are sensitive, with several declining to comment to LARA on the subject.

The only carrier to respond, easyJet, issued a brief statement saying: “We haven’t seen any particular trend in increases. Rates this year have been lower than they have been in previous years. But when disruptive behaviour does occur, our cabin crew, pilots and ground staff are trained to manage this swiftly and appropriately to ensure the safety and well-being of our customers and crew. Ground handlers will deny boarding to those who behave disruptively during boarding where necessary.”

The people on the front line are cabin crew. According to Michael Schwaabe, London-based president of Council 7 of the US-based AFA-CWA trade union, the problem isn’t new.

Schwaabe, who works for United Airlines, says the problem was “really out of hand” at United prior to the 9/11 terrorist attacks. After that day “it really calmed down” owing to the obvious presence of police and security, including on aircraft.



United uses a process for dealing with unruly passengers very similar to the “traffic light” system.

“That type of training is standardised across the US industry,” says Schwaabe. “All airlines will follow very similar protocols.”

In the event of a serious incident involving unruly passengers, “we will not put ourselves in danger unless we absolutely have to” – if only because cabin crew are needed to ensure the cabin is safe for landing.

“We will get able-bodied helpers and they’ll be the ones you shout commands to.”

There are almost always some ex-military personnel, police or firefighters on board a flight who can help out.

The almost total closure of civil aviation at the start of the pandemic caused huge problems, particularly in the US, where flying is the only way to travel long distances.

Schwaabe says: “The comeback year after Covid, 2021, went off the charts. People were being horrible with flight attendants and trying to find innovative ways to not wear their mask.”

That only ended with the arrival of vaccinations.

“Now we’re back to the stage of where it was before Covid.”

BACKGROUND LEVEL

When incidents occur they are usually triggered by alcohol, drugs or medication, or a combination of those.

In perhaps one flight in five, a colleague will approach Schwaabe in his role as purser during the boarding process or shortly afterwards to express a concern about a passenger.

“Generally, I will have a conversation with the person and try to figure out what the problem is. It will be something like someone not reacting coherently or drinking from their own stash. Or it could be someone who’s just very tired because they’ve come up on five flights from Africa.

“Ninety-nine per cent of the time the flight goes smoothly because you’ve headed it off at the pass. Our pilots are brilliant. If we’re

2014 Montreal Protocol (MP14)

Giving police at the destination the ability to charge passengers wherever the offence took place.

By June 2023, 45 nations comprising 33% of international passenger traffic had ratified it.

still on the ground [and the problem persists] they’ll have someone deplaned.”

By way of context, he says, “we get one unruly passenger a month for a base like London – that’s a background level. During Covid, it was one or two a day.”

Repercussions for misbehaving passengers can be severe.

“We had one case last year when a British plane had to land in the US and, in the US, this can be really bad for the misbehaving people,” says TUI’s Dünhaupt. “I think they got charged \$30,000, plus a lifetime ban from the US.”

Thankfully, physical abuse remains rare, but incidents did increase 61% over 2021, occurring once every 17,200 flights.

The most obvious solution to dealing with these incidents is getting more countries to sign up to MP14. By June 2023, 45 nations comprising 33% of international passenger traffic had ratified it.

But MP14 and removing jurisdictional gaps is not a silver bullet, Colehan says. Deterrence will require actual enforcement action to be taken against those who cause chaos above the clouds. ■

Being prepared

With over 25 years of experience providing technology-enabled psychometric testing, Symbiotics and its ADAPT platform are used by airlines and flight schools around the world for their cabin crew selection and training processes.

“ADAPT assessments focus on a blend of psychomotor and cognitive abilities, aptitude, knowledge, personality, skills, behaviour and mental health,” explains Aviation Psychologist, Emma Akhurst.

So how can it help operators and flight schools to prepare and train cabin crew to potentially deal with disruptive passengers?

Whilst an individual’s personality is stable, Akhurst notes that their behaviour can be modified to better suit the needs of the situation. That is where Symbiotics’ ADAPT assessments come into their own.

“Understanding an individual’s natural strengths and weaknesses and how they are likely to respond to different situations can help pinpoint where they may need to focus their development as they go through training or to identify areas where they may need additional support from the trainer,” says Akhurst.

“The ADAPT reports offer guidance and are a useful tool for focusing on how the individual can develop areas such as empathy and maintaining self-control, both crucial for understanding passenger behaviour and being able to respond in a way that de-escalates a situation.”

Akhurst says the information from the reports can be used in a variety of ways. Symbiotics can then support operators and flight schools on how to interpret the report “to ensure these are as useful as possible in supporting the training of cabin crew”.

Lucy Powell



Bold new frontiers

ATR may well have huge challenges ahead of it, but its CEO is more than ready to meet them. Lucy Powell reports.

While aviation may not have been the starting point of ATR CEO Nathalie Tarnaud Laude's career, it has certainly formed the bulk of a wide-ranging and impressive journey that says much about where she is today.

Starting out as a financial analyst for various investment firms, she went on to complete an MBA at the prestigious London Business School in 2003 – a decisional and developmental pivot that would shape the rest of her career to date.

“[The financial analyst role] allowed me to develop a deep understanding of the financial intricacies that underpin a company's success,” she says. “However, I soon realised I wanted to develop my career towards more operational activities.”

This led to Tarnaud Laude's first foray into the aviation industry, working at the biggest aircraft OEM in Europe and one of the biggest in the world: Airbus.

After a few years in mergers and acquisitions, she took on the role of Head of Operations New Technology Ventures – a move she says marked “a significant turning point in my career”.

From negotiating partnerships in fields as advanced and far-ranging as



hybrid-electric propulsion, artificial intelligence, and the support of the E-Fan 2.0 – the two-seater electric aircraft – Tarnaud Laude found herself at the cutting edge of the industry.

A step change to the rotary world with Airbus Helicopters as Head of Treasury came next.

“[Head of Treasury] was a great experience, in a sector that demands precision, innovation and operational excellence,” she says.

However, when Tarnaud Laude’s interests ventured more towards working on industrial and support challenges, it was here that she took up the position as head of the highly successful NH90 programme for Airbus Helicopters, and President of NH Industries (the programme head of NH90).

“[The NH90 programme] is a successful European co-operation programme with major aeronautic players as industrial partners – just like ATR!” she says.

Making forward-thinking career decisions is something that Tarnaud Laude hasn’t ever shied away from; a point emphasised by the variety of different roles she’s taken up.

“Dare, be bold, trust yourself – be in the driver’s seat of your own career.”

It’s a mantra that has imbued her with a sense of direction and purpose.

“Dare, be bold, trust yourself – be in the driver’s seat of your own career.”

“I can confidently say that my journey has provided me with a unique blend of financial acumen, strategic thinking and leadership capabilities.”

“Nobody can know better than yourself what you like to do, what you are good at, or how you can better serve the business.”

INSPIRING CHANGE

While Tarnaud Laude may have swapped her rotary experience for fixed wing at ATR her past has served as a crucial foundation for her present.

She says: “I can confidently say that my journey has provided me with a unique blend of financial acumen, strategic thinking and leadership capabilities. It has empowered me to navigate the complexities of a European partnership environment and inspire change.”

Tarnaud Laude joined ATR in 2022, at a decisive point in the manufacturer’s own journey. Coming out of the Covid pandemic, sustainability, innovation, and production demands now lie ahead of ATR in a landscape forever changed by a once-in-a-lifetime global event.

No small feat for any organisation, even at the best of times, but one now turned into an even bigger one amidst an industry trying to recover. All of these challenges are ones well suited to Tarnaud Laude’s skill set. However, she’s forthright about how her role as a leader at ATR isn’t just shaped by her own abilities.

“Know what you know, accept what you don’t, and accept to trust others,” she says. “When you take a role like the Head of NH90 or Head of ATR and you do not have an engineering background, the support from the teams and trust in them is crucial.”

Yet from an individual perspective, her career journey and role as a leader has taught her the importance of also trusting in yourself, and that the path to leadership is anything but linear.

“My journey is testament to the fact that opportunities exist when one is open to exploring new frontiers,” she says. “And it’s never too late to reach the highest leadership position in the corporate world.”

As the industry discusses the need for social sustainability in its workforce, of diversity and the avoidance of tokenism in a bid to attract and retain women in the profession, Tarnaud Laude’s position at the head of one of the largest aircraft manufacturers in the world is certainly not something to be dismissed.

Starting out from modest beginnings, the chance to study and learn is what she admits shaped her into the person she is today.

“Always remember where you come from,” she says. “I believe my story reflects the potential for individuals, especially >>>



Window of opportunity: Tarnaud Laude says there is potential for 2,450 turboprop and 550 freighter deliveries in the next 20 years.



women, to break barriers and rise to leadership positions by pursuing passions, embracing changes and investing in their own growth.”

REALISING POTENTIAL

This growth mindset is something which finds itself spilling over into the market Tarnaud Laude now serves.

In fact, the potential within the turboprop market is something that stands as a new and exciting challenge for the CEO.

She says: “What’s interesting is that turboprops are seeing a revival. If you look at all the new projects around low carbon regional air mobility and short-haul connectivity, they all revolve around propellers.”

With a growing emphasis by the industry on sustainability, changing market dynamics are favouring turboprop aircraft due to its fuel-efficiency and lower carbon emissions.

Additionally, a shift in attitude towards regional connectivity, driven by a need for more efficient transportation to reach remote areas, is another major factor that feeds into this resurgence.

Tarnaud Laude says that there is potential for 2,450 turboprop and 550 freighter deliveries in the next 20 years.

“My journey is testament to the fact that opportunities exist when one is open to exploring new frontiers.”

ATR is also hard at work on its STOL variant, which is due to enter service in 2025, and its EVO concept, for which a feasibility study for this hybrid-electric aircraft is planned for 2024.

CHALLENGE AND OPPORTUNITY

But despite a seemingly bright future, what are the biggest challenges facing ATR’s CEO at the present time?

Tarnaud Laude points to how the growing issues with supply chain are still affecting the manufacturer’s ability to assemble and deliver aircraft.

Coupled with wider macro-economic uncertainties and high inflation, instability is rife within the market – despite its aforementioned revival – which holds both challenge and opportunity for the manufacturer.

Latterly, sustainable aviation fuel (SAF) also poses a challenge. While 2025 is the

goal for ATR to achieve 100% SAF certification of its aircraft, the supply and price of the fuel still presents a larger issue for the OEM.

Until this problem is solved – whereby enough of SAF is made and sold at a price that isn’t sky high, there is little any one company can do to alleviate the issue.

The main priorities for Tarnaud Laude are therefore managing the supply chain, meeting delivery commitments to customers and ensuring efficient support to current operators.

“Aircraft production is on the right track, and we see a lot of sales opportunities [in future] as ATR aircraft offer both fuel efficiency and low operating costs,” she says. “With hard work and a strongly involved team, we are starting to see very positive results now.”

Despite the challenges, ATR’s in-service fleet is closing in on pre-Covid numbers with 1,200 aircraft flying and a backlog of 160 aircraft in the order book.

Asked what comes to mind when facing such a list of challenges, she cites a saying of the Stoic philosopher Seneca the Younger.

“There is no favourable wind for the sailor who doesn’t know where to go,” she says. “But at ATR we know what we want to achieve, and how, and where to go. Now everything becomes a matter of focus and effective completion.” ■

“I believe my story reflects the potential for individuals, especially women, to break barriers and rise to leadership positions by pursuing passions, embracing changes and investing in their own growth.”



20^{04 24} CONNECT^o A V I A T I O N

Celebrate with us 20 years of CONNECT SEE YOU IN TURIN

7-9 FEBRUARY 2024 | TURIN - PIEMONTE, ITALY

GET CONNECTED

Join the aviation community for three days of invaluable face-to-face meetings and conference programme. The 20th CONNECT Route Development Forum will be held in Turin, Italy: the beating heart of the Piemonte Region.

To register or find out more information visit:
www.connect-aviation.com

20TH ROUTE DEVELOPMENT FORUM

REGISTER
NOW!

PIEM  NTE
THE PLACE TO EXPERIENCE ITALY

... Ansys

Founded in 1970, Ansys pioneered the use of physics-based simulation software in aviation. Here Steve Bleymaier, the company's CTO for Aerospace and Defence, explains how cost savings across the product life cycle can be achieved.



How does your simulation software work, and what are the main pain points it targets for your customers?

A digital ecosystem will help organisations to adopt the latest advancements for sustained scalability, flexibility and agility in their product development efforts.

Improving the timeliness of insights via modelling and simulation analysis within a digital engineering framework can help organisations avoid cost overruns across a program's entire life cycle, while reducing risks to development costs, schedule and performance.

Digital engineering is essential to creating processes and frameworks that will enable engineering teams to make critical insights early enough to inform vital design decisions while maintaining full system traceability.

Who are some of the aviation clients you have worked with? Do you work with any as low-fare or regional airlines, or is your work predominantly with OEMs and MRO companies?

Our aviation customers are predominantly developers exploring innovative and disruptive technologies. However, regional and low-fare airlines can be positively impacted by these advancements that Ansys contributes to because our simulation software enables a faster time to market.

We have a variety of aviation clients over the years, ranging from start-up innovators like ZeroAvia to larger and more established OEMs and MROs like Rolls-Royce and Airbus.

Our experience in working with a wide variety of customers means we've

contributed to some incredible technological advancements over the years.

At the 2023 Paris Air Show, we showcased some of the innovations our customers were able to create using simulation, such as OneSky's autonomous AI-based advanced air mobility solutions. We also helped Rolls-Royce create more energy- and fuel-efficient gas-turbine engines, and Lufthansa Technik to develop aircraft coating technology inspired by shark skin, to name a few examples.

Can you explain how your simulation software supports developers of future flight technologies, specifically the electrification of fixed-wing aircraft?

Electric motors are the most energy-efficient propulsion but a viable power source is needed if they are to operate successfully. This could be in the form of batteries or fuel cells, but each comes with its own challenges.

For batteries, considerations need to be made around energy density and the extra weight added to the aircraft. Fuel cells can provide more power, but require storing a hydrogen supply, which is a heavy and explosive fuel source.

Simulation can accurately model different power sources to get a clear idea of how they will work, how the electric motor will react and how the power source could impact the overall operation of the aircraft.

Engineers can test a battery power source using real-time models that are electrically and thermally accurate. This enables them to identify overheating and protection behaviours and better understand how the

aircraft will operate with the additional weight of the battery.

Safety is an essential requirement when developing new technologies. How can Ansys's software be tailored to meet necessary regulations?

Ansys's Safety Analysis Software suite allows for the streamlining and automation of functional safety and security analysis.

Our software identifies and considers SOTIF risks and can also perform thorough cybersecurity threat analysis and risk assessment.

Automating these analyses mitigates the risk of human error, whilst ensuring compliance with aerospace regulations such as ARP 4754A/ARP 4761.

Can you explain the function of the Ansys Learning Hub and how it enhances the software experience for your customers?

The Ansys Learning Hub provides all the training resources engineers need to expand their knowledge, allowing them to better tackle current and future projects.

Engineers who are looking to improve their skills, maximise productivity, or just looking for the right solution can leverage the Ansys Learning Hub for support and learning opportunities.

Over 300 courses are available, with access to virtual classes across all time zones and throughout Ansys's worldwide facilities.

Learning paths are incorporated to guide learners' course selections and there is dedicated support in the form of online learning rooms and Ansys Experts. ■





**Independent leader in maintenance,
modifications and conversions**



New B737 NG Nose-To-Tail Program

Leveraging our extensive in-house MRO capabilities, we take pride in expanding our pioneering Nose-To-Tail programs to the B737 NG platform. Ensuring the highest reliability and best-in-class support, hallmarks of Fokker Services Group.

Contact us to customize the program to your needs:

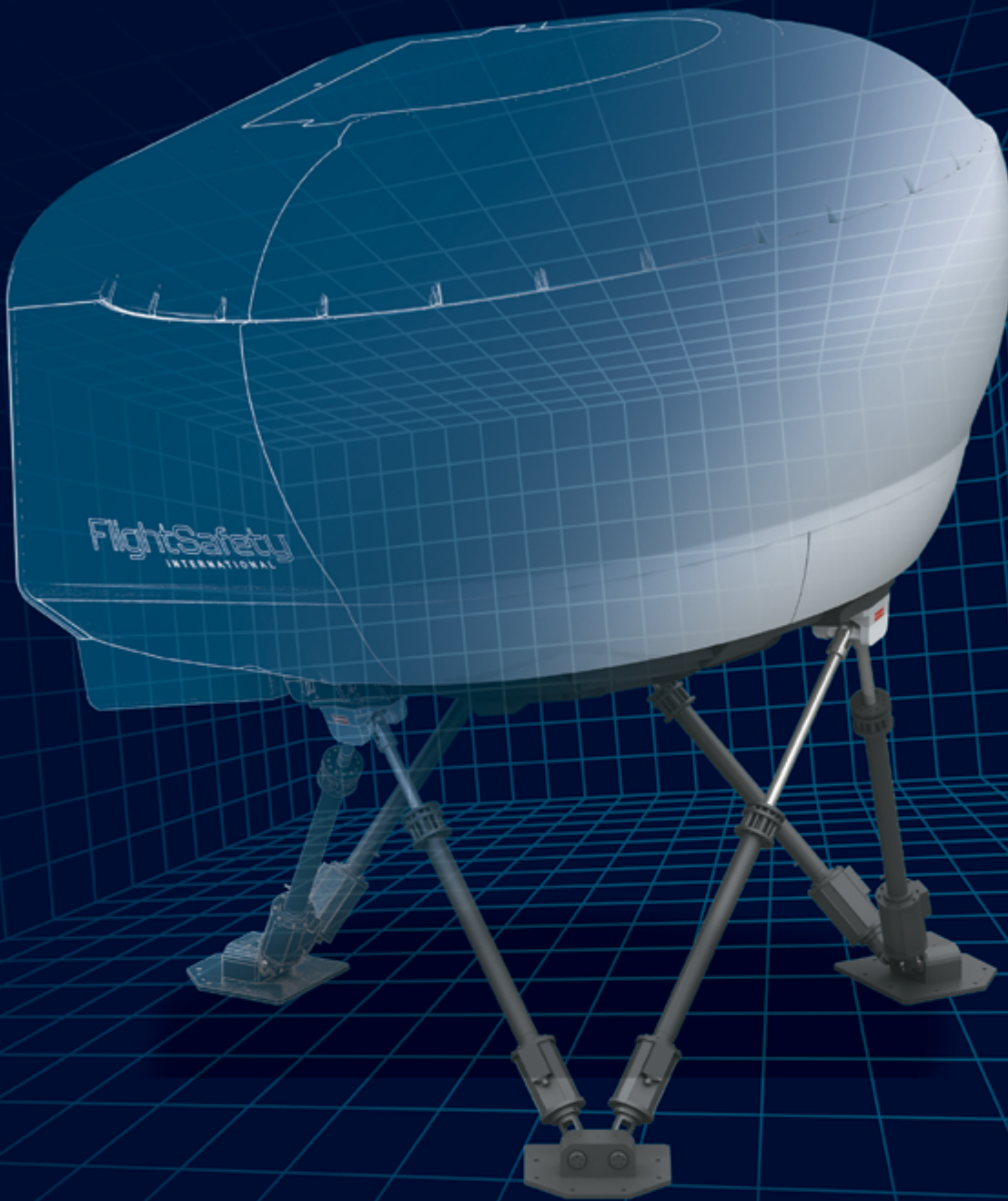
www.fokkerservices.com/services/exchange-programs

Hoofddorp (NL) | Schiphol (NL) | Woensdrecht (NL) | LaGrange (USA) | Seletar (Singapore)

 @MyFokkerServices

 /fokkerservicesgroup

 fokkerservicesgroup



EXCEPTIONAL DEVICES. SUPERIOR RESULTS.

Our commitment to aviation safety drives us to build and support the full spectrum of simulation training devices. This includes our newest FTD and FFS for Airbus A220, A320, and Boeing 737 MAX.

To explore our innovative solutions, visit [FlightSafety.com](https://www.flight-safety.com)

FlightSafety
INTERNATIONAL