

Aviation UPDATE

Volume 10

Issue 5

February 2024

Price ₹200

India's premier aviation monthly magazine



Mr. Capt. D S Basraon
Managing Director - FSTC

PG 25



Mr. Hari K Marar
Managing Director & CEO
Bangalore International Airport Ltd

PG 20



Capt. Mohit Teotia
Founder - Poetic Pilot Academy

PG 28



Mr. Niranjn Kumar
CEO - GNAT Aviation

PG 31



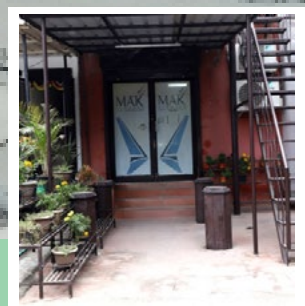
Cdr Rahul Verma
(Retd)

PG 8

MAK AIRWAYS PRIVATE LIMITED

MAK Airways Pvt. Ltd. founded in 2014 and today has grown to become MAK Group of Companies, as listed:

- MAK Airways Pvt. Ltd.
- MAK Education Foundation
- MAK Cargo Pvt. Ltd.
- MAK ATO
- MAK ● Aviation Academy
- MAK Airways Flying Club



We have flourished and emerged to be a leader in the Aviation Industry for Training of various personnel's working in Scheduled Commuter, Non Scheduled, Non Scheduled Private, General Aviation, State Aviation Divisions & Defence Personnel, MRO & FTO. Viz: Pilots, Cabin Crew, Ground Staff, Engineering etc.

We are DGCA approved to conduct Training for Fixed & Rotary Wing CRM (Crew Resource Management) SGT (Specific Ground Training) Hill Ops. (Hill Operations) Spl. VFR (Special Visual Flight Rules)

In Addition to the above training's, we also conduct / facilitate AVSEC & DGR (All Categories), SMS (All Categories), Human Factors PBN, RVSM, ADS - B, Monsoon / AWO, ELP, Ramp Safety, Marshalling CAR-M, CAR-145, Internal & Quality Auditor Training, Lead Auditor Training SEP (Safety & Emergency Procedures)



Call : 9873437236 / 7065662224 / 7065662225 or
Write us at : training@makairways.com

Pawan Hans was honored as the Best “NSOP-Helicopter Operator award” - Wings India 2024

Page 11



Bombardier Unveils University of Victoria as First Announced Academic Partnership in the Pan-Canadian Ecojet Research Project

Page 15



DRDO conducts successful flight-test of New Generation AKASH missile off Odisha coast

Page 32



Thales air data solution to enable the smooth and safe flight of Eve Air Mobility's eVTOL aircraft

Page 17

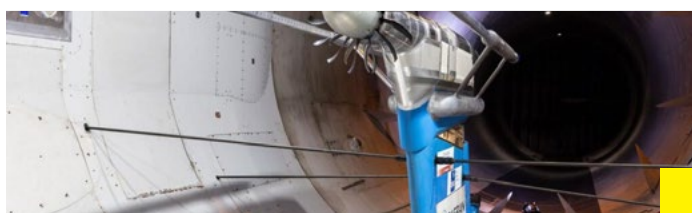


IndiGo and GHIAL Sign MOU to Transform Passenger Experience through an Industry Consortium

Page 18

Amentum Awarded \$946M Contract to Manage US Army Fixed Wing Aircraft Fleet Used in Transport Missions

Page 35



Safran and ONERA start wind tunnel tests of future Open Fan

Page 37

Aviation UPDATE

VOL : 10 | ISSUE : 5 | FEB 2024

Editor-in-Chief ♦ B. Kartikeya

EDITORIAL

Contributing Editor ♦ Dr. (Hon) M R K Menon

Special Editor ♦ Naheda Imtiyaz

Correspondent ♦ B. Martin

CREATIVE HEAD ♦ Swati Sharma (Design Garage)

PHOTOGRAPHER ♦ Krishanth

MARKETING

marketing@futureaviation.in

Manager, Marketing ♦ Rohith Reddy

SUBSCRIPTION

Asst. Manager, Subscription ♦ Sony

FINANCE & ADMINISTRATION

Sr. Manager ♦ Karunandhi

Asst. Manager ♦ Md. Wajid Ali

Editorial & Advertising Offices

AVIATION UPDATEVilla No :105, Nakshatra Society, Siddanthi, Shamshabad,
Hyderabad, Telangana 501218

Subscription/ Circulation

Annual Subscription: 2400 INR – 12 Issues

Letter to editor Kartikeya@futureaviation.in

For Advertising details contact

Marketing@futureaviation.in

All information in Aviation Update information is derived from sources, which we consider reliable and a sincere effort is made to report accurate information. It is passed on to our readers without any responsibility on our part. The publisher regrets that he cannot accept liability for errors and omissions contained in this publication, however caused. Similarly, opinions/ views expressed by third parties in abstract and/or in interviews are not necessarily shared by Aviation Update. However, we wish to advise our readers that one or more recognized authorities may hold different views than those reported. Material used in this publication is intended for information purpose only. Readers are advised to seek specific advice before acting on information contained in this publication which is provided for general use and may not be appropriate for the readers' particular circumstances. Contents of this publication are copyright.

No part of Aviation Update or any part of the contents thereof may be reproduced, stored in retrieval system or transmitted in any form without the permission of the publication in writing. The same rule applies when there is a copyright or the article is taken from another publication. An exemption is hereby granted for the extracts used for the purpose of fair review, provided two copies of the same publication are sent to us for our records. Publications reproducing material either in part or in whole, without permission could face legal action. The publisher assumes no responsibility for returning any material solicited or unsolicited nor is he responsible for material lost or damaged. This publication is not meant to be an endorsement of any specific product or services offered. The publisher reserves the right to refuse, withdraw, amend or otherwise deal with all advertisements without explanation. All advertisements must comply with the Indian and International Advertisement Code. The publisher will not be liable for any damage or loss caused by delayed publication.

Printed at: Chennai offset printers : 19/1 & 21/2 Kitabath Khan Bhadur Street,
Elliess Road, Mount Road, Chennai – 600 002
Aviation Update is published by - B.Kartikeya No:27/11,V.O.C.Street,T.Nagar,
Chennai -600 017

**B. KARTIKEYA**

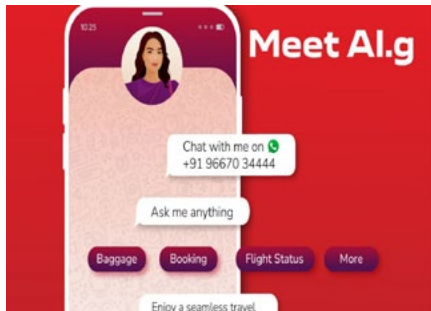
Aviation has been in my blood and bones, and maybe in my flesh and skin as well. My long road to success and the never-ending love for the Aviation has carried me to places I never had been before and got me in touch with finest of the people I haven't met before. Something about the amazing world of Indian Aviation has been pulling me so strong towards it ever since I visited the Air shows years ago.

Wings India 2024 is one show which I have seen both ways. The event has switched to Jan from March. But Why? Comparing to other international Air shows Such as Dubai Air Show & Singapore Air Show we are nowhere near to conducting such grand events. Except Akasa Air orders there is not much big news. Still Promoting Wings India as an Asia Biggest show? Need to ask organisers Ficci and Ministry of Civil Aviation – is it really Asia's Biggest Air Show. God Only Knows about DEF Expo Forget about the year and dates? Please wakeup my Industry Peers, Raise the voice for the best Air shows in the upcoming years.

Special Feature from Mr.Cdr Rahul Verma's perspective of the Disruptive power of 3D printing in Aviation. MRO Expert Mr. Niranjan Kumar says the current business is to acquire Engines & Aircrafts. Interesting Conversation with Mr. Capt. D S Basraon Managing Director of FSTC feels FSTC is primarily an airline driven organization and a large corporate setup. Our primary responsibility is to train and provide industry-ready pilots to our partners as per international standards practices and procedures with no scope of any shortcuts on account of any under-trainee pilots/instructors. Last but not the least our Contributing Editor Dr. (Hon) M R K Menon in conversation with Mr. Hari K, Managing Director & CEO, Bangalore International Airport Limited feels investing in cutting-edge technologies is a top priority, and we're committed to enhancing customer experiences.

Now loosen up and flip through these pages to peek into the future of aviation in India and worldwide. Till you hear from me in the next issue of our beloved magazine, I take your leave by saying 'Kartikeya signing off'. Ciao...

Air India's Virtual Travel Assistant Now on WhatsApp to Assist Guests



Air India, India's leading global airline, has now extended access to its Generative AI-powered virtual travel assistant, Al.g, on WhatsApp. The multilingual chatbot's seamless accessibility on WhatsApp opens up a new guest support channel for Air India, helping travellers to ask questions across a wide spectrum of over 1300 travel-related topics and access a host of features. Through a simple WhatsApp chat, Air India guests will now be able to easily check real-time flight status and baggage information, download boarding pass or get a copy of their e-tickets, select seats, check the status of customer support requests generated online, and ask many other common questions, without having to call the airline's customer contact centre.

Catering to a growing base of Air India's customers around the world, Al.g speaks four languages: Hindi, English, French, and German. Guests can chat with Al.g using the WhatsApp number +91 96670 34444

"At Air India, we're constantly innovating to make every touchpoint in the travel journey seamless and delightful for our guests," says Rajesh Dogra, Chief Customer Experience Officer, Air India. "Bringing Al.g to WhatsApp is a testament to that commitment. The accessibility and immediacy of WhatsApp align perfectly with our vision for customer service – we want to be where our guests are, providing

them with instant, relevant information and assistance at their fingertips, 24/7." The use of Generative AI technology helps Al.g to understand what travellers ask and answer in a normal, friendly way. Al.g can learn from questions it can't immediately answer, which helps it to become more efficient and effective over time. This means you get your answers faster in an automated fashion for things like booking, baggage allowance or changing your flights. This frees up the Air India team to help with complex and value-adding interactions.

Star air launches flight connecting Surat and Hyderabad



Star Air, India's largest privately held Regional Airline, is thrilled to announce the launch of its new flights connecting Surat and Hyderabad starting 23rd January 2024. The airline is set to operate flights on this route three days a week, offering convenient travel options for passengers. Flights will be available on Tuesday, Wednesday, and Thursday.

Enhanced Connectivity: The new route aims to strengthen connectivity between Surat and Hyderabad, facilitating seamless travel for business and leisure passengers alike.

The introduction of the Embraer E175 aircraft and the first-time business class service to Surat demonstrates a keen understanding of the target audience's preferences and the commitment to providing a premium travel experience. This innovative approach aligns with the airline's focus on customer satisfaction

and brand differentiation. The decision to offer business class service to Surat is a result of thorough market research and a data-driven understanding of the needs of travellers on these destinations and this route.

Commenting on the new route, Mr. Shrenik Ghodawat, Managing Director at Star Air, said: "We are excited to introduce our new flights between Surat and Hyderabad, providing our passengers with more travel options and a comfortable flying experience. The introduction of the Embraer E175 and the pioneering Business Class service to Surat reaffirms our commitment to offering premium services and enhancing overall passenger satisfaction. We look forward to welcoming travellers on board and contributing to the growth of air travel in the region."

IndiGo announces partnership with CSTPL for its ATR pilot training programme



IndiGo, India's preferred carrier, has signed a Memorandum of Understanding (MoU) with CAE Simulation Training Private Limited (CSTPL) to provide Flight Crew Training for its fleet of ATR aircraft. Under this agreement, CSTPL will install a Full Flight Simulator (FFS) for ATR aircraft and provide exclusive simulator training facilities for IndiGo's ATR pilots in Bengaluru, Karnataka.

CSTPL operates one India's largest, and state-of-the-art pilot training facilities in India, and IndiGo pilots will benefit

from advanced training technology as well as refreshers for license renewals. Under this agreement IndiGo will have exclusive access to the simulator for its ATR crew. The FFS will be ready for operations by February 2024.

IndiGo has been operating ATR 72-600 aircraft in its fleet since 2017 to strengthen regional air connectivity across India. Over the past 6 years the fleet and network has grown, and the airline is currently serving 52 destinations with its fleet of 44 ATR aircraft. The airline has also recently introduced multiple flights with its ATR aircraft to stations such as Pantnagar, Kadapa, Jabalpur, and Kurnool etc., opening new routes for trade and increasing connectivity.

Captain Ashim Mitra, Senior Vice President- Flight Operations, IndiGo said, "We are proud to announce our partnership with CSTPL, to support our ATR pilot training programme. Through this partnership, the enhanced ATR pilot training programme will not only facilitate the upskilling of our pilots but also help us to reach new horizons. This endeavour aligns seamlessly with the Government of India's UDAN ("Ude Desh ka Aam Nagrik") mission, fortifying our commitment to connecting with smaller and medium-sized towns and cities. CSTPL is acclaimed for its one-of-a-kind simulator training facilities and world class infrastructure, which provides us a gateway for excellence needed for India's preferred carrier."

Vistara wins 'Best Airline of the Year' at Wings India 2024

Vistara, India's finest full-service carrier takes home stellar laurels including the 'Best Airline of the Year' and 'Innovation Champion' award at the prestigious Wings India 2024. The distinguished awards were presented by the Hon'ble Minister of Civil Aviation, Government of India, Mr. Jyotiraditya Scindia in the



presence of other senior officials from the Ministry, FICCI and a gathering of industry representatives from across the globe at the award ceremony held in Hyderabad.

On this occasion, Mr. Vinod Kannan, Chief Executive Officer, Vistara said: "We are pleased to be named 'Best Airline of the Year' at Wings India 2024. This prestigious award, along with the recognition as Innovation Champions, is a true testament to the continuous efforts of all our staff, frontline and at the backend, who work tirelessly towards ensuring service excellence. As we soar to new heights, these awards further reaffirm our commitment to pushing boundaries and setting new benchmarks in Indian aviation. We would like to express our heartfelt gratitude to the jury of Wings India 2024 for recognising our efforts. We also thank our customers for their steadfast trust in us and look forward to their continued patronage."

GMR Hyderabad International Airport Announces New Flight Services to Frankfurt with Lufthansa Airlines

GMR Hyderabad International Airport Ltd, in partnership with Lufthansa Airlines, has opened a new chapter in air travel with the launch of direct flights to Frankfurt, Germany. This exciting development, commencing on January 17, 2024, marks a significant step towards connecting Hyderabad to the world and boosting its position

as a global hub for trade, travel, and commerce.

With five weekly departures (Monday, Tuesday, Wednesday, Thursday, and Saturday), flight LH753 will depart from Hyderabad at 01:55 hours and arrive in Frankfurt at 07:05 hours. The return flight LH752 will depart from Frankfurt at 10:55 hours and arrive in Hyderabad at 23:55 hours. In recent years, forty percent of travellers from India to the North America chose



European airports as transit hubs. The convenient timing of Lufthansa's flights aligns perfectly with this trend, offering efficient onward connections.

The Dreamliner's quiet cabin offers an enhanced experience with ample space, a new lighting concept, and innovative windows that add to the sense of wellbeing on board. Travellers on the Dreamliner can enjoy an enhanced travel experience like never before.

Mr. Pradeep Panicker, CEO of GMR Hyderabad International Airport Ltd said "We are thrilled to announce the launch of new flight services to Frankfurt with Lufthansa Airlines. This connectivity will benefit travellers visiting Frankfurt as a transit point or for leisure trips and would open up multiple destinations in Europe, USA, Canada, and South America via Frankfurt. It has been our priority to connect our passengers to global destinations from the city of Hyderabad. This is a step in that direction and an important milestone for the Hyderabad airport."

Mr. George Ettiyil, Senior Director - South Asia, Lufthansa Group said "With our new Hyderabad-Frankfurt service we now offer Indian passengers x64

weekly flights to our hubs in Europe and onward connections to the biggest network on the continent. As we launch Hyderabad, our capacity to India has increased by 14% (relative to 2019), making this country the fastest growing major market for Lufthansa. In the past three months we have launched 2 new routes from the subcontinent to Europe, thus demonstrating the strong importance of India to the Lufthansa Group."

Air India Set to Link Bhuj with Mumbai



Air India will be launching a direct daily service between Mumbai and Bhuj from 1st March 2024. Air India will be offering a comfortable and convenient connection between the two cities to meet a long-standing demand of the local residents.

Operated by an A320 family single-aisle aircraft, flight AI 601 will take off from Mumbai at 0705 hrs to arrive in Bhuj at 0820 hrs. The return flight AI602 will depart Bhuj at 0855 hrs to land in Mumbai at 1010 hrs.

The new service will also offer convenient international connection to passengers to destinations in the UK, the North Americas and also to Dubai and Singapore. It will also provide connection to around 20 cities in the domestic sector.

IndiGo expands its international network with daily direct flights between Hyderabad-Bangkok



IndiGo has announced daily direct flights between Hyderabad and Bangkok, effective from February 26, 2024. These flights will further enhance direct connectivity between the two cities, providing a seamless travel experience between the two major tourist hubs and accessibility across Southeast Asia. IndiGo will become the first Indian carrier to connect Hyderabad to Bangkok. With this, IndiGo will connect 14 international destinations with Hyderabad, an increase from 8 connected destinations a year ago.

Mr. Vinay Malhotra, Head of Global Sales, IndiGo said, "We are extremely pleased to announce our operations from Hyderabad to Bangkok, in-line with our vision to enhance accessibility across Southeast Asia. With the introduction of this new route, IndiGo now offers 57 direct flights a week to Thailand from 6 cities in India (37 flights to Bangkok & 20 flights to Phuket). The new route not only signifies our commitment to expanding connectivity but also serves as a bridge between two culturally rich destinations. As India's leading carrier, our aim is to continue delivering on our promise of providing affordable, on-time, courteous, and hassle-free travel experiences."

IndiGo expands connectivity to Middle East with new direct flights between Dubai and Surat



IndiGo has announced direct flights between Dubai and Surat. These flights will operate tri-weekly w.e.f. February 23, 2024. The addition of this strategic route to the 6E network is designed to facilitate seamless travel for tourists and business travellers and enhance bilateral economic growth and relations between India and the UAE. With the addition of this flight, Surat becomes the second city in Gujarat, with direct connectivity to Dubai on the IndiGo network. Moreover, starting from February 22, 2024, additional frequencies will be introduced on the Hyderabad-Dubai route.

Mr. Vinay Malhotra, Head of Global Sales, IndiGo, said, "We are delighted to introduce direct connectivity between Dubai and Surat, the two major commercial and economic hubs in the Middle East and India. With the addition of these flights, IndiGo operates 108 direct flights a week to Dubai from 13 cities in India. Surat, in Gujarat, is well-known for its flourishing textile and diamond industries, and enhancing connectivity with Dubai, will provide business travellers with trade opportunities and significantly contribute to economic development in both regions. As India's leading carrier, we remain committed to providing our customers with seamless connectivity through the extensive 6E network, across India as well as overseas, and delivering on our promise of providing affordable, on-time, courteous, and hassle-free travel experiences."

REVOLUTIONIZING FLIGHT: THE DISRUPTIVE POWER OF 3D PRINTING IN AVIATION



Cdr Rahul Verma (Retd)

In the rapidly advancing realm of aviation, a technological marvel is taking centre stage, fundamentally reshaping the essence of flight, 3D printing. This ground-breaking innovation stands as a testament to the industry's commitment to innovation and precision. Similar to the replicators from "Star Trek," 3D printing is not just a tool; it's a sculptor of possibilities, transcending the limitations of conventional manufacturing. A journey through the annals of aviation history reveals a meticulous dance of various manufacturing techniques, involving complex machinery, extended lead times, and substantial costs for crafting aircraft components. However, the advent of 3D printing has heralded a paradigm shift, offering a more efficient, flexible, and cost-effective approach. "3D printing is already shaking our age-old notions of what can and can't be made", I love to quote Prof Hod Lipson of Columbia University to summarise the fathom of use case. While NASA had begun using 3D printing for plastic models as early as the late 1980s, it was in the early 2000s that large-scale metal additive machines were introduced, marking a significant milestone. As per Mordor Intelligence report, 3D Printing in Aerospace And Defense market size is estimated at USD 4.05 billion in 2024, and is expected to reach USD 8.20 billion by 2029, growing at a CAGR of 15.13% during the forecast period (2024-2029).

For the uninitiated, 3D printing, also known as additive manufacturing, is a process where



objects are meticulously created layer by layer from a digital model. Think of it as a futuristic form of sculpting, where a digital blueprint is transformed into tangible reality. The transformative impact of 3D printing extends prominently into the realms of design and prototyping. Engineers and designers now find themselves equipped with a tool that enables rapid iteration and experimentation with intricate designs, pushing the boundaries of what was once deemed possible. This newfound agility not only accelerates the development cycle but also fosters the creation of more aerodynamic and fuel-efficient components, revolutionizing the very core of aviation. The versatility of 3D printing manifests through various techniques, each tailored for specific applications in aviation:

- **Stereolithography (SLA):** Ideal for crafting high-detail prototypes and intricate aviation components.
- **Fused Deposition Modeling (FDM):** Widespread use in creating robust and durable components, including interior parts.
- **Selective Laser Sintering (SLS):** Suited for producing complex and functional parts, such as

turbine components.

- **PolyJet Technology:** A method that involves jetting layers of liquid photopolymer onto a build tray, contributing to the development of detailed, multi-material prototypes.

With all the big players of aviation industry Boeing, Aviation including Urban Air Mobility stakeholders betting on this technology, this space is getting more competitive. Airbus Helicopters has opened a new 3D printing centre at its Donauwörth site, significantly expanding its in-house capacity for this innovative process. Boeing is 3D printing more than a thousand parts for WGS-11+, a new communications satellite it is producing for the U.S. Space Force. Boeing also plans to begin testing a full 3D-printed main rotor system for the AH-64 Apache attack helicopter in the spring of next year as part of an effort to cut out long-lead times and improve the overall supply chains for parts that are typically forged, according to company officials. Hence, the advent of 3D printing in aerospace manufacturing introduces several revolutionary changes:

- **Geometric Design Freedom:** Aerospace applications demand advanced engineering

materials and intricate geometries to reduce weight while enhancing performance. 3D printing stands out by offering the capability to manufacture highly complex and lightweight structures with exceptional stability. This design freedom facilitates topological optimization of parts and the integration of functional features within a single component.

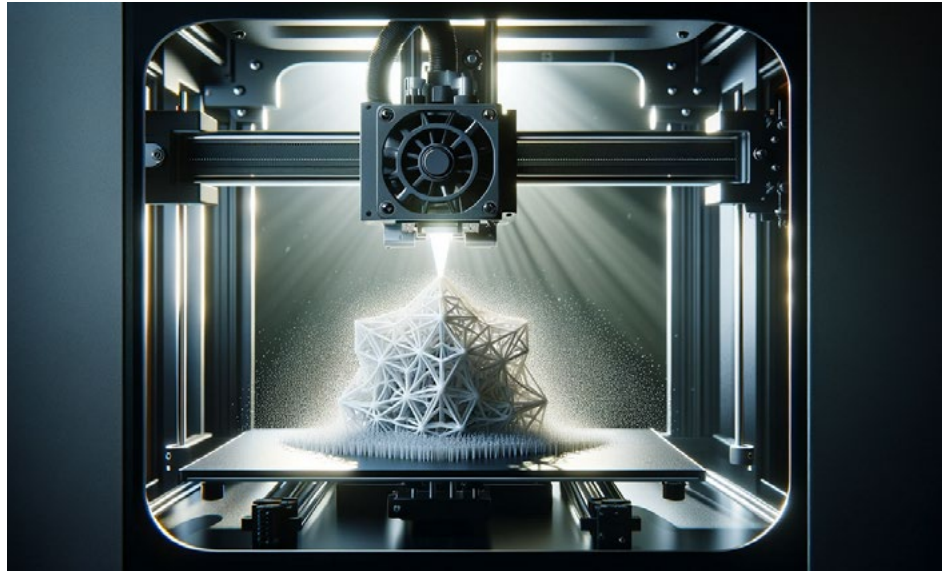
■ **Consolidating Assemblies into a Single Part:** The flexibility inherent in 3D printing not only allows for intricate designs but also enables the consolidation of multiple parts into a single component. This not only reduces weight, translating to cost reduction, but also minimizes the inventory kept at any given time.

■ **Surface Finish:** Achieving the right surface finishes is critical in aerospace manufacturing, and 3D-printed parts can be post-processed to attain a very high surface finish. Technologies such as Material Jetting can produce parts with a smooth, injection-molding-like finish directly off the printer, minimizing the need for extensive post-processing.

■ **Part Orientation and Support Structures:** Considerations for part orientation on the build platform become crucial for functional parts bearing loads. Due to the layer-by-layer nature of 3D printing, most parts exhibit anisotropic mechanical properties, being weaker in the Z direction. This aspect needs careful consideration during the design process. Additionally, support structures play a vital role in 3D printing, providing a solid base for depositing material above overhangs or at walls with steep angles. While support structures are essential, certain processes, such as SLS and Binder Jetting, offer solutions that do not require them.

■ **Weight Reduction and Fuel Efficiency:** The aviation industry's relentless pursuit of weight reduction finds a powerful ally in 3D printing. The ability of this technology to create lightweight yet structurally sound components translates directly into fuel savings and enhanced performance. Every gram saved in aircraft design contributes to increased fuel efficiency, making 3D printing a key player in the industry's commitment to economical and environmentally friendly air travel.

■ **Supply Chain Efficiency:** Beyond the immediate gains in efficiency, 3D printing empowers engineers to delve into unprecedented levels of customization and complexity. Intricate and previously unattainable geometries are now within reach, opening doors to designs that were once constrained by traditional manufacturing methods. This shift towards customization extends to the supply chain, where traditional manufacturing



faced limitations.

As the aviation industry embraces this transformative technology, it's essential to acknowledge the challenges and ethical considerations that accompany such disruptive innovations. From concerns about intellectual property to the imperative need for stringent quality control, the path ahead requires careful navigation. The integration of 3D printing into mainstream aerospace manufacturing demands a proactive approach to address challenges and capitalize on opportunities. As 3D printing becomes more pervasive and costs decrease, its implications on global manufacturing are profound. Localized, customized production emerges as a viable alternative, challenging the traditional scale efficiencies achieved by large, centralized manufacturing plants. This shift may even redefine the status of countries traditionally considered manufacturing powerhouses.

The concept of the country of origin takes centre stage in the era of 3D printing. Traditionally, manufacturing powerhouses like China have thrived on mass production models, aggregating enough demand to create unprecedented efficiencies of scale. However, the distributed, highly flexible nature of small-scale 3D printing challenges this traditional paradigm. China, for instance, has been a dominant force in outsourced manufacturing due to its ability to exploit the mass-manufacturing model to its limit. This model, characterized by large-scale production and minimized labor costs, has been a winning formula. Yet, as 3D printing gains prominence, these advantages become liabilities. The shift towards 3D printing brings forth the prospect of localized, highly flexible

manufacturing. Instead of relying on a few hundred factories around the world, products, or at least their components, could be manufactured in every metropolitan area. Dealerships and repair shops could play a role in producing parts, and assembly plants may eliminate the need for complex supply chain management by producing components on-demand. Another implication of widespread 3D printing is the infinite customization of goods. Unlike traditional manufacturing methods that require extensive retooling for product alterations, 3D printing allows for tweaks in the digital model, facilitating the production of highly customized products. This shift places creativity in meeting individual needs at the forefront, similar to the emphasis on quality control.

The impact of 3D printing on Urban Air Mobility (UAM) transcends conventional boundaries, propelling companies like Wisk, Archer etc into a realm of unprecedented possibilities and hence it's important to get this concept clear. As the blades of progress spin, 3D printing emerges as a transformative force, sculpting lightweight, aerodynamic components with precision and efficiency. This technology not only accelerates the development of advanced, customized airframes but also catalyzes the evolution of UAM vehicles, making them more sustainable and adaptable. The 3D printer is ideal for manufacturing parts for Urban Air Mobility aircraft because the technology of layering composites ensures strong, lightweight composite parts and the digital agility of building different part families on-demand. An MIT study indicates that the adoption of 3D printing can reduce the supply chain costs by staggering 50%, this particularly true for slow moving and custom products. The advantages

Aerospace 3D Printing Market

Market Forecast (Covid Impact)



Market Drivers

- > Expected Recovery in Commercial and Regional Aircraft Deliveries
- > Growing Global Satellite Industry
- > Increasing Production of LEAP Engines
- > Exceptional Benefits of 3D Printing Technologies
- > Advancements in 3D Printing Technologies

North America is Expected to Remain the Largest Market

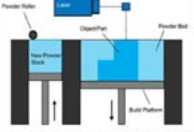


The region is the world's manufacturing capital of the aerospace industry with the presence of many large-to small-sized OEMs, tier players, and raw material suppliers.

Civil Aviation Leads the Market

- >17% (CAGR) 
- > Highest CAGR.
- > Rising demand for lighter, complex, and fuel-efficient parts, and high involvement of aircraft and engine OEMs for the development of 3D-printed parts.

L-PBF is the Dominant Printing Technology

- >22% Share 
 - > Highest CAGR.
 - > Its high print speed owing to use of multiple lasers decreases the time-to-print to each component.
- Source: Loughborough University

Engine Components to Remain Dominant Application

- 
 - Increasing applications of 3D printing in the fabrication of parts such as fan case mount rings, fuel nozzle tips, and fan spacer.
- Source: GE Additive

Source: Aerospace 3D Printing Market © 2021 Stratview Research | Product Images - Company Websites & others
All Rights Reserved. This Infographic is the sole property of Stratview Research. No Part of it may be circulated, copied, or otherwise reproduced without written permission of Stratview Research.



of using 3D-printed parts on airplanes aren't limited to cost savings. There's also increased prototyping capabilities, faster and more precise manufacturing, and a smaller carbon footprint.

With 3D printing's ability to create intricate structures and optimize designs, UAM benefits from reduced weight, enhanced fuel efficiency, and streamlined production processes. Moreover, the decentralized nature of 3D printing facilitates localized manufacturing hubs, paving the way for a dynamic and responsive UAM ecosystem that seamlessly integrates with urban landscapes. The skies of Urban Air Mobility, once restricted by traditional manufacturing constraints, now unfold as a canvas of innovation, thanks to the transformative influence of 3D printing. The marriage of aerodynamics, fuel efficiency, and customizability epitomizes the transformative power embedded within each layer of a 3D-printed component. In the grand tapestry of aviation's future, 3D printing is not merely a tool; it is the loom weaving a new narrative. The once-distant concept of localized, on-demand manufacturing is now a tangible reality, challenging preconceived notions about the global distribution of production capabilities.

Nevertheless, 3D printing introduces safety concerns due to its unique manufacturing process. Unlike traditional methods that involve cutting

parts from robust blocks of material, 3D printing builds components by layering lightweight materials. This layering technique has often resulted in the production of final products with lower strength, increased porosity, or greater susceptibility to breakage. Initially, the Federal Aviation Administration (FAA) faced challenges in certifying 3D printed parts due to concerns about their structural integrity. The strict requirements for hardware certification made it difficult to approve parts that were more prone to breaking or damage compared to those produced through conventional manufacturing methods. Fortunately, advancements in technology now enable the use of titanium in 3D printing, resulting in materials and final products that are stronger than ever. This progress suggests a potential acceleration in the certification process moving forward. Despite these advancements, comprehensive safety protocols and regulations govern the use of 3D-printed components in aircraft. Standards such as DO-254 for aviation hardware demand rigorous testing and quality assurance, ensuring that 3D printing is either restricted to non-safety-critical parts or subjected to thorough checks and tests to maintain the safety of both passengers and aircraft.

The ongoing impact of 3D printing on the advancement of modern technologies and procedures

in aviation and other fields is a source of anticipation. Imagining the prospect of boarding an aircraft entirely constructed through 3D printing is exciting, raising the possibility that, in the future, air taxis might become as commonplace as the ubiquity of Uber in our present-day lives. As the aviation industry and nations alike navigate this transformative landscape, the challenge lies not only in harnessing the potential of 3D printing but also in ensuring that its benefits are inclusive and sustainable. In this era where every layer represents progress, the true potential of 3D printing in aviation lies not just in the components it creates but in the societal and economic shifts it catalyses. The journey into the future of flight is sculpted by the additive layers of innovation, echoing a symphony of progress that transcends borders and propels humanity toward a new era in aviation. To provide food for thought for all my readers, I would say, "In the unfolding chapters of progress, 3D printing is not just a leap into the future; it's a bridge to our heritage. A herald of a new era, where the disruptive hum of 3D printers echoes the rhythms of localized, distributed manufacturing, rooted in digital fabrication. It connects us not only to innovation but to a profound evolution, where the threads of our past interweave seamlessly with the limitless possibilities of the digital age, shaping a narrative of heritage, connectivity, and a revolutionized global supply chain."

PAWAN HANS WAS AWARDED AS THE BEST “NSOP-HELICOPTER OPERATOR” AT WINGS INDIA 2024



Pawan Hans Limited (PHL), a Government of India Enterprise under the Ministry of Civil Aviation (MoCA), Government of India, has an extensive aviation legacy spanning more than 38 years of helicopter services in India. The participation by Pawan Hans at ‘Wings India 2024’ as a helicopter partner at this Asia’s largest event on Civil Aviation was well received by the industry.

At Wings India 2024, Pawan Hans presented its expertise and services by actively participating in all the panel discussions, displaying the Lockheed Martin Sikorsky S76 D helicopter at the “Static Display” and a stall showcasing the dedicated contributions by Pawan Hans towards the “Last Mile Connectivity”

in various segments of Civil Aviation Helicopter Operations in India. The Secretary MoCA, Shri Vumlunmang Vualnam IAS along with Joint Secretary MoCA, Shri Asangba Chuba Ao IAS graced the occasion by visiting Pawan Hans Stall and the “Static Display” area to examine the LM Sikorsky S76 D, which is the latest helicopter type introduced in the Pawan Hans fleet.

Pawan Hans was Awarded as the Best “NSOP-Helicopter Operator” at Wings India 2024 :

The award was presented by Honorable Union Minister of Civil Aviation and Steel (HMCAS) Shri Jyotiraditya M. Scindia to Chairman and Managing Director of PHL, Shri Sanjeev Razdan in the presence of Honorable Union Minister of State for Civil Aviation and Road Transport

& Highways, General (Dr)V.K.Singh (Retd.), Secretary MoCA Shri Vumlunmang Vualnam IAS and Joint Secretary MoCA, Shri Asangba Chuba Ao IAS.

Pawan Hans has a rich portfolio with a gamut of services that have been instrumental in strengthening the air connectivity in the remote and inaccessible areas of the country by providing helicopter services.

Pawan Hans holds the distinction of being India’s largest helicopter company with a fleet of 46 helicopters.

Pawan Hans has played pioneer in Helicopter operations in various sectors like the Oil and Gas offshore operations, Inter-Island connectivity, Heli-tourism, Heli Pilgrimage, Specialized aerial operations, Disaster Management and Medical evacuation respectively. The company played a key role in various lifesaving missions like Flood Relief in Srinagar and Sikkim, Relief Operations in Uttarakhand and especially during the National Health Emergency Period of Covid-19 Pandemic under “Lifeline UDAN” by the Ministry of Civil Aviation, Government of India.

Pawan Hans has taken the lead in launching the flagship Regional Connectivity Scheme (RCS) of Government of India for helicopter operations in the year 2019 and has successfully completed four years of its RCS operations. Pawan Hans has been designated as the Nodal Agency for development of RCS Heliports by Ministry of Civil Aviation to strengthen the aviation infrastructure in the country. Pawan Hans is playing a pivotal role in development





of heliports at 75 locations across the country by providing Project Management Consultancy (PMC) to various State Governments and Union Territories.

During the Wings India 2024, the Memorandum of Understanding (MOU) was signed between Shri Sanjay Kumar, Executive Director, Pawan Hans Limited and Shri Vineet

Sood, Chief Executive Officer, Alliance Air Limited in the presence of the Joint Secretary MoCA, Shri Asangba Chuba Ao IAS and Chairman and Managing Director PHL Shri Sanjeev Razdan for the "Last Mile Connectivity" through Code Share Arrangement at the MoCA Chalet. This MOU is a great milestone towards the connectivity to the remote and inaccessible regions of the country.

Since the inception, Pawan Hans has flown over 8 Lakh flying hours and has served over 1.3 Crore passengers by making 28 Lakh Landings.

Pawan Hans is committed towards the "Skill Development & Training" domain to support the Aviation industry for its skilled manpower needs through the initiative launched in 2009 under the nomenclature of Pawan Hans Training Institute (PHTI). Under this initiative, Pawan Hans has established training institutes at Mumbai and Delhi. The aim is to continuously work on developing specialized aviation training programs to meet the diverse needs of the burgeoning Aviation sector.

Pawan Hans also has an in-house Maintenance and Repair Operation (MRO) set up in Rohini (Delhi) and Juhu (Mumbai) that is serving as a One-Stop-Shop for all Aircraft Maintenance Engineering requirements. Pawan Hans is DGCA approved under CAR 145 and CAR Part M Maintenance Organisation for the maintenance and continuing Airworthiness Management. PHL is offering MRO services for a wide array of Helicopters covering Bell 206 L4, Bell 407, AS350 B3, Mi-172, ALH Dhruv, Dauphin N and Dauphin N3 type of Helicopters.

As a national helicopter operator, PHL has played a pivotal role in fostering the growth of the civil aviation sector in the country.



Pilatus to Take Over the 230 Employees and Machinery of RUAG Aerostructures Schweiz AG



RUAG Aerostructures Schweiz AG has produced parts and components for Pilatus Aircraft Ltd since the early 90s, including fuselages for the PC-21 and horizontal stabilizers for the PC-12. The acquisition of both employees and machinery will allow Pilatus to increase its own production capacity and add new competencies.

Hansueli Loosli, Chairman of the Pilatus Board of Directors, points out at the contract signing: "This takeover will allow us to strengthen Central Switzerland as a business location, safeguard jobs and create new perspectives."

Markus Bucher, CEO of Pilatus, says: "The new location close to Lucerne will give us better access to talent whilst also allowing us to expand our own production expertise. We are delighted about the takeover and would like to extend a warm welcome to all the employees who will be joining our 'Pilatus Family'."

André Wall, CEO of RUAG International, adds: "We are delighted to have found a future owner in the Pilatus family, with whom RUAG Aerostructures Switzerland has already enjoyed a successful partnership for decades."

EVE AIR MOBILITY RECEIVES ESG FINANCING GUARANTEE FROM BRADESCO BANK IN LONG-TERM FUNDING



Bradesco Bank has concluded with Eve Mobilidade Aérea Urbana, a subsidiary of Eve Air Mobility and a spin-off from Embraer, the first ESG financing guarantee operation aligned with the Green Loans Principles (2023 version), which follows a set of guidelines for structuring loan operations for sustainable purposes. Eve is developing solutions for the global Urban Air Mobility (UAM) ecