MRO BUSINESS TODAY

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Pilatus PC-12 aircraft fleet completes ten million flight hours

With a fleet of more than 1,900 Pilatus PC-12s delivered worldwide, this significant milestone is a testament to the aircraft's robustness, versatility, and reliability.

Pilatus, a Swiss aircraft manufacturer has announced that the global fleet of its PC-12 single-engine turboprop has reached over ten million flight hours since the delivery of the first model. With a fleet of more than 1,900 PC-12s delivered worldwide, this significant milestone is a testament to the aircraft's robustness, versatility, and reliability.

The PC-12 has been a market leader since its launch, appealing to a wide range of operations, including corporate flight departments, individual owner-operators, fractional and charter companies, air ambulance service providers, and special mission roles at local, state, and national levels. The aircraft's large cabin, standard cargo door, docile handling characteristics, and low operating costs offer significant appeal to almost any type of operation.

"When the PC-12 was launched, this milestone seemed light-years away in the future," said Ignaz Gretener, Vice President of Business Aviation division, Pilatus. "You must give credit to the engineers who designed this incredibly robust airframe, the production team that builds outstanding quality into each unit, the sales team that found so many markets eager to adopt this versatile aircraft, and the support team so dedicated to keeping them in the air. We are especially grateful to our ownership base for trusting in Pilatus and helping us continuously improve

the PC-12 so that it leads the market in sales year after year. With each aircraft and every individual owner and operator of a Pilatus aircraft, our goal is to become incrementally better," he further added.

Pilatus delivered 80 new PC-12s in 2022, and the company plans to increase production to meet demand in 2023. The current model, the PC-12 NGX, is the third major variant of the type and differs significantly from the original PC-12. Over the history of PC-12 deliveries, engine power and speed have increased, new executive cabin interiors have been introduced, gross weight and payload capacity were increased, and in 2019, the aircraft became the first business turboprop to incorporate Pratt & Whitney's innovative Electronic Propeller and Engine Control System (EPECS) for its steadfastly reliable PT6 powerplant

Markus Bucher, Chief Executive Officer, Pilatus said, "The PC-12s past, present, and future success boils down to its appeal to a wide range of operations, its solid reliability, and its proven outstanding safety record. As an additional benefit, these attributes have resulted in PC-12 owners enjoying one of the highest levels of value retention among all business aircraft."

Gretener added that the PC-12's success lies in listening to customers and striving to provide them with features, capabilities, and technologies to support their critical missions. According to Pilatus CEO Markus Bucher, the PC-12's past, present, and future success can be attributed to its appeal to a wide range of operations, solid reliability, and proven outstanding safety record. Bucher also noted that the aircraft's attributes have resulted in PC-12 owners enjoying one of the highest levels of value retention among all business aircraft.

With sustainability near the top of almost every business aircraft operator's priority list, the fuel efficiency of the PC-12 offers significant reductions in carbon emissions compared to midsize and larger business jets not optimized for all missions. Pilatus officials note that the global network of Pilatus sales teams is receiving increased interest in the PC-12 from flight departments looking for ways to continue to support their operational requirements with much greater efficiency ■

Duncan Aviation extends Honeywell HTF7000 engine facility, appoints Shawn Schmitz as program manager

The new Duncan Aviation facility accommodates all engine services and backshop capabilities, a dedicated on-site NDT lab, a flow and balance room, and a state-of-the-art paint booth.

Duncan Aviation, a leading aircraft service provider, has expanded its dedicated shop space for Honeywell HTF7000 engine maintenance services and named Shawn Schmitz as the new HTF7000 Program Manager. The company has quadrupled its shop space from 4,000 to 20,000 square feet in Lincoln, Nebraska, to meet the growing demand for the program. The new facility now accommodates all engine services and backshop capabilities, including a dedicated on-site nondestructive testing (NDT) lab, a flow and balance room, a large engine cleanroom, and a state-of-the-art paint booth.

Scott Stoki, Duncan Aviation's Manager of Engine Overhaul Services, stated that the company has been successfully performing all aspects of the HTF7000 engine maintenance process since receiving the minor authorization in 2015. He added that the new facility will allow them to make the best use of their time and space by supporting the entire process in one location without having to move certain critical parts through other areas of the company.

Schmitz, who has years of hands-on experience tearing the HTF7000 engine down as far as possible in the field and then putting it back together again, takes ownership of the new capabilities. His first goal as HTF7000 Program Manager is education. He wants everyone on the team to be on the same page and move forward together. Schmitz works closely with the sales team to help them better understand what service bulletins and repairs are available and what questions to ask, allowing them to communicate better and provide the best support to customers with HTF services.

"We have always been able to successfully perform all aspects of the HTF7000 engine maintenance process since receiving the minor authorization," says Scott Stoki, Manager of Engine Overhaul Services, Duncan Aviation's. "Shawn has years of hands-on experience tearing the HTF7000 engine down as far as possible in the field and then putting it back together again. This experience gives him the tribal knowledge to pass his expertise on to his team and to serve customers better. We are now making the best use of our

Cont Page 04

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Cont Page 02

time and space by supporting the entire process in one location and not having to move certain critical parts through other areas of the company," he further added.

Duncan Aviation is committed to providing the highest quality aircraft maintenance services to its customers. The company supports the aviation needs of business aircraft operators, government agencies, and other aircraft service providers. Services offered include major and minor airframe inspections, engine maintenance, major retrofits for cabin and cockpit avionics systems, full paint and interior services, engineering and certification services, fabrication and manufacturing services, and preowned aircraft sales and acquisitions.

Shawn Schmitz, HTF7000 Program Manager, Duncan Aviation said, "I want everyone on the team to be on the same page and moving forward together. With this information, they can communicate better, allowing us to best support customers with our HTF services. No matter where our customers go to receive HTF services from Duncan Aviation, they will receive a similar customer service experience. I understand why customers like this engine. It is very reliable and has a good reputation in the fleet. It will be around for a long time. And we will be here to support it."

Duncan Aviation has complete service facilities located in Battle Creek, Michigan; Lincoln, Nebraska; and Provo, Utah. The company also has dozens of other facilities strategically located throughout the United States to provide customers with scheduled regional support and the quickest response possible to avionics, engine, and airframe Aircraft On Ground (AOG) situations.

In conclusion, Duncan Aviation's expansion of its HTF7000 engine maintenance services and the appointment of Shawn Schmitz as the new HTF7000 Program Manager reflect the company's commitment to providing the highest quality services to its customers. The newly remodeled 20,000-square-foot facility will enable the company to meet the growing demand for its services and support the entire engine maintenance process in one location, providing a seamless and efficient experience for its customers ■

Thomas Global Systems to provide TFD-4100 LCD Display Upgrade for Bombardier Challenger 604 fleet retrofit

The Thomas Global Systems solution offers AMLCD technology, proven A-D software core, and integration of LCD components into the Collins Pro Line 4 EFD-4077 CRT display.

Thomas Global Systems, a leading provider of practical flight deck display upgrade solutions, has been selected to provide its TFD-4100 drop-in CRT-to-LCD Solution to a prominent operator of Bombardier Challenger 604s for their Pro Line 4 avionics-equipped fleet. The solution offers a high-performance AMLCD technology, proven A-D software core, and seamless integration of LCD components into the Collins Pro Line 4 EFD-4077 CRT display, delivering significant reliability and life cycle cost improvements.

The TFD-4100 is a plug-and-play solution that provides an efficient resolution to critical obsolescence of the EFD-4077 CRT display across Bombardier Challenger 604, Dassault Falcon 50EX/2000/2000EX, Gulfstream G100/G200, and Saab 2000 aircraft. The solution delivers significant reliability and life cycle cost improvements while avoiding a major flight deck modification, aircraft installation downtime, and crew retraining costs.

David Barnes, President & COO, Thomas Global Systems, said, "The selection of our TFD-4100 solution by a respected operator of Challenger 604s highlights the significant reliability and life cycle cost benefits offered by this latest in drop-in LCD displays while addressing critical CRT display obsolescence. We are pleased to be rapidly growing the family of aircraft equipped with our proven and practical display solutions."

The TFD-4100 display is the sixth in the Thomas Global product family of drop-in CRT-to-LCD replacement solutions, including the TFD-7076/-77, TFD-8601, and EFI-650 LCD flight displays currently operating on commercial, regional, and business aircraft worldwide. Jetstream Aviation Capital, the largest global owner of Saab 2000 aircraft, has already selected the TFD-4100 LCD flight display for its Saab 2000 flight decks.

Thomas Global Systems is known for providing highly engineered and reliable electronic systems solutions for commercial aviation, defense, and other high-integrity transportation applications. The company has been thriving for more than 65 years by offering customers trusted, innovative, and best-value products and services. The company focuses on avionics, armored vehicle electronics, and specialized mission-critical electronics and training systems. Thomas Global operates high technology R&D, advanced manufacturing, and support facilities in Irvine, California, and Sydney, Australia ■

DIGITISATION IN MRO

The aerospace MRO business has been quick to adopt digitisation in their systems to get back on to the growth path to pre-Covid levels and more. Projections indicate that the Digital MRO market is expected to grow from USD 606 million in 2020 to USD 1,809 million by 2030, at a CAGR of 11.6% (for the period 2020 to 2030).

In the meantime, the aviation industry, and related organizations are grappling with having to manage exponentially larger volumes of data from disparate sources: sensor data from aircraft and mechanics, maintenance planning and execution information, and content data. The reliance on such huge volumes of data on paper is a huge expenditure burden. Reports say that paper aircraft logs and maintenance records, cost the global industry $3.9 billion over the past decades, and moreover this has hindered optimizing operational and technical efficiency.

Aircraft, like all assets need repair, maintenance, and overhaul. Be they traditional aircraft models with turbofan engines, or jets with innovative carbon fibre-reinforced polymers. As such, MRO providers must adopt the best and latest of technologies for maintaining the most modern aircraft, and remain nimble by streamlining operations, cutting down costs and bringing in transparency throughout the supply-chain.

Investment in MRO Digitisation

Investment in Airline and MRO digitisation will take off only when companies usher in greater adoption of digital platforms into their functional processes, such as fleet management and maintenance especially of next-generation aircraft. Furthermore, service providers must leverage mobile innovations that give access to technical documentation —having access to the right information at the right time. More importantly, quick access to information can help MROs achieve a short and consistent turnaround time (TAT) for their services. This will also help the best performers gain a substantial competitive advantage.

This, and several factors mentioned herein, is why digitisation can be such a boon for MRO and airline companies, despite the high initial cost. See the upside though, where digitisation will have everyone on the shop floor or in offices gain instant access to requisite information on their say, handheld devices. Locating, for instance, the exact parts required at that very moment, may be done with so much ease! Read TAT. Again, advanced analytics can help optimize planning and activities that increase productivity. Without digitisation, aviation mechanics and technicians often end up spending time delving into paperwork and documentation processing, or searching for tools or parts or blueprints, as also awaiting instructions from supervisors.

Digital MRO – A world of conveniences

Selecting the right MRO Digital solution to add value

Introduction of technology to replace or even undergo a system upgrade with the right kind of MRO software for maintenance planning can lead the company to perform proactive maintenance. Choosing the most suitable Cloud-based software platforms can speed up cutting over to digital systems for Airline, MRO, and Defence entities. For the MRO and similar service providers, harnessing data in a collaborative manner can help pare down excess costs, add efficiency and also bring in value. Key stakeholders like operators, lessors, airports, OEMs, and MRO providers must then remain connected. This holds true for both the civil and defence sectors.

Improve maintenance planning

Given the disparate and complex stream of data that is gleaned daily, entities need to design and implement information systems that result in efficiency, integrate seamlessly with the MRO system, thereby segregating routine processes from the non-routine, and maintain a database for future referencing. For advanced analytics which requires performance data to be collected, organised, analysed and applied for optimizing maintenance planning, is growing in demand.

The Digital Thread represents the digitisation of product lifecycle and service lifecycle data and the connections between systems and organizations. The main capabilities of the digital thread are simultaneously maintaining data and content interoperability, for both human and machine consumption.

Digital Twins are digital replicas of a particular asset's logical and physical configuration and associated parametric data. The logical digital twin contains the allowed rules-based configurations, parametric models, and engineering limits of how an asset is designed to function within an environment; while the physical digital twin contains the as-maintained configuration and consumes sensor data, operating data, utilization data, maintenance data, environment data and effectivity changes in these parameters, over an asset's lifecycle. The digital twin provides a single source of 'fact check' to technicians, lessors, and regulators, at remote locations.

Digital Analytics are various methods, algorithms and tools that use digital twin data gathered over the digital thread to determine failure prediction, predictive maintenance, diagnostics, prescription, component, and asset prognostics, and generally, aircraft and fleet health management. Digital analytics include artificial intelligence, machine learning, cognitive computing, and autonomic decision support.

Service Lifecycle Management (SLM) content is equally designed not just for humans, but for machine consumption as well. Therefore, the faster airline and MRO organizations reduce their dependency on paper and PDF documentation, by switching to JavaScript Object Notification (JSON) -a scaled-down version of XML, the more efficiently will they manage to share huge volumes of critical data. JSON is compatible with systems that enable digital twins, machine learning, predictive maintenance, diagnostics and prognosis and suggested solutions. For long-term lifecycle aircraft found in the **defence sector,** this is particularly applicable and suitable as PDF and paper documents are lost over time.

In vogue are exciting terms in digital MRO, like Predictive Maintenance, AR/VR, 3D Printing, Blockchain, Artificial Intelligence, Robotics, Big Data Analytics, Digital Twin, and IOT in terms of technology. 'End-User' being MROs, Airlines and OEMs.

To cite an example, aviation MRO software offers digital solutions for ERP-based software. For instance, Lufthansa Technik developed a digitalized platform, wherein the company has integrated all possible stakeholders through integration software, IoT sensors, and other connected infrastructure.

Importance of Artificial Intelligence (AI)

Leading is the application of artificial intelligence (AI). increasing preference and demand for predictive maintenance that allow MRO operators to conduct preventative maintenance, prescriptive analytics, automated reporting and communication features, voice recognition, and deep learning. Monitoring and auditing performance, parts failure analysis, troubleshooting and assessing equipment condition, all come within the package.

Advanced Text Analytics to avoid duplicate orders

To avoid duplicate orders and subsequent expenditure arising out of it, digi-

tisation allows MROs to apply Advanced Text Analytics to sift out duplication of parts at the time of placing orders. MRO datasets can often be ridden with dupes arising out of variations in nomenclature. This results in the same item being bought from different vendors and at varying prices.

MRO providers are engaged in developing software digitalization that allows forays into intelligent memory use, task recognition, and gain scalability. Aviation asset management is further aided to improve response time, and cost curtailment incurred due to human error.

Tech giants, aerospace manufacturers, airline-affiliated MRO operators Airbus, Boeing, United Technologies, GE Aviation, Rolls-Royce, Lufthansa Technik, Air France Industries-KLM E&M and Thales and a plethora of big data advanced analytics start-ups, have all contributed towards aviation industry's data sharing and advanced analytical capabilities.

Skilling Gap

An aging workforce, and those nearing retirement have been a challenge in the aerospace sectors, which include aviation engineers, mechanics, and pilots; however, there remains a skill gap concerning IT capabilities of these demographics. Investment requires scaling up in terms of right-skilled human capital experienced in data mining and analyses, platforms-as-a-service, microservices, autonomic operations, data engineering or decision science. Data science expertise is required to apply machine learning or artificial intelligence (AI), and basically adopting today's technology.

Investment in capital and returns on investment is a major concern for undertaking new and expensive initiatives. No matter what the financial planning is for businesses, it is a known fact that airlines benefit from digitally monitoring systems, apply the big data to benefit from the advantages of predictive maintenance.

Military aviation operations need the same focus as airlines towards predicting failures, adaptive maintenance programmes, and increasing the mission readiness of military aircraft. Military repair facilities too need to invest heavily in advanced analytics to optimize their performance and improve component reliability.

Regulatory Requirements

With passenger, crew and asset safety being of paramount importance, MRO service providers must adhere to aviation-specific regulations and MRO solutions, especially delivered by suppliers on the cloud platform are accepted only if in compliance with industry-specific needs. (These services include financial services, aircraft maintenance, fleet management, E-documentation, airworthiness certificates, and similar).

There is a cost attached when companies go digital. The European Aviation Safety Agency (EASA), The FAA of the USA, and the local DGCA - all have specific regulatory requirements for the entire gamut of MRO activities.

Conclusion

With high aircraft utilization, high load factors and aircraft ground times restricted at overcrowded airports, airlines are having to make maintenance decisions at increasingly higher speeds. And hence the urgent and critical need to take to digitisation. Plus, with data-driven insights, companies can come up with newer service offerings, performance-based contracts, apart from achieving optimised efficiencies in maintenance work. Airline customers after all are looking for an increased lifespan for their assets with top-of-the line services.

Key Digital MRO players and more...

Software Developers
IFS
Ramco Systems
Rusada
IBM
SAP

MROs
GE Aviation
Boeing Aircraft Service
Honeywell Aerspace
Rockwell Collins
Lufthansa Technik

Other companies with a global footprint are
Aviation Software AG
HCL Technologies Limited
Oracle Corporation
Traxxall Technologies
Ansys
Capgemini
Hexaware Technologies
Winair
Microsoft Corporation

Resource Credit:
Marketsandmarkets.com
McKinsey & Company
Deloitte Aerospace
EMPOWERMX.COM
Capgemini

Cirrus Aircraft begins construction of new facility at McKinney National Airport

The new Cirrus Aircraft $13 million facility will have an area of 45,000-square-foot and will provide expanded space for aircraft sales, flight training, factory service, and aircraft management.

Cirrus Aircraft has announced the commencement of construction on its new facility at the McKinney National Airport in the Dallas Metroplex. The new facility will provide expanded space for aircraft sales, flight training, factory service, and aircraft management. The company plans to invest $13 million in the new 45,000-square-foot facility, which will include a 15,000-square-foot service hangar, 15,000-square-foot storage hangar, eight shade canopies, a flight simulation space, a retail store, and a customer lounge with a panoramic viewing balcony.

Cirrus McKinney currently employs over 50 team members and plans to create more career opportunities in the future. The new facility will enhance the company's existing operations in the area, providing more space for aircraft and servicing needs for its SR Series and Vision Jet owners.

Todd Simmons, President of Customer Experience at Cirrus Aircraft said, "The Dallas Metroplex is a central location for many of our SR Series and Vision Jet owners. With this new expansion at Cirrus McKinney, we are excited to continue enhancing the aircraft ownership experience for our current owners and also create an environment to introduce more people to the benefits of personal aviation. We are proud to partner with the City of McKinney, McKinney Economic Development Corporation and McKinney National Airport and look forward to growing personal aviation in the Dallas Metroplex."

Founded in 1984, the company has redefined aviation performance, comfort, and safety with innovations like the Cirrus Airframe Parachute System, the first FAA-certified whole-airframe parachute safety system included as standard equipment on an aircraft. To date, worldwide flight time on Cirrus aircraft has passed 15 million hours, and 250 people have returned home safely to their families as a result of the inclusion of CAPS as a standard feature on all Cirrus aircraft.

The company has seven locations across the United States, including Duluth, Minnesota; Grand Forks, North Dakota; Greater Dallas, Texas; Greater Phoenix, Arizona; and Greater Orlando, Florida; Knoxville, Tennessee; and Benton Harbor, Michigan. Cirrus McKinney's new facility is expected to open in the near future, and the company looks forward to continuing to serve the needs of its customers and growing personal aviation in the Dallas Metroplex ■

Digitizing the MRO market

The Covid-19 pandemic was pivotal in exposing the value of digitalization.

Using digital tools and contactless systems became second nature to many people in their personal lives. However, at an MRO industry level, integrating technology effectively hasn't been quite as simple as scanning a QR code at your neighborhood pub.

There is no doubt that the digital evolution in aviation maintenance is in its early stages. However, as MROs continually seek to future-proof their business strategies, digitalization will play an increasingly critical role in improving operational efficiency.

Going "paperless"

Driven by regulatory requirements and stringent safety protocols, it is little surprise that the MRO industry is heavily reliant on paper, with operators required to provide detailed "dirty fingerprint" records of all maintenance performed.

Despite digitization being embraced on the flight deck via electronic flight bags (EFBs) and sophisticated data algorithms being the lifeblood of airline revenue managers, the vast majority of aircraft in operation today are still managed via paper-based systems and processes. With a few notable exceptions, MROs represent the trailing edge in aviation's digital evolution.

In addition to paper-based maintenance task cards, far too many MROs continue to rely on hard-copy reference manuals that often exceed thousands of pages. Not only does this 20th-century practice make it harder to keep track of revisions and achieve timely compliance monitoring, it also increases the risks of human error.

That said, the industry is taking some encouraging steps in the right direction to integrate digital tools. For example, new aircraft are delivered with electronic, digital records for serialized parts enabling operators to efficiently upload to their respective MRO planning and tracking IT systems.

Furthermore, MROs now commonly employ optical character recognition (OCR) technology to scan paper-records, with some forward-looking MROs beginning to leverage electronic routine task cards, electronic non-routine cards, and digital signatures.

Integrating digital tools such as these can bring about significant productivity, time, and cost savings for MRO operators, while simultaneously ensuring all maintenance records are accurate – which, from a safety and compliance standpoint, is paramount.

While these technology integration enhancements are welcome, unfortunately the majority of MROs are still holding onto their legacy processes. The capital cost and perceived process change management risks are still considered too high by most and it will likely take another decade or so until the transition to digital achieves critical mass.

Utilizing aircraft data

Nevertheless, there is important work underway – primarily funded by major OEMs partnered with a select few large airline-affiliated MRO providers – to explore the nascent area of big data analysis for predictive maintenance. By harnessing the vast amounts of data now generated in flight from airframes, engines, and components, MRO suppliers of the future will ultimately take major strides to improve aircraft availability and reduce total aircraft lifecycle costs.

For the moment, however, the primary value of advanced digitalization can be seen in the airframe heavy maintenance segment, where sophisticated production control and planning software is being integrated to more efficiently schedule manpower and manage the critical path of the C-checks.

Such software implementation can result in substantial productivity improvements, which are particularly valuable at a time when labor shortages are creating headwinds for the sector. According to a recent report, a coming wave of maintenance workers retirements could result in a 27% shortfall in skilled personnel in North America by 2027.

A digital future

Over the next decade, MROs will inevitably come under increasing pressure, both external and self-imposed, to accelerate their respective digital transformation journeys. Early examples demonstrate the substantial rewards this investment can be expected to generate for MRO providers and their customer operators. It is exciting to step back and consider the opportunities and value enhancements that will become possible as the MRO sector fully commits to transitioning from the current analogue, paper-based system to digital ■

Jonathan Berger
MD
Alton Aviation Consultancy

VSE Corporation and The Loar Group form alliance to takeover Desser Aerospace

Under the terms of the agreement, VSE will acquire Desser Aerospace for a total cash consideration of approximately $124 million, subject to customary working capital adjustments.

VSE Corporation, a provider of aftermarket distribution and maintenance, repair and overhaul (MRO) services for air, land, and sea transportation assets for commercial and government markets, has entered into a definitive agreement to acquire Desser Holding Company LLC, a global aftermarket solutions provider of specialty distribution and MRO services. Under the terms of the agreement, VSE will acquire Desser Aerospace for a total cash consideration of approximately $124 million, subject to customary working capital adjustments. The acquisition is expected to close within 90 days, subject to regulatory approvals.

"I am proud to announce today's transaction as another meaningful step in the execution of our multi-year business transformation plan centered on pursuing strategic organic and inorganic opportunities that allow us to expand our aerospace distribution and MRO service offerings," said John Cuomo, President and CEO, VSE Corporation. "The acquisition supports our tip-to-tail aircraft distribution and MRO services strategy and provides VSE access to the highly fragmented commercial and B&GA aftermarkets. Desser, and their family of businesses, also provide a platform for geographic expansion in high-growth international markets. This value-enhancing acquisition is consistent with VSE's capital-allocation priorities and positions our business for an incredibly bright future," he further added.

Desser Aerospace, founded in 1920, is the world's largest independent distributor of aircraft tires and tubes, a leading global distributor of brakes and batteries, and a component MRO services provider. Desser's global distribution and MRO operation locations in California, Tennessee, the United Kingdom, and Australia, serve a diverse and attractive aftermarket customer base across all aviation industry segments, including commercial aviation, business and general aviation (B&GA), and military aftermarket customers.

"We are excited to welcome the Desser, Desser Australia, Watts Aviation, Aero Wheel and Brake, Cee Bailey's, and Rotable Repairs team to the VSE Aviation family," said Ben Thomas, President, VSE Aviation. "We look forward to building on Desser Aerospace's track record of success as a specialized, highly technical supplier. Together we will offer our respective customers an expanded portfolio of products and services while accelerating the growth of the combined businesses," he further added.

This acquisition aligns with VSE's recently announced strategic priorities and focuses on higher-growth, higher-margin aftermarket services and solutions. As the company continues to build long-term, sustainable sources of profitable revenue, Aviation will be a key driver of growth for VSE. Desser Aerospace is expected to expand and diversify the existing operations of the Aviation segment, driving continued, above-market growth.

"We recognize the importance of maintaining a strong balance sheet and improving our cash position to drive long-term shareholder value," said Steve Griffin, Chief Financial Officer, VSE Corporation. "Upon closing the Desser Aerospace acquisition, we expect net leverage ratio to increase to approximately 4.5x. We plan to reduce net leverage ratio with the proceeds from the sale of the Federal and Defense segment, second-half 2023 free cash flow, and growth in Adjusted EBITDA. We are targeting a net leverage ratio below 3.5x in 2024, assuming the full earn-out from the Federal and Defense business sale is achieved," he further added.

In addition to the acquisition of Desser Aerospace, VSE plans to immediately sell Desser Aerospace's Proprietary Solutions businesses to The Loar Group Inc., a diversified manufacturer and supplier specializing in aerospace and defense components. This sale will facilitate present and future collaborative opportunities for VSE to both distribute Loar's market-leading products to the global aftermarket and support Loar products through the Company's MRO capabilities. Jones Day served as legal counsel to VSE Corporation, and Jefferies LLC served as financial advisor to Desser Holding Company LLC ■

J&C Aero completes reconfiguration of Arena Aviation Capital Airbus A320 aircraft

Arena Aviation Capital cabin reconfiguration project by J&C Aero included the development of a new LOPA, minor cabin modifications and full refurbishment of 180 Airbus A320 seats.

J&C Aero, an international aviation center for innovation in cabin transformation and CAMO, has successfully completed a full-cycle Airbus A320 reconfiguration project for Arena Aviation Capital, an aircraft asset investment company. The project involved cabin modification development, production, certification, and installation by J&C Aero's in-house teams.

The Arena Aviation Capital's cabin reconfiguration project included the development of a new LOPA (Layout of Passenger Accommodations) and related minor cabin modifications, as well as the full refurbishment of 180 passenger seats. In addition, J&C Aero's in-house EASA Part 145 capabilities enabled the installation of the seats and other related modification elements by the company's technicians in Vilnius, Lithuania. In the final stage, J&C Aero's CAMO engineers ensured a smooth certification process for the reconfigured Airbus A320.

Vitalijus Malyška, COO, J&C Aero said, "Aircraft transition between operators is a complex process involving various risks, including those related to aircraft cabin modification. Luckily, thanks to our recent expansion and new services, we can provide turnkey aircraft interior solutions – from design to installation – and ensure wider support for aircraft investors and operators as the industry spreads its wings after several challenging years."

J&C Aero is an EASA-certified design, production, maintenance, and CAMO organization that provides extensive cabin interior and repair solutions for narrow and wide-body aircraft operators and owners. The company holds EASA Part 21J, Part 21G, Part 145, and CAMO approvals, supplemented by multiple STCs, authorizations, and other approvals.

Executive, J&C Aero said, "Being a one-stop-shop aircraft interior solutions provider, we always look forward to challenging projects. In this particular case, we are grateful to Arena Aviation Capital for entrusting us with the full reconfiguration process – from design to production and installation. And we are also proud of our in-house teams that made it all possible."

Arena Aviation Capital is a full-service aircraft investment management company that focuses on the complete life cycle of acquiring and leasing used commercial aviation assets. They manage 58 aircraft leased to 27 airline customers in Europe, North America, South America, Africa, and Asia. The company provides pre-packaged tailor-made solutions for airline customers for their mid and end-of-life assets, including services such as origination, financing, risk management, and administration of commercial aviation assets.

Andy Gao, Technical Asset Manager, Arena Aviation Capital, shared, "The fewer links in the chain, the smoother goes the process of preparing an aircraft for a new operator. This is particularly important as the summer high season is almost here. With this in mind, J&C Aero's team did a great job: from the modification planning to the execution, they did everything as expected and on time. Both we and our airline customer are delighted with the outcome."

This successful project highlights J&C Aero's capability as a one-stop-shop for aircraft interior solutions and the importance of streamlined processes in preparing an aircraft for a new operator. With J&C Aero's in-house teams and EASA certifications, they can ensure a smooth and timely reconfiguration process, providing wider support for aircraft investors and operators as the industry recovers from the challenges of the past few years ■

Air Works enhances South Asia presence with MRO offerings in Nepal

Under the terms of the collaboration, Air Works will depute certifying staff or Maintenance Engineers, to clear the aircraft, besides undertaking business development.

Air Works, India's largest independent aviation services and MRO major, has announced that it is now offering Line Maintenance services to international carriers from Kathmandu in Nepal. The company has partnered with Siris Aircraft Maintenance Repair and Overhaul Pvt. Ltd. (SAMRO), Nepal's first private and independent Approved Maintenance Organization (AMO), to offer its acclaimed Line maintenance services from Nepal's biggest international airport, Tribhuvan International Airport (TIA) in Kathmandu.

Under the terms of the collaboration, while SAMRO will liaise with local regulatory authorities and provide technical manpower and infrastructure including equipment and tooling, Air Works will depute certifying staff or Maintenance Engineers, to clear the aircraft, besides undertaking business development. The services will be executed under the Air Works' Quality system which has been extended to cover the new station.

Air Works has been expanding its footprint in the SAARC region, and this collaboration with SAMRO is its latest move. International passenger traffic in Nepal has rebounded to near pre-Covid levels, registering an increase of 141 percent from 2021, primarily driven by gains in tourism. This also corresponds with higher international flight movements now that pandemic curbs have been completely eased.

D Anand Bhaskar, Managing Director & CEO, Air Works Group said, "Since long, our key international customers had been requesting us to expand our services footprint in the region and today, we are extremely happy to have been able to take this first step in association with Siris Aircraft MRO. The development is also well-timed from a market perspective, given the strong revival in air traffic and the enhancement of aviation infrastructure in Nepal. We believe that this launch could lay the foundation for expanding the scope of our current collaboration with Siris to other airports and other operators in Nepal, that could eventually lead to an enhancement in the scope of services beyond the current transit/ daily/ weekly checks." He also remarked that "The extension of our operational footprint into Nepal reflects Air Works' strong and positive customer relationships that have been built over a decade and are underscored by a philosophy of trust, reliability, mutual understanding and cooperation."

Air Works has a pan-India presence across 19 international airports and is already the biggest provider of Transit or Line Maintenance services to foreign carriers (airlines and cargo) operating into the country. The company holds approvals from Civil Aviation Authorities of over 20+ countries that certify it to maintain both narrow-body and wide-body aircraft at leading airports in the country and now, at Kathmandu.

Air Works' relationship with Nepal goes back almost sixty years when it used to maintain and undertake 12/24 monthly checks on the Dakotas operated by Nepal Airlines (formerly Royal Nepal Airlines Corporation). This latest expansion in Nepal underscores the company's capabilities on par with international standards. ***Cont Page 13***

Cont Page 12....

Arun Malla, Executive Chairman, Siris Aircraft MRO said, "We are delighted to collaborate with Air Works – India's numero uno aviation engineering & maintenance company and MRO brand, acclaimed for its domain expertise, workmanship, and professionalism to offer Line maintenance services from the Tribhuvan international airport. The association will not only expand our market proposition but will also enrich our culture and strengthen our work practices, that will help us to be in sync with global service delivery benchmarks. With Air Works now at Kathmandu, incoming international carriers to the airport can be sure of "flying assured", underlining the country's commitment to safety. With burgeoning air traffic, Kathmandu and other emerging airports in Nepal represent a cradle of opportunities and beginning with Line services, we intend to leverage and enlarge our relationship gradually and cover entire country."

The collaboration with SAMRO will enable Air Works to offer its Line maintenance services to international airlines flying in and out of Tribhuvan International Airport. SAMRO will provide the technical manpower and infrastructure, including equipment and tooling, while Air Works will provide its certifying staff or Maintenance Engineers to clear the aircraft and undertake business development.

Air Works' Quality system will be extended to cover the new station, ensuring that the services are executed with the same high standards as those provided at other airports in India. This will help to ensure that the aircraft are maintained to the same high standards as those in other countries, making it easier for international airlines to operate in Nepal.

Air Works is committed to providing exceptional MRO and aviation services, and this latest expansion underscores the company's commitment to providing high-quality services to its clients. The company's formidable client base is likely to benefit from the expansion, and Air Works will be well-positioned to serve the needs of airlines operating in the SAARC region.

In conclusion, Air Works has expanded its footprint in the SAARC region with its latest collaboration with SAMRO. The partnership will enable Air Works to offer its Line maintenance services to international airlines flying in and out of Tribhuvan International Airport. SAMRO will provide the technical manpower and infrastructure, while Air Works will provide its certifying staff or Maintenance Engineers to clear the aircraft and undertake business development. The services will be executed under Air Works' Quality system, ensuring that they are executed to the same high standards as those provided at other airports in India. With this expansion, Air Works is well-positioned to serve the needs of airlines operating in the SAARC region.■

BOC Aviation handsover first of 11 ordered Boeing 737 MAX 8 aircraft to Lynx Air

All 11 aircraft are part of BOC Aviation's existing order book Lynx Air and will be powered by CFM LEAP-1B engines.

BOC Aviation has delivered the first of 11 new Boeing 737 MAX 8 aircraft to Lynx Air, a leading ultra-low-cost airline based in Canada. All 11 aircraft are part of BOC Aviation's existing order book and will be powered by CFM LEAP-1B engines. The delivery of the Boeing 737 MAX 8 aircraft is a testament to BOC Aviation's ability to provide popular, modern aircraft to its customers, aligned with its strategy of generating long-term sustainable growth.

The Boeing 737 MAX 8 is one of the most advanced aircraft flying today, featuring state-of-the-art technology and design, including advanced avionics, aerodynamics, and fuel-efficient engines. It is one of the most popular aircraft in the Boeing family, with over 5,000 orders and 78 airlines flying the aircraft worldwide.

"We are delighted to welcome Lynx as a new customer. This delivery will enable the airline to serve its customers with one of the most fuel-efficient and technologically advanced aircraft flying today," said Robert Martin, Managing Director and Chief Executive Officer, BOC Aviation."This transaction demonstrates our ability to provide popular, modern aircraft to our customers, aligned with our strategy of generating long-term sustainable growth," he further added.

Lynx Air is a privately owned Canadian airline with the financial backing and industry expertise required to transform the Canadian aviation landscape. The airline is on a mission to make air travel accessible to all, with ultra-affordable fares and a customer-focused flying experience.

BOC Aviation is a leading global aircraft operating leasing company with a fleet of 635 aircraft owned, managed and on order. Its owned and managed fleet was leased to 86 airlines in 39 countries and regions worldwide as of March 31, 2023. The company has its headquarters in Singapore with offices in Dublin, London, New York, and Tianjin.

"We are thrilled to be receiving our seventh Boeing 737 aircraft, which will enable us to expand our North American network and offer our ultra-affordable fares and great flying experience to more Canadians," said Merren McArthur, CEO and President, Lynx Air."These ultra-efficient and reliable aircraft reduce Lynx's carbon footprint, making us one of Canada's most sustainable airlines. We are looking forward to continuing our successful partnership with BOC Aviation and Boeing, as we continue to transform the aviation market in Canada," he further added.

The delivery of the 11 new Boeing 737 MAX 8 aircraft is a significant milestone for BOC Aviation and Lynx Air, as it marks the beginning of a successful partnership between the two companies. With the delivery of these new aircraft, Lynx Air will be able to expand its network and offer its customers an even more affordable and enjoyable flying experience.

BOC Aviation's continued success in the aircraft leasing industry is a testament to the company's commitment to delivering high-quality aircraft and services to its customers. The company's extensive fleet of modern and fuel-efficient aircraft helps airlines worldwide to reduce their carbon footprint, improve their operational efficiency, and enhance their profitability.■

FEAM Aero inaugurates latest New Line Station at San Diego International Airport

The new FEAM Aero location at SAN is set to begin operations on the 1st of May 2023 and will support the Airbus A330 platform, a common jet in the passenger and freighter configuration.

FEAM Aero, the largest provider of aircraft line maintenance services in the United States, has added a new line station at San Diego International Airport (SAN), increasing its global footprint to 52 locations. The new location is set to begin operations on May 1st and will support the Airbus A330 platform, a common and growing platform in the passenger and freighter configuration.

FEAM Aero's presence at SAN will make them the largest independent third-party line maintenance provider for A330 fleet in the US, solidifying their position as a leader in the MRO service provider space. The new location will provide several new full-time job opportunities, with the expectation that the number of openings will double by the end of 2023.

"As FEAM Aero continues to expand we are strategically focusing on our customers' needs and demands," said Scott Diaz, VP of Business Development, FEAM Aero. "San Diego International Airport plays an instrumental role in our growth plans for the Southern California region. We are dedicated to providing substantial support to our loyal customer base in that area," he further added.

FEAM Aero's global presence spans 52 locations, including two hangar facilities, and employs a growing workforce of over 1,500 Aircraft maintenance technicians and engineers. Over the years, FEAM Aero has diversified its MRO portfolio to include line maintenance, technical training, global AOG support, technical support services, and base maintenance.

"FEAM Aero's presence at SAN will make us the largest independent 3rd party line maintenance provider for A330 fleet in US," said Jim Kimball, VP of Technical Operations, FEAM Aero. "We expect to continue to grow this capability in years to come, to further solidify our role as a leader in the MRO service provider space," he further added.

FEAM Aero's full line of services ensures their customers meet their mission and goals and mitigate AOG ground time. The company holds EASA/FAA Maintenance Organization Approvals and approvals from several other domestic and international aviation regulatory authorities ■

Etihad unveils new seats and luxury cabin interior for 787 Dreamliner fleet

The Etihad Airways Business cabin features the Elements seat, manufactured by Collins, and is the first airline in the world to introduce the Elements seat on the Boeing 787.

Etihad Airways has unveiled its latest cabin interior for its Boeing 787 Dreamliners at the Arabian Travel Market in Dubai this week. The new aircraft will join the fleet in Q3 2023 and will add to the existing 39 Dreamliners operated by the airline. The airline is renowned for its award-winning cabins and exceptional guest experience, and the new Dreamliner cabin interior builds on this reputation with further enhancements.

The Business cabin features the Elements seat, manufactured by Collins, and is the first airline in the world to introduce the Elements seat on the Boeing 787. Each of the 32 Business seats has direct aisle access, and the cabin is designed in a 1-2-1 configuration, offering guests comfort, convenience, and privacy. The seats recline to a fully lie-flat-bed, 78 inches in length, with a 17.3-inch 4K TV screen, Bluetooth headphone pairing, multiple charging ports and wireless charging, as well as plenty of storage.

"Etihad's new 787 Dreamliner cabin interior showcases further enhancements to our award-winning and industry renowned cabins. Our new Business class takes the guest experience to new heights with the second evolution of the Business Studio which was launched on the Airbus A350-1000 last year," said Antonoaldo Neves, Chief Executive Officer, Etihad Airways.

In Economy, the newest 787 will feature 271 seats, which are lighter in weight than the current fleet, making them more fuel-efficient. The seats boast exceptional comfort, an increased feeling of space, and an extensive range of entertainment on the 13.3-inch 4K touch-screen monitor, which also includes a convenient USB charging port.

Etihad Airways has focused on the latest inflight entertainment technology from Safran, with new features such as Rave Ultra 4K monitors, Bluetooth headphone pairing, and the option to pair personal phones and tablets to the screen and use as a remote. The 787 Dreamliner is fitted with a new connectivity solution from Viasat using Ka-band technology which offers high-speed Wi-Fi with streaming capabilities on board as well as Live TV, including news and sport channels.

"We remain fully committed to providing industry-leading experiences for our guests, and we're proud to showcase this here at the Arabian Travel Market. This year is about growth for Etihad – as well as enhancing our guest experience and adding aircraft to our fleet, we've announced new routes for our network, including Kolkata last month, Lisbon, Malaga, and Mykonos this summer, and Copenhagen and Dusseldorf in the fourth quarter," said Antonoaldo Neves, Chief Executive Officer, Etihad Airways.

Etihad's partnership with Armani/Casa has now fully rolled out across the airline's Business class cabins, providing guests with an unparalleled Business experience. The range features bespoke dining ware and soft furnishings designed in collaboration with celebrated international designer brand Armani/Casa. Etihad's new Economy dining service is part of a closed loop recycling system, removing single-use plastic entirely and reducing the impact of the operation on the environment.

In conclusion, Etihad Airways continues to elevate its guest experience with the latest cabin interior for its Boeing 787 Dreamliners. The airline's commitment to providing industry-leading experiences for its guests is reflected in its choice of products, technology, and partnerships. Etihad Airways' new Business and Economy cabins showcase further enhancements to the airline's award-winning and industry-renowned cabins ■

Jet East launches new Structures Response Team to boost AOG services

The Jet East comprehensive mobile repair service is designed to provide quick and high-quality maintenance and repair services for aircraft of all sizes.

Jet East, a leading provider of aviation maintenance services, has announced the launch of its new Structures Response Team. This comprehensive mobile repair service is designed to provide quick and high-quality maintenance and repair services for aircraft of all sizes. The team comprises highly trained and experienced structural technicians who have a proven track record of expertise in sheet metal and composite repairs.

The Structures Response Team expands on Jet East's range of full-service capabilities, which already includes a 24/7 AOG Maintenance Team of 115 technicians offering nationwide coverage with around-the-clock dispatch. The new service is intended to provide maximum convenience to customers during the most inconvenient circumstances, such as bird strikes, lightning strikes, or hangar incidents.

Shawn George, Chief Operating Officer of MRO Services, Jet East said, "We understand that our customers rely on

Cont Page 17

Cont Page 16

their aircraft to conduct their business, and we take that responsibility very seriously. Jet East is proud to offer comprehensive repair services with the ability to support the entire repair after initial assessment. This includes working with engineering, NDT, repair, and paint. The advantage of the Jet East Structures Response Team is that we do not specialize in just one discipline, but able to support all aspects of the required repair."

The Structures Response Team is equipped with the necessary tooling packed for immediate dispatch, and can be deployed in less than 24 hours. The team provides on-site repairs, or the aircraft can be brought to one of Jet East's facilities in Florida, North Carolina, or Texas, ensuring that aircraft are returned to service as quickly as possible.

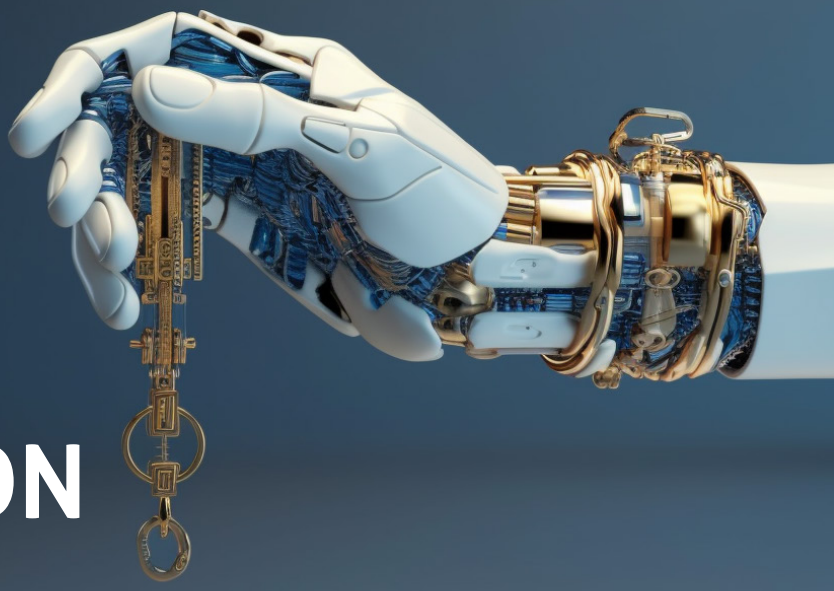
In addition to its highly skilled Structures Technicians, Jet East's Engineering

Team is available to assist with repairs that exceed limits within the manual, fly-on requests, or special flight requests. Jet East's Engineers work closely with the Structures Technicians to ensure that the data provided is not only seamless from a regulation standpoint but understandable and practical for the end user. This function also leverages repair options by ensuring that parts that are not readily available can be quickly repaired or fabricated.

Jet East's Structures Response Team also offers services beyond structures repairs, including non-destructive testing (NDT) and paint services. Jet East, A Gama Aviation Company, is one of the nation's leading aviation maintenance providers. The company specializes in scheduled maintenance, on-demand mobile maintenance for unscheduled events, paint and interior completions, and provides related services in the areas of structural repairs, composite work, and non-destructive testing (NDT).

With its highly skilled workforce, Jet East is available to meet customer maintenance needs with on-demand service and coast-to-coast coverage in the U.S. and in certain international markets. The company's expansive AOG Mobile Maintenance team operates with a 24/7 Dispatch Team and compliments the company's maintenance hangars in North Carolina, New York, New Jersey, Florida, Texas, California, Illinois, and Nevada ■

MORE THAN A TRENDY BUZZWORD, AI HOLDS THE KEY TO MRO DIGITALIZATION



Author: Erkki Brakmann, CEO & Founder, SkySelect

Artificial intelligence (AI) has gone mainstream and become a trendy subject matter with the likes of ChatGPT becoming common discussions around the family dinner table. While debates will rage about AI's long-term impact on the general society, there are clear real-world use cases that can be applied today, especially when applied to specific verticals and use cases.

This is very much the case for the MRO industry and its often talked about, but seldom executed push into digitalization. Thanks to AI, the future is now for the MRO industry.

The Current State

Before we look at what's ahead, let's first address the historical background of the MRO industry and where it is today.

The Industrial aftermarket MRO parts business faces non-determinable demand, meaning that the operation of aircraft and capital equipment does not create a demand pattern that can be easily plannable.

Because of this buyers, suppliers and OEMs do not know the true consumption of parts. This leads to:

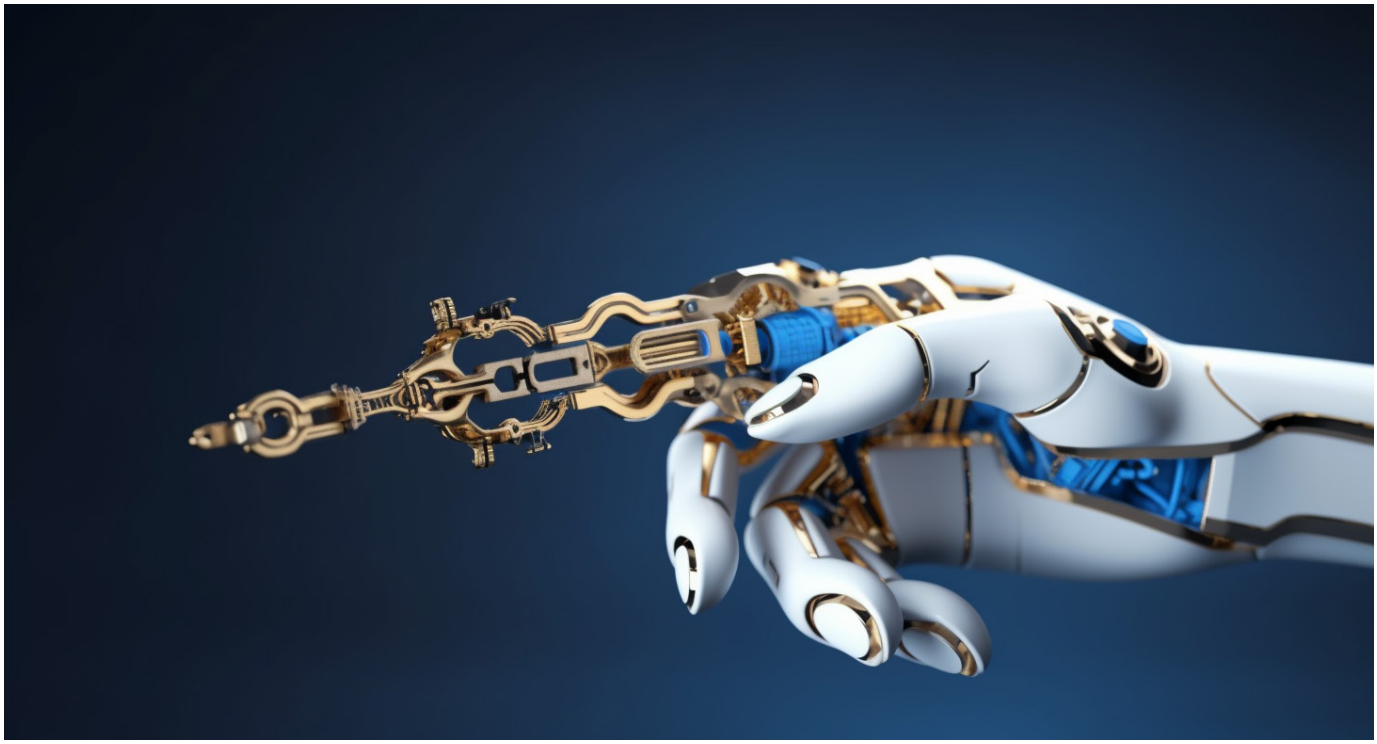
- Operators struggling to stock the correct parts
- A shortage of skilled workers to balance the ebbs and flows of demand
- Aircraft and equipment being grounded
- A surplus of inventory being held by all parties.
- Risk for inventory excess and obsolescence

For example, the amount of spares that airlines are stocking to support an aircraft and minimize downtime varies greatly from around ~$0.7M to $2.5M per aircraft. With single-aisles averaging around $1.5M and twin-aisles slightly above that. This quickly adds up, especially for large airlines with many aircraft in their fleet Furthermore, the opportunity cost of not having critical inventory can result in grounded aircraft with rippling operational and customer satisfaction impact. The opportunity cost, in terms of lost revenue, starts at <$0.1M/day for a single-aisle downtime, however the peripheral expenses can add up, including customer accommodation and other charges.

The excess inventory in the commercial aircraft market is estimated at around $50B. This is a significant cost for an industry that is run on razor thin margins, which is being compounded by rising interest rates from carrying excess inventory.

A Shift Towards Automation

So how can this problem be solved? Through digital transformation. At the root of the problems outlined above is the industry's manual way of working. The way forward is automating many of these processes by using AI to lever



age structured consumption-based data from buyers on the parts they buy. With this data, it's possible to:

- Match the demand forecast regularly against market availability to adjust inventory planning and unlock working capital.
- Similarly OEMs and suppliers can have a better visibility into demand to plan accordingly.
- Automate the purchasing using real-time market intelligence to increase on-time delivery performance, reduce stock replenishment rate and capture the best opportunities.
- Although parts consumption is empirically unplanable based on the component knowledge of the inputs (which include time between failure, maintenance schedule and fleet age), applying AI and machine learning (ML) on large structured consumption data sets can allow for the prediction of future parts usage based on aggregate output demand data.
- Take a big leap forward to improve the sustainability of the industry by reducing the amount of excess inventories and optimizing logistics to reduce the carbon footprint.

How is AI making a Difference

Due to lack of visibility and real-time information, the industry is working with the forecasts made based on historic purchasing data (which are seldom accurate in today's new landscape) and this leads to missteps in planning and a lot of surplus inventory.

By connecting the forecast with real-time market availability, one is able to adjust the planning and procurement to match the real needs of day-to-day operations. Unfortunately, due to the complexity of the industry and the constraints set by manual process, a buyer is only able to process 10-20 purchases per day. AI helps to overcome these limitations and turn human buyers into 'superbuyers' being able to process hundreds or thousands of part requirements in one go by only having to focus on exceptions.

For example, with the power of AI a part requirement can be matched against market availability to determine the right quantity to be purchased by also using forecast and historical consumption data. It suggests the best source based on lead time, condition, price and logistics, executes the purchase and automates delivery tracking. Up to 90% of manual effort can be eliminated so that the human buyer can focus on exceptional cases.

The Evolution of Procurement AI

Today, the MRO industry is applying the first versions of ML algorithms to automate the procurement process. This is a big step up from the manual resource intensive purchasing process, driving tangible cost and time savings.

Simply put, ML algorithms cut the purchasing turnaround time from days or weeks to minutes. This allows airlines and MROs to reduce inventories as their purchasing cycle is faster, but it does not provide the inventory planning recommendations.

The next evolution is moving into demand planning and simulations. At this stage, AI will analyze the structured consumption data from airlines and MROs giving them accurate recommendations on the parts to buy, and feeding the forecast to the suppliers so that they can plan out the production and stocking of the parts. Although not an easy task, we foresee AI helping lead the collaborative forecasting efforts between demand and supply centers to ensure alignment on future part availability.

We are seeing a new digital paradigm taking shape based on data insights powered by AI disrupting the current distribution model that has been run on personal relationships and manual processes. The MRO industry is finally realizing its digital future ■

Embraer partners with Finep for development of new aeronautical technologies

The Embraer and Finep partnership will focus on sharing the costs and risks associated with low and medium Technology Readiness Level (TRL) research and development.

Embraer, the Brazilian aerospace manufacturer and the Financiadora de Estudos e Projetos (Finep), a government agency that promotes the country's social and economic development through public funding for science, technology, and innovation, have signed a deal to jointly develop new aeronautical technologies. The partnership will focus on sharing the costs and risks associated with low and medium Technology Readiness Level (TRL) research and development.

The deal was signed during the ceremony marking the 30th anniversary of the Aerospace Industries Association of Brazil (AIAB) in São José dos Campos, in the state of São Paulo. The event was attended by Luciana Santos, the Minister of Science, Technology, and Innovation, Felício Ramuth, the Deputy Governor of São Paulo, and other dignitaries.

The project, which is valued at more than R$ 180 million (USD 36 million), will receive a non-reimbursable contribution of R$ 120 million (USD 24 million) from Finep over the next three years. The remaining funding will come from Embraer and five co-executors, Alltec, Equatorial, Eleb, Motora, and TecCer. The development work will include the creation of ground test benches (RIGs), software, and a remotely operated modular aircraft for real flight

testing. The aim of the project is to raise the TRL of new technologies.

"We are very happy to continue our long-standing partnership with Finep and to be able to contribute to the advancement of technologies and the spillover of knowledge to other sectors of the Brazilian economy, advancing the planet's decarbonization agenda and generating socioeconomic benefits for Brazil, through innovation, science and technology," said Henrique Langenegger, Chief Engineer, Embraer.

The project will involve collaboration with Institutes of Science and Technology, including the Technological Institute of Aeronautics (ITA), the Mauá Institute of Technology (IMT), the Institute of Technological Research (IPT), and the School of Engineering of São Carlos, part of the University of São Paulo (USP). The partnership will further strengthen the relationship between the government, academia, and industry, known as the triple helix, which drives the socioeconomic development of the country.

Elias Ramos de Souza, Director of Innovation, Finep said, "The project with Embraer establishes a type of arrangement between the executors that offers great potential for innovation. It is a model to be followed in several areas to solve technological orders led by anchor companies, and one that involves partnerships with companies of various sizes and Institutes of Science and Technology."

The government subsidy for innovation in companies is a widely used policy instrument in developed countries, and its application adheres to the norms of the World Trade Organization. The aim is to promote a significant increase in innovation activities, increase the competitiveness of companies, and boost the country's economy.

The agreement between Embraer and Finep represents an important step for Brazilian aerospace technology development, and the project is expected to generate positive results for the country's economy and technological advancement ■

HAECO ITM to provide inventory technical management services for Nippon Cargo Airlines Boeing 747-8F fleet

HAECO ITM will provide Nippon Cargo Airlines with access to a wider range of components, as well as provide AOG support and logistics services for eight Boeing 747-8F aircraft.

HAECO ITM Limited, a member of the HAECO Group, has signed a seven-year contract extension with Nippon Cargo Airlines, a leading Japanese all-cargo airline, to provide inventory technical management services for its Boeing 747-8F fleet based in Narita. Under the terms of the contract, HAECO ITM will ensure that Nippon Cargo Airlines has access to a wider range of components, as well as providing AOG support and logistics services to maintain the reliability of the airline's eight Boeing 747-8F aircraft in the years to come.

Customized, comprehensive component repair management and engineering services will be offered by HAECO ITM to ensure that Nippon Cargo Airlines' Boeing 747-8F aircraft operate reliably. The company has been providing support services to Nippon Cargo Airlines since 2017, and has grown its

Cont Page 23

Cont Page 22

understanding of the airline's operations over the years, developing its inventory solutions to deliver value and guarantee operational excellence.

William Arblaster, Executive General Manager, HAECO ITM said, "HAECO ITM has been supporting Nippon Cargo Airlines since 2017. Over the years, we have grown our understanding of Nippon Cargo Airlines' operations, developing our inventory solutions to deliver value and guarantee operation excellence to our customer. We are delighted that Nippon Cargo Airlines has continued to trust us with the support of their fleet for the next seven years."

HAECO also provides a wide array of MRO support to Nippon Cargo Airlines, including base maintenance and line maintenance services in addition to Inventory Technical Management Services. The HAECO Group is one of the world's leading aircraft engineering and maintenance service providers, offering a comprehensive range of solutions that encompass airframe services, line services, cabin solutions, component overhaul, aerostructure repairs, landing gear services, engine services, global engine support, parts manufacturing, and technical training. HAECO Group has 16 operating companies that employ approximately 15,000 staff members in Hong Kong, mainland China, Europe, and the United States.

Toshiaki Kobori, Senior Executive Managing Director of Engineering and Maintenance, Nippon Cargo Airlines said, "HAECO ITM has been an indispensable business partner for our 747-8F operation. This service extension will further strengthen our partnership and sustain the reliability of our operation. We are truly thankful for HAECO ITM's support and look forward to our continuous business together."

Founded in 1978, Nippon Cargo Airlines started operation in 1985 and is Japan's only all-cargo airline. NCA has extensive experience in air freight and handles diverse types of cargo, serving as the main artery of international distribution, connecting major cities throughout the world.

With the signing of this contract extension, the partnership between HAECO ITM and Nippon Cargo Airlines is set to continue, bringing benefits to both companies. HAECO ITM's commitment to providing inventory technical management services that are tailored to meet the needs of its customers, combined with its expertise in the aviation industry, will enable Nippon Cargo Airlines to continue to operate its Boeing 747-8F fleet reliably and efficiently. This partnership underscores the growing importance of effective inventory management in the aviation industry, and the value that can be derived from partnering with a trusted and experienced service provider like HAECO ITM ■

Staying Ahead of the Curve: Panasonic Avionics' Approach to Technological Advancements and Customer Collaboration

*In this interview, we speak with **Panasonic Avionics,** a company that provides tailored in-flight entertainment and connectivity solutions for airlines. The interview delves into the company's collaboration process with airlines to ensure their solutions meet the unique needs of their passengers. The interview also highlights Panasonic Avionics' commitment to sustainability and examples of initiatives and projects undertaken to promote sustainability in the aviation industry. The interview further emphasizes the company's ability to leverage innovative solutions from across Panasonic and how this unique strength gives them a competitive edge. Overall, the interview provides insight into **Panasonic Avionics' approach to customer collaboration, sustainability, and technological innovation.** More below where Panasonic Avionics is in conversation with **MRO Business Today.** Read More.....*

Q - Please explain the process by which Panasonic Avionics collaborates with airlines to develop tailored in-flight entertainment and connectivity solutions that meet the unique needs of their passengers.

A - As a trusted partner with the world's leading airlines, Panasonic Avionics conducts continuous direct personal interviews with all the relevant groups within the our customers' operations to ensure we get accurate and actionable information about their problems, concerns, and desirable outcomes. This information is used internally at Panasonic to develop solutions that are in turn discussed and refined with additional airline feedback. It's a continual process that helps ensure each airline is well served and satisfied.

Q - Sustainability is a top priority for Panasonic Avionics. Please enlighten us with some examples of initiatives or projects that the company has undertaken to promote sustainability in the aviation industry?

A - Panasonic Avionics has a long history in caring for the environment and contributing to society. Over the years, we have worked tirelessly to deliver solutions that in each iteration are lighter weight and lower power than the previous generation of solutions. We enthusiastically support the industry goal of being net-zero carbon neutral by 2050, set by the International Air Transport Association (IATA), as well as our airline customers' goals to promote sustainability.

We are also committed to Panasonic Corporation's net-zero carbon emission initiative, known as the global Panasonic GREEN IMPACT, which was announced on January 5, 2022 by Panasonic Corporation in Osaka, Japan. As part of this program, Panasonic Avionics Corporation continues to develop sustainable impacts in the areas of emissions reductions, new technologies, and energy transformations with the goal to reach net-zero carbon emissions by 2030.

Q - How does Panasonic Avionics maintain its edge in terms of technological advancements and customer expectations regarding in-flight entertainment and connectivity in a fast-paced and customer-driven industry? Please explain.

A - As I mentioned previously, we conduct direct personal interviews with all the relevant groups within the airline to ensure we get accurate and actionable information about their problems, concerns, and desirable outcomes. From there, we leverage very talented teams in R&D, engineering, product marketing, and product management that come up with innovative technical advancements to address the needs of the market. This is in terms of the passenger experience and the ownership experience for the airline. Entertainment and connectivity go hand in hand to solve the airline's problems and the innovations occur across both sides of the coin.

We are also in a unique position to leverage the solutions from across Panasonic, taking the most innovative solutions from groups in consumer electronics, automotive and so many others. It's a unique strength that we have within our industry, and we believe it gives us a competitive edge ■

Aero to provide MRO support for modernization of Angolan L-39 jets

The AERO contract for Angola L-39C aircraft also includes training ground and flight personnel, supply of spare parts, ground equipment, flight gear, and more.

AERO Vodochody AEROSPACE a.s. has secured a contract for the modernization and overhaul of four L-39 aircraft owned by Angola. This is the first time the L-39C aircraft will be upgraded with the new American engine, also used in Aero's new L-39NG aircraft. The modernization is expected to commence in the second half of 2023, with the first aircraft scheduled to be completed in 2025.

The scope of the contract includes the remotorization, airframe overhaul, and avionics upgrades. The FJ44-4M engines from Williams International will replace the original engines from the Ukrainian company Motor-Sich. This new engine represents a quality and risk-free route for L-39 users, particularly in the face of uncertainty in the supply and support of the original AI-25TL engine. The upgraded aircraft, known as the L-39CW, will be used primarily for pilot training in Angola.

The contract also includes training ground and flight personnel, supply of spare parts, ground equipment, flight gear, and more. The aircraft will be transported in containers and handed back upon completion in the same manner. With the conclusion of this contract, Aero has consolidated its position as a supplier of pilot training solutions in Sub-Saharan Africa and supported its other business activities in the region.

"I consider this contract another historic achievement for our company, as we will be integrating for the first time a new engine from Williams into the previous generation L-39 aircraft, which is part of the delivery of the new L-39NG. Thus, we are coming to market with a new product that is close to the developed standards of the new L-39NG aircraft and will allow current L-39 users a smooth introduction of the L-39NG aircraft in the near future. The upgraded aircraft, designated L-39CW, will be used primarily for pilot training in Angola. Our design ensures the highest quality and reliability in all delivery and service, which is why Angola has chosen to work with us on the upgrade. We firmly believe that this type of modernization will be implemented for other customers as well," said Filip Kulštrunk, Executive Vice President and CCO, Aero.

Aero has produced over 2,900 L-39 Albatros aircraft, with hundreds still flying around the world. The Albatros is historically the most successful jet trainer aircraft, but many countries also use them for other missions, such as reconnaissance missions or border protection. In recent years, Aero has completed maintenance, repair, and upgrade orders for L-39C and L-39ZA aircraft from four foreign customers in Africa and Central Asia. The Bulgarian Air Force's L-39s are also undergoing overhaul and upgrade.

With 11,000 aircraft produced in its 100 years of existence, AERO Vodochody AEROSPACE a.s. is the largest aircraft manufacturer in the Czech Republic and one of the oldest aircraft manufacturers in the world. AERO focuses on the development, production, maintenance, and improvement of civil and military aircraft.

In the field of its aircraft, AERO is a permanent partner of a number of military air forces and has a strong position in the market for military trainers and light combat aircraft. In the civil aviation sector, AERO works with major aircraft manufacturers on a wide range of projects and is a partner in several risk-sharing programs, where it is responsible not only for the manufacture and assembly of aircraft assemblies but also for their development ■

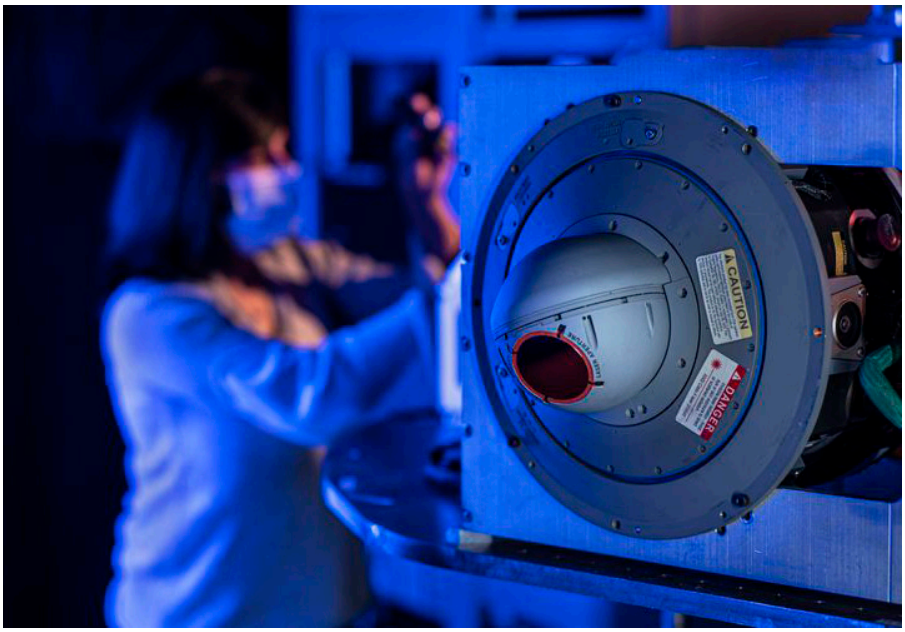
Northrop Grumman continues to develop additional Infrared Countermeasure Systems platforms for US Air Force

Under this order, Northrop Grumman will provide LAIRCM upgrades, modifications, and installations on a wide range of U.S. fixed-wing and rotary-wing aircraft.

Northrop Grumman Corporation has received an additional order from the U.S. Air Force for its Large Aircraft Infrared Countermeasure (LAIRCM) systems, as part of an existing indefinite delivery, indefinite quantity contract. The LAIRCM system provides infrared threat protection to aircrews by detecting, tracking, and jamming incoming infrared threats. The system automatically counters advanced infrared missile systems by directing a high-intensity laser beam into the missile seeker.

Under this order, Northrop Grumman will provide LAIRCM upgrades, modifications, and installations on a wide range of U.S. fixed-wing and rotary-wing aircraft. Additionally, the contract covers platforms operated by international

Cont Page 26



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customers around the globe.

Northrop Grumman has been providing infrared threat protection to the U.S. Air Force for over two decades. With its modular, scalable architecture, LAIRCM can adapt to numerous airframes and add technologies that enhance protection capabilities. This proven approach has enabled Northrop Grumman to provide the U.S. Air Force and thousands of aircrews with unmatched protection and aircraft survivability equipment that helps them stay safe against emerging threats.

"With its modular, scalable architecture, LAIRCM can adapt to numerous airframes and add technologies that enhance protection capabilities," said Bob Gough, vice president, navigation, targeting and survivability, Northrop Grumman. "This proven approach has enabled us to provide the U.S. Air Force and thousands of aircrews with unmatched protection and aircraft survivability equipment that helps them stay safe against emerging threats," he further added.

Northrop Grumman is a leading global aerospace and defense technology company, driven by a shared purpose to solve its customers' toughest problems. With 95,000 employees, the company is dedicated to equipping its customers with the capabilities they need to connect and protect the world, and push the boundaries of human exploration across the universe.

As a premier provider of airborne electronic warfare systems, Northrop Grumman's portfolio includes a full range of airborne electronic attack systems, electronic support measures, and electronic protection systems. The company also offers advanced sensors, navigation, and targeting systems, as well as a broad range of space-based systems, including satellites, ground systems, and payloads. Northrop Grumman's innovative solutions provide unmatched capabilities to customers across the aerospace and defense industries, enabling them to meet the challenges of today and tomorrow ■

Israel Aerospace Industries will supply long-range loitering munitions to Estonia

IAI has signed a contract with Estonia for the country to acquire advanced long-range loitering munitions, making it one of the most expensive defense procurements in Estonia's history.

The first deliveries of the long-range loitering munitions are expected to arrive in 2024, with the necessary training provided to the Defense Forces before deployment.

Israel Aerospace Industries (IAI) has signed a contract with Estonia for the country to acquire advanced long-range loitering munitions, making it one of the most expensive defense procurements in Estonia's history. The deal aims to strengthen Estonia's defense capability by significantly increasing its indirect fire capabilities, along with extended-range artillery ammunition, anti-ship missiles, and multiple launch rocket systems, giving the country various capabilities to influence the adversary from long distances in the near future.

Estonia's indirect fire capability is currently provided by various caliber mortars in the composition of maneuver units and self-propelled howitzers in divisional composition. The country plans to create multiple rocket launchers and long-range loitering munitions units within the Defense Forces by 2024-2025.

Hanno Pevkur, Defense Minister, Estonian said, "Long-range loitering munitions are an important addition to the development of Estonia's defense capability. The importance of indirect fire cannot be overestimated, as Russia has caused much of the destruction in Ukraine through indirect fire. The introduction of this new capability allows us to attack the enemy from a longer distance. As a result, indirect fire becomes more layered and flexible, increasing the range of fire, which means that the defense forces can hit the enemy where it hurts."

Before the procurement of stealth air-launched munitions, thorough market research was conducted to find the most suitable solution for the defense forces' needs. Estonia's order focused

primarily on achieving long-range offensive capabilities, including precision, munition robustness, and wide-ranging simultaneous offensive capability.

Mr. Levi also added that IAI's loitering munitions are particularly useful when users seek more flexibility and responsiveness in employing firepower to quickly spot the enemy and act decisively based on the information acquired by the weapon itself in real-time. Loitering munitions are suited for naval or land platforms.

"The market for long-range loitering munitions is currently turbulent," said Ramil Lipp, armament category manager, Estonian Centre for Defense Investment (ECDI). "Recent conflicts such as the Nagorno-Karabakh conflict and the ongoing war in Ukraine have demonstrated the high effectiveness of this type of offensive weapon, leading to the development of such systems by several countries, with new players expected to enter the market soon. The future of this market will certainly involve intense competition, and the coming years will reveal where these systems will further evolve."Currently, we have made orders for long-range weapons which we cannot disclose the exact specifications of, but in the future, we plan to acquire similar weapons with different technical capabilities and for firing at different ranges," he further added.

The market research for the procurement of long-range loitering munitions began in the spring of 2022, including companies from the USA, Turkey, South Korea, Poland, Germany, Israel, the United Kingdom, and Estonia. The first deliveries of the long-range loitering munitions are expected to arrive in 2024, with the necessary training provided to the Defense Forces before deployment. The Defense Forces will be ready to use the systems as soon as they arrive.

IAI's President and CEO Mr. Boaz Levi said, "Estonia is a strategic partner for IAI. This award reflects the growing trust and relations between Estonia and our company. IAI offers a family of loitering munition missiles – providing a wide range of solutions from the tactical to the strategic level."

In conclusion, the agreement between Estonia and IAI for the acquisition of long-range loitering munitions is a significant step towards strengthening Estonia's defense capability. It will enhance the country's ability to launch attacks from long distances and provide more flexibility and responsiveness in employing firepower. The procurement is a testament to Estonia's commitment to defense and security and the growing relationship between Estonia and IAI ■

Raytheon Technologies demonstrates Common Tactical Edge Network for U.S. Air Force

Raytheon Technologies' Collins Aerospace CTEN aims to enable tactical data sharing across different networks, allowing for faster decision-making in the battlefield.

Raytheon Technologies, the largest aerospace and defense company in the world, has successfully demonstrated the Common Tactical Edge Network (CTEN), a solution developed by its subsidiary, Collins Aerospace. The company will now work on developing an operational architecture for the service. CTEN aims to enable tactical data sharing across different networks, allowing for faster decision-making in the battlefield. The solution supports the building of a convergence layer to connect sensors and shooters on various platforms, including land, air, sea, and space.

The CTEN approach is based on Raytheon Technologies' expertise in existing and emerging tactical datalinks and radios. The company's experience in platform-agnostic systems integration allows it to develop optimal networking solutions for a broad range of platforms.

Ryan Bunge, VP and General Manager for Resilient Networking and Autonomy Solutions, Collins Aerospace, said "CTEN is a JADC2 enabler, operating on a totally open architecture to connect across domains. By integrating disparate networks to create an overlay network, the U.S. Joint commands are enabled to share critical, time-sensitive data in real-time."

Raytheon Technologies' ability to integrate organic and third-party capability into the developing CTEN architecture and its fielding of more than 30 National Security Agency-certified Multilevel Security and End Cryptographic Unit solutions and interoperable aerial network waveforms were also noted.

The company's digital engineering pipeline and real-time battlefield emulator enabled it to demonstrate how an adaptive convergence layer provides robust network connectivity across disparate systems across various environments.

Raytheon Technologies, which reported $67 billion in sales for 2022, is headquartered in Arlington, Virginia. Its subsidiary, Collins Aerospace, is a global team of 73,000 employees who design, develop and deliver connected solutions for passenger safety and comfort, mission success, space exploration, and operational efficiency and sustainability.

In conclusion, the successful demonstration of CTEN by Raytheon Technologies highlights its expertise in integrating platform-agnostic systems and developing optimal networking solutions for various platforms. The company's ability to integrate organic and third-party capabilities into the developing architecture will further enhance the CTEN's capabilities ■

GE Aerospace secures $684 million T408 turboshaft engines contract from NAVAIR

The GE Aerospace contract includes engine and other services and builds upon the five previous contracts for T408 engines, the most recent of which was awarded in January 2021.

GE Aerospace has secured a $683.7 million contract from NAVAIR to provide the sixth, seventh, and eighth lots of T408 engines to power the U.S. Marine Corps' advanced heavy-lift helicopter, the Sikorsky CH-53K King Stallion. The contract includes engine and other services and builds upon the five previous contracts for T408 engines, the most recent of which was awarded in January 2021. The Lynn, Mass. plant of GE Aerospace will perform the final assembly for the Lot 6, 7, and 8 engines, which are slated to be delivered from 2024 to 2027.

The CH-53K powered by three T408 engines, achieved Initial Operating Capability with the U.S. Marine Corps in April 2022. The engine's 7,500 shaft horsepower offers 57 percent more power than its predecessor, the GE Aerospace T64, making it capable of performing critical heavy-lift missions for the Marine Corps, joint forces, and allies worldwide in challenging conditions.

"GE Aerospace is proud to build off its longstanding partnership with NAVAIR and Sikorsky to continue powering the CH-53K," said Scott Snyder, T408 Program Director. "This additional contract represents another step forward for the T408 engine, which to date has more than 18,000 flight hours powering the CH-53K in some of the world's harshest operating environments," he further added.

Moreover, the T408 offers 18 percent better specific fuel consumption than the T64, delivering significant savings over the engine's lifetime. The T408 also boasts advanced designs, such as a more rugged compressor with erosion coating and split casing, reducing the number of parts by 63 percent, thereby improving both reliability and maintainability.

MTU Aero Engines, based in Germany, is a participant in the T408 program and is responsible for producing the power turbine. Besides the Lynn, Mass. plant, GE facilities in Hooksett, N.H.; Rutland, Vt.; Madisonville, Ky.; Dayton,

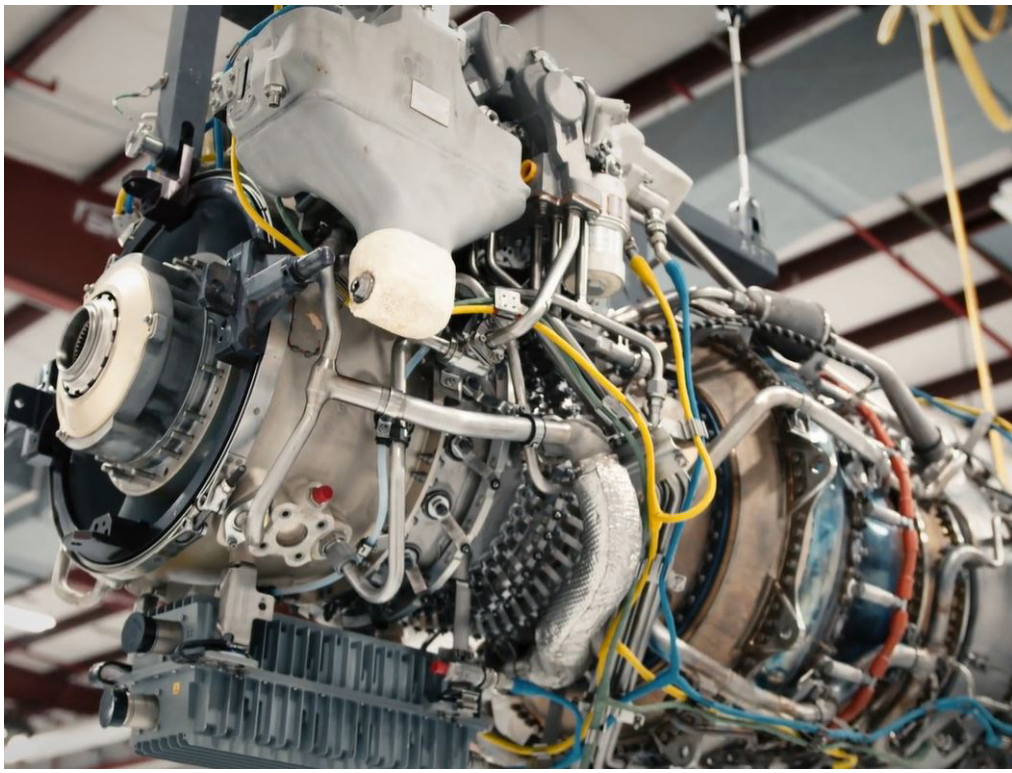
Cont Page 29

Cont Page 28

Ohio; and Jacksonville, Fla. also contribute parts for this contract.

GE Aerospace is a leading provider of jet engines, components, and systems for commercial and military aircraft, with a global service network to support these offerings. GE Aerospace and its joint ventures have an installed base of over 40,000 commercial and 26,000 military aircraft engines, playing a vital role in shaping the future of flight.

This contract marks a significant milestone for GE Aerospace, which has been supplying engines for military and commercial aircraft for over a century. The company's commitment to innovation and collaboration with NAVAIR and Sikorsky has enabled it to continue pushing the boundaries of what is possible, delivering cutting-edge technology and unparalleled performance to the U.S. Marine Corps and its allies ■



Ryanair pens MoU with Repsol for SAF across Spain and Portugal

The agreement with Repsol gives Ryanair access to up to 155,000 tonnes (52 million gallons) of SAF between 2025 and 2030, which is equivalent to over 28,000 flights from Dublin to Madrid.

Ryanair, Europe's largest airline, and Repsol, a global energy group, have signed a Memorandum of Understanding (MOU) to advance the supply of sustainable aviation fuel (SAF) at Ryanair airports across Spain and Portugal. This collaboration is a significant step forward in advancing Ryanair's Pathway to Net Zero strategy and its ambitious goal of using 12.5% SAF by 2030 and achieving net-zero emissions by 2050.

The agreement with Repsol gives Ryanair access to up to 155,000 tonnes (52 million gallons) of SAF between 2025 and 2030, which is equivalent to over 28,000 flights from Dublin to Madrid. This will result in an approximate saving of 490,000 tonnes in CO2 emissions.

Eddie Wilson, CEO, Ryanair said, "SAF plays a key role in Ryanair's Pathway to Net Zero strategy and our goal of using 12.5% SAF by 2030. Achieving this requires multiple different

feedstocks and production methods, and we're encouraged that Repsol is looking at multiple solutions. This agreement helps Ryanair secure access to c.15% of this ambitious goal. Repsol is a key sustainability partner for Ryanair, and we look forward to building on this collaboration as our Group grows to carry 225m passengers annually by FY26."

SAF is a key enabler of aviation decarbonization, but it currently accounts for only a small fraction of the current jet fuel usage worldwide. This collaboration between Ryanair and Repsol demonstrates their commitment to working together and investing in SAF supply fuels.

Valero Marin, Executive Managing Director of Client, Repsol said, "This collaboration agreement with Ryanair, Europe's leading passenger airline, reinforces our commitment to the aviation sector, and it is another step in Repsol's commitment to renewable fuels. The aviation sector needs solutions such as SAF fuels to support the decarbonization process it is currently undergoing. This also consolidates our position as a multi-energy company with the objective of achieving zero net emissions by 2050."

This collaboration between Ryanair and Repsol is an essential step towards reducing aviation emissions and supporting the aviation industry's decarbonization process. It reinforces the commitment of both companies towards sustainability and renewable fuels, and paves the way for more collaborations in the future ■

Ethiopian Airlines receives 20th Sustainable Aviation Fuel (SAF) powered Airbus A350-900 aircraft

With the addition of the 20th A350-900 aircraft, Ethiopian Airlines now operates 144 modern aircraft, including Boeing 737s, 777s, 787s, and Bombardier Dash 8-400 double cabin.

Ethiopian Airlines has been a Star Alliance member since 2011 and has registered more than threefold growth in the past 10 years.

Ethiopian Airlines has marked another milestone in its commitment to sustainability by taking delivery of its 20th A350-900 aircraft from Airbus. The delivery flight, which took place on April 28th, 2023, used a 30% blend of Sustainable Aviation Fuel (SAF), reducing the airline's carbon footprint and contributing to the industry's ambition to achieve "net zero carbon emissions by 2050" as set by IATA, ATAG, and ICAO.

The A350-900 aircraft has proven to be instrumental in Ethiopian Airlines' fleet strategy, offering operational flexibility and efficiency, and best-in-class passenger comfort. The delivery of this A350-900 powered by SAF marks yet another milestone in the relationship between Ethiopian and Airbus, working together to reduce carbon emissions across the aviation industry.

With the addition of the 20th A350-900 aircraft, Ethiopian Airlines now operates 144 modern aircraft, including Boeing 737s, 777s, 787s, and Bombardier Dash 8-400 double cabin, to more than 150 domestic and international passenger and cargo destinations across five continents.

Mesfin Tasew, CEO, Ethiopian Airlines Group said, "We are glad to receive our 20th brand new A350 aircraft from Airbus. This is another historical first for Ethiopian Airlines as it is our first flight operated with sustainable aviation fuel in cooperation with Airbus, demonstrating our commitment to realizing a sustainable air transport industry. The humanitarian shipment the ferry flight carried also signifies our commitment to discharge our social responsibility. We will continue to invest in fulfilling our corporate social responsibility by reducing carbon emissions and transporting humanitarian shipments going forward."

Ethiopian Airlines is the fastest-growing airline in Africa, and in its 76-plus years of operation, it has become one of the continent's leading carriers, unrivaled in efficiency and operational success. In addition to its main hub in Addis Ababa, Ethiopia, the airline is pursuing its multi-hub strategy through hubs in Lomé, Togo, with ASKY, in Lilongwe, Malawi, with Malawi Airlines, and in Lusaka, Zambia, with Zambia Airways.

"The A350-900 has proven to be instrumental in Ethiopian Airlines fleet strategy, offering unrivaled operational flexibility and efficiency and best in class passenger comfort. The delivery of this A350-900 powered by Sustainable Aviation Fuel (SAF) marks yet another milestone in our relationship; working together to reduce carbon emissions across the aviation industry." said Mikail Houari, President Africa Middle East, Airbus.

Ethiopian Airlines commands the lion's share of the Pan African passenger and cargo network, operating the youngest and most modern fleet to more than 150 domestic and international passenger and cargo destinations across five continents. Its fleet consists of ultra-modern and environmentally friendly aircraft, such as Boeing 737s, 777s, 787s, Airbus A350-900, and Bombardier Dash 8-400 double cabin, with an average fleet age of seven years. Ethiopian Airlines has been a Star Alliance member since 2011 and has registered more than threefold growth in the past 10 years.

In conclusion, Ethiopian Airlines' commitment to sustainability and corporate social responsibility has been further demonstrated by the delivery of its 20th A350-900 aircraft powered by SAF. The airline's multi-hub strategy, modern fleet, and operational success continue to position it as a leading carrier in Africa and a significant player in the global aviation industry ■

Boeing boosts sustainable aviation efforts with Expands ecoDemonstrator flight-test program

The program will assess 19 new technologies on the Boeing 777 ecoDemonstrator and will introduce "Explorer" airplanes, which will focus tests on specific technologies.

Boeing, the American aerospace company, has announced plans to expand its ecoDemonstrator flight-test program to accelerate innovation for sustainability and safety. The program will assess 19 new technologies on the Boeing 777 ecoDemonstrator and will introduce "Explorer" airplanes, which will focus tests on specific technologies. The first ecoDemonstrator Explorer, a 787-10 Dreamliner, will conduct flight tests in June from Seattle to Tokyo, Singapore, and Bangkok to demonstrate how coordinating navigation across global airspace jurisdictions can improve operational efficiency and reduce fuel use and emissions by up to 10%.

Boeing will collaborate with air navigation service providers (ANSPs) in the US, Japan, Singapore, and Thailand to collectively sequence the airplane's routes to achieve the optimal flight path across multiple regions, factoring in conditions such as weather, air traffic, and airspace closures. The airplane will fly on the highest available blend of sustainable aviation fuel (SAF) at each location.

Stan Deal, CEO, Boeing said, "To support our industry's goal for net zero carbon emissions by 2050, Boeing is expanding our ecoDemonstrator program with Explorer airplanes to test even more sustainability-focused technologies. We continue to invest in innovation that reduces fuel use, emissions, and noise on our products and to partner with governments and industry to make progress on sustainability during each phase of flight."

In 2023, Boeing will also use its current flagship ecoDemonstrator airplane, a 777-200ER (Extended Range), to test 19 new technologies, including sustainable wall panels in the cargo hold made of 40% recycled carbon fiber and 60% resin made from a bio-based feedstock. Other technologies to be tested include a fiber optic fuel quantity sensor compatible with 100% SAF and an Electronic Flight Bag application featuring Smart Airport Maps, a component of Jeppesen FliteDeck Pro, which reduces operational costs and supports safe taxi operations with the depiction of contextual airport data. The airplane will fly on the highest available blend of SAF locally for all flight tests.

Chris Raymond, Chief Sustainability Officer, Boeing said, "The industry will need continued fleet renewal, efficiency gains, renewable energy carriers such as sustainable aviation fuel, and advanced technology to meet the civil aviation industry's commitment to achieve net zero carbon emission by 2050. Our initial Explorer testing in partnership with aviation stakeholders in four countries is a great example of how we can work together to optimize operational efficiency and reduce emissions."

Since its inception in 2012, the Boeing ecoDemonstrator program has accelerated innovation by testing new technologies in an operational environment. The program has already tested approximately 250 technologies to help decarbonize aviation, improve operational efficiency, and enhance safety and the passenger experience. Approximately a third of the tested technologies have progressed onto Boeing's products and services.

Boeing is a leading global aerospace company that develops, manufactures, and services commercial airplanes, defense products, and space systems for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability, and community impact. Boeing's diverse team is committed to innovating for the future, leading with sustainability, and cultivating a culture based on the company's core values of safety, quality, and integrity ■

Bombardier announces Iridium Certus Connectivity Service as a basic feature on Challenger 3500 jets

Bombardier with Collins Aerospace will offer Iridium Certus for fleetwide connectivity services that will support the aircraft's exquisite on-board experience and ensure heightened productivity.

Bombardier, a global leader in aviation, has announced that it will equip all Challenger 3500 aircraft with Iridium Certus connectivity as a baseline feature. This new offering, in collaboration with Collins Aerospace, Bombardier's Preferred Service Provider for fleetwide connectivity services, will support the aircraft's exquisite on-board experience and ensure heightened productivity.

With a top connection speed of 704 Kbps, Iridium Certus provides a strong foundation for connectivity needs, with the lowest latency and the largest coverage, stretching from north to south and from east to west. The constellation of more than 66 cross-linked satellites ensures a truly global network with higher data speed for optimal efficiency and a seamless in-flight experience. All present operators of Challenger 300 and Challenger 350 aircraft will be able to install this new service as a retrofit in Bombardier's extensive service center network.

All present operators of Challenger 300 and Challenger 350 aircraft will be able to install this new service as a retrofit in Bombardier's extensive service center network.

Jean-Christophe Gallagher, Executive Vice President, Aircraft Sales and Defense, Bombardier said, "We are proud of our leadership position of the industry when it comes to cabin comfort and reliability. By incorporating the new Certus system to Challenger 3500 jets, we offer our clients a highly reliable connectivity service with pole-to-pole coverage. This shows our unwavering commitment to our clients."

The Challenger 3500 jet boasts an extra luxurious interior, including Bombardier's stylish and exclusive Nuage seat. The aircraft's advanced design also prioritizes passenger wellness, with a dramatically lower cabin-pressure altitude that engenders a more pervasive sense of comfort and well-being. The addition of the Certus service brings the Challenger 3500 in-flight experience to new heights.

In line with Bombardier's commitment to the environment, the Challenger 3500 aircraft are designed and manufactured with sustainability in mind. It is the first business jet in the super mid-size segment to have an Environmental Product Declaration published, documenting the aircraft's environmental footprint over its lifecycle. In the cabin, a range of high-end, environmentally friendly choices makes it possible for customers to opt for up-cycled fabrics, alternative types of wood and natural fiber-based materials without compromising style or comfort. The aircraft also allows flight crews to optimize fuel efficiency and lower CO2 emissions, using a unique eco app, a first in the business aviation industry.

Nate Boelkins, Vice President and General Manager Business and Regional Avionics, Collins Aerospace said, "Collins Aerospace's new Iridium SATCOM solution will provide Challenger 3500 operators with faster speeds, lower weight and smaller antenna footprint than legacy SATCOM systems allowing for minimum drag and lower power usage while providing more efficient connectivity services for the passengers in the cabin."

Bombardier's Challenger family is the best-selling super mid-size platform for the past eight years and is the platform of choice among top corporate flight departments and charter operators worldwide. Bombardier has a worldwide fleet of approximately 5,000 aircraft in service with a wide variety of multinational corporations, charter and fractional ownership providers, governments, and private individuals. Bombardier aircraft are also trusted around the world in government and military special-mission roles leveraging Bombardier Defense's proven expertise.

Headquartered in Greater Montréal, Québec, Bombardier operates aerostructure, assembly, and completion facilities in Canada, the United States, and Mexico. The company's robust customer support network services the Learjet, Challenger and Global families of aircraft and includes facilities in strategic locations in the United States and Canada, as well as in the United Kingdom, Germany, France, Switzerland, Italy, Austria, the UAE, Singapore, China, and Australia ■

Raytheon Technologies to provide Collins Aerospace InteliSight Aircraft Interface Device for JetBlue Airbus A320 fleet

Raytheon Technologies' Collins Aerospace InteliSight Aircraft Interface helps flight crews, ground crews, and airline operations teams optimize costs and improve customer service.

Raytheon Technologies has announced that it will install Collins Aerospace's InteliSight Aircraft Interface Device on more than 200 JetBlue Airways Airbus A320 aircraft. The device captures, records, stores, encrypts, and securely transmits aircraft data to Collins' cloud platform, GlobalConnect, for real-time access to data, enabling JetBlue to adjust service schedules and improve the sustainability of the aircraft. The solution helps flight crews, ground crews, and airline operations teams optimize costs and improve customer service.

InteliSight solutions can be customized based on their unique, modular structure to address customers' different needs and are supported 24/7 by a worldwide network. At least one carrier has reported a substantial increase in their data capture rates, up to more than 99%, after equipping its aircraft with InteliSight solutions.

"After an extensive review process, we chose the Collins Aerospace solution," said Captain Chuck Cook, director communications, navigation, surveillance, and technical programs, JetBlue. "Real-time access to data will allow JetBlue to adjust service schedules and increase the sustainability of these select aircraft," he further added.

The InteliSight device is a part of Collins Aerospace's connected aircraft portfolio, which has become the company's fastest-growing division, experiencing a 20% increase in orders in 2023. The portfolio also includes the Flight Operations and Maintenance Exchanger (FOMAX) and Aircraft Information Manager (AIM).

Jennifer Schopfer, president of Connected Aviation Solutions at Collins Aerospace, said, "JetBlue will see immediate and quantifiable benefits from the digital transformation of these aircraft. The InteliSight data, passed via GlobalConnect, will give JetBlue's flight operations, engineers, and maintenance teams the information they need to ensure an even more efficient travel experience for their passengers."

Collins Aerospace, a Raytheon Technologies business, is a leader in technologically advanced and intelligent solutions for the global aerospace and defense industry. The company's comprehensive portfolio and broad

Cont Page 34

Cont Page 33

expertise enable it to solve customers' toughest challenges and meet the demands of a rapidly evolving global market.

Raytheon Technologies is the world's largest aerospace and defense company, with 2022 sales of $67 billion and a global team of 180,000 employees. The company is advancing aviation, building smarter defense systems, and creating innovations to take us deeper into space.

JetBlue's decision to install Collins Aerospace's InteliSight Aircraft Interface Device on its Airbus A320s will enable the airline to gain real-time access to aircraft data, allowing it to optimize costs, improve customer service, and adjust service schedules. The InteliSight device is part of Collins Aerospace's connected aircraft portfolio, which has experienced a 20% increase in orders in 2022 ■

Panasonic Avionics and HEAR360 introduce world's first 3D spatial audio to enhance in-flight entertainment

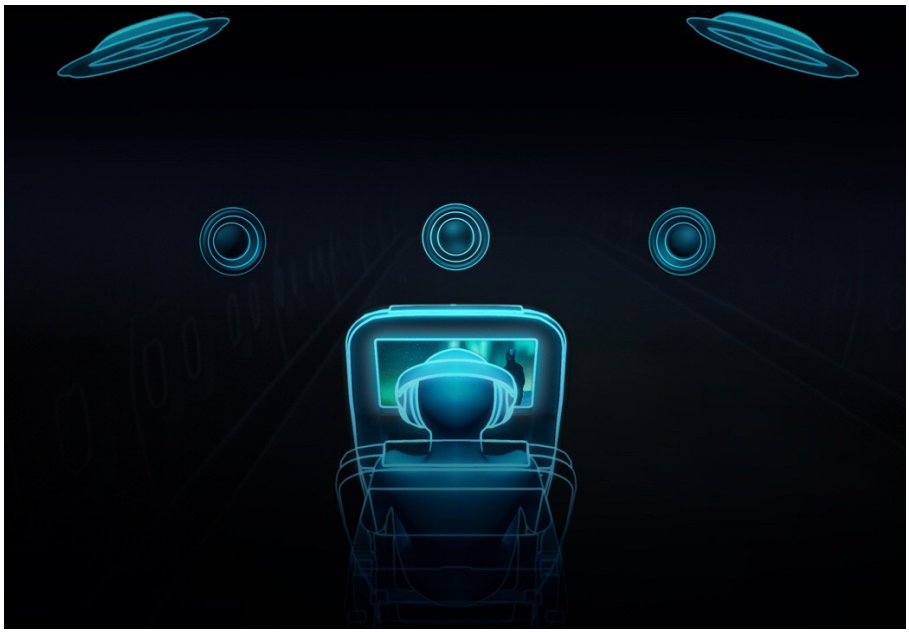
The Panasonic Avionics and HEAR360 Spatial Audio technology delivers a 3D theatrical surround sound experience, making all in-flight entertainment content, live or on demand.

Panasonic Avionics Corporation, a leader in in-flight entertainment and connectivity systems, has partnered with HEAR360 Inc., a provider of advanced audio solutions, to bring Spatial Audio technology to airline passengers. The technology delivers a 3D theatrical surround sound experience, making all in-flight entertainment content, whether live or on demand, including movies, music, live television, sporting events, and games, more immersive.

The Spatial Audio technology is compatible with any wired or Bluetooth wireless headphones or earbuds, and will be a standard feature with Panasonic Avionics' new Astrova IFE solution, enhancing the cinema-grade experience it delivers. The technology is also content and device agnostic, meaning that airlines will not need to change their media procurement processes or deliverables, ensuring no increase in media spend.

Andy Masson, Vice President of Product Management, Panasonic Avionics, said, "Spatial Audio provides passengers with a comparable experience to a home theater system they would enjoy on the ground, while enabling airlines to offer premium audio and remain efficient with their media spending. The launch of Spatial Audio represents the latest evolution in the industry leading sound solutions Panasonic Avionics offers and follows our previous milestones including the introduction of HD Audio in 2015, and full cabin Bluetooth Audio in 2021."

Spatial Audio is the latest in a series of innovations from Panasonic Avionics, and represents the company's continued efforts to offer state-of-the-art systems for all cabin experiences. The technology has become a standard for all forms of entertainment, including streaming of movies and music, and is now being offered to passengers for IFE. With its partner, HEAR360, Panasonic Avionics is delivering an unparalleled in-flight experience that is comparable to a home theater system on the ground.



Spatial Audio is the latest in a series of innovations from Panasonic Avionics, and represents the company's state-of-the-art systems for all cabin experiences.

Matt Marrin, CEO and Co-Founder, HEAR360 said, "We are thrilled to partner with Panasonic Avionics to give all passengers an unparalleled immersive and engaging inflight experience using our revolutionary audio technology. Being content and device agnostic not only means we democratize best-in-class audio for everyone to enjoy, it provides Panasonic Avionics and its airline customers with immediate scalability in a cost-effective manner."

Panasonic Avionics is the world's leading supplier of in-flight entertainment and communication systems. Since pioneering the industry in 1979, the company has consistently introduced innovations that enable unique customer experiences and enhance airline loyalty, ancillary revenue, and operational efficiency. The company's systems power approximately 70% of the global IFE-equipped fleet, and are supported by a global team of over 3,500 employees in 50 locations ■

Nolinor Aviation names Oliver Tomczak as new Director of Operations

In his new position at Nolinor Aviation Oliver Tomczak will be responsible for overseeing the company's flight operations, crew, and regulatory compliance.

Nolinor Aviation, the Canadian airline, has recently appointed Oliver Tomczak as its new Director of Operations. In his new position, Oliver Tomczak will be responsible for overseeing the company's flight operations, crew, and regulatory compliance. As Director of Operations, Tomczak will be responsible for ensuring that the company's flight operations are in compliance with the industry's regulations, including crew training, and maintenance of the aircraft. Oliver Tomczak's vast experience in the industry and track record of success make him an ideal candidate for the position.

Oliver Tomczak, Director of Operations, Nolinor Aviation said, "Nine years ago, I started my journey with Nolinor Aviation, and it has been nothing but a great privilege to grow and learn alongside some of the most dedicated and talented individuals in the industry."

Oliver Tomczak's career with Nolinor Aviation began in 2014 when he joined the company as a flight dispatcher. Since then, he has held various critical positions within the company, including Flight Operations QA Manager and Assistant-Director of Operations. Over the years, Tomczak's dedication and hard work have enabled him to rise through the ranks and earn his latest promotion to Director of Operations.

Andrée-Anne Lauzon, Human Resources Vice-President, Nolinor said, "Oliver's contagious passion for aviation sets him apart. He has a fire in his eyes."

Oliver Tomczak's passion for aviation and his adventurous spirit are undoubtedly the driving forces behind his success at Nolinor Aviation. His appointment as Director of Operations is a testament to the company's commitment to promoting talent within its organization.

Yves Bergeron, Vice President of Operations, Nolinor said, "Oliver has become a key member of the organization that can be counted on. His appointment to Director of Operations is well-deserved, and we have no doubt that he will continue to excel in this new role."

Nolinor Aviation is a Canadian charter airline that offers customized charter flights for various industries, including mining, oil and gas, and tour operators. The company operates a fleet of Boeing 737s and 767s and is known for its commitment to safety and efficiency. The Nolinor team congratulated Tomczak on his new position, wishing him well in his new adventure. The company is confident that Tomczak's leadership will guide the organization toward continued growth and success ■

Air India reserves top Engineering position for Vistara's Sisira Dash Appoints Dash as Chief Technical Officer (Head of Engineering)

Air India is all set to appoint Vistara's Sisira Kanta Dash as their Chief Technical Officer (Head of Engineering), effective June this year, according to media and industry sources. News of this key development in the higher echelons of the Management at Air India is being viewed by industry watchers as a precursor to the impending merger of Air India and Vistara.

The merger of the two airlines is pending regulatory approvals as was mentioned by Air India's CEO Campbell Wilson, earlier this year.

Sisira Dash, who is currently the Head of Engineering at Vistara, will be taking over as Chief Technical Officer of Air India from the current incumbent Mr. Arun Kashyap, who will be moving out to pursue other opportunities, according to sources.

At a time, when massive aircraft orders have been placed by Air India, Sisira Dash would have his job cut out as CTO, and would need to bring his wealth of experience to the fore, not just for the maintenance of AI 's massive fleet going forward, but refurbishing the cabin interiors reflecting the airline's newest brand values ■

Rusada names Steve Lightstone as Director of Sales & Business Development

Steve Lightstone in his new role at Rusada will focus on expanding the company's ENVISION software in both Canada and the United States.

Rusada, the Aviation software provider has appointed Steve Lightstone as its new Director of Sales & Business Development. With over 20 years of experience in sales, marketing, and sales leadership roles, Lightstone has worked extensively in the aviation software industry and has built a strong reputation for his work with airline maintenance and engineering operations across the globe.

Based out of Rusada's new Toronto office, Lightstone will focus on expanding the company's ENVISION software in both Canada and the United States. He will join the North American sales and business development team to deliver the benefits of ENVISION to more new customers.

"Steve is a great new addition to our team out there," said Julian Stourton, CEO at Rusada. "His extensive experience in aviation software and the industry relationships he has fostered over the years will allow us to further grow Rusada's presence in the region and deliver the benefits of ENVISION to more new customers," he further added.

In his most recent role, Lightstone served as Vice President of Sales at ATP, where he played a significant role in developing the company's ChronicX software business into the dominant market leader, and supported various SpotLight clients at major aircraft OEMs. Prior to this, he held various sales and leadership positions in businesses across multiple industries.

"I am thrilled to be joining the team here at Rusada, and to play a key role in the company's continued growth" adds Steve Lightstone, Director of Sales & Business Development, Rusada. "I have been following Rusada's rise in the industry with much interest over the years, and I now look forward to working with clients, both existing and new, to improve their productivity and profitability through the use of our ENVISION solution," he further added.

Rusada's ENVISION is a complete aviation maintenance management system that helps airlines, MRO providers, and aviation operators to streamline maintenance processes, reduce costs, and improve aircraft uptime. The software solution covers a broad range of functionalities, including work order management, inventory control, maintenance tracking, compliance management, and real-time reporting. With Lightstone's addition to the team, Rusada aims to expand the use of ENVISION and deliver more benefits to its customers ■

Aerospace & Defence MRO KARNATAKA

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Theme

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International CALENDAR 2023

2023-2024

Date	Event	Venue
16-18 May 2023	IATA Ground Handling Conference	Abu Dhabi
17-18 May 2023	MRO AUSTRALASIA	Brisbane, Australia
17-18 May 2023	Asia Connect MRO	Istanbul
23-25 May 2023	NBAA – EBACE	Geneva
01-03 June 2023	FRANCE Air Expo	France
07-08 June 2023	ELTF EUROPE	London, UK
14-15 June 2023	Dubai Heli Conference 2023	Dubai
04 Sept 2023	Airport Innovation conference	Riyadh
13-14 Sept 2023	AERO-ENGINES EUROPE	Madrid, Spain
22-23 Sept 2023	Aerospace & Defence MRO KARNATAKA	Bengaluru
25-27 Sept 2023	Airspace Integration Congress	Madrid, Spain
26-27 Sept 2023	Helitech Expo	London
26-28 Sept 2023	World Aviation Festival	Portugal
26-28 Sept 2023	MRO ASIA-PACIFIC	Singapore
17-19 Oct 2023	NBAA- BACE	Las Vegas, NV
01-03 Nov 2023	ATCA Global Conference & Expo	Washington, DC, USA
13-17 Nov 2023	Dubai Airshow 2023	DWC, Dubai
14-15 Nov 2023	Aerospace Tech Week Americas	Atlanta, USA
06 - 08 Dec 2023	Air Expo India	Indira Gandhi Intl Airport-New Delhi
17-18 April 2024	Aerospace Tech Week Europe	Munich, Germany

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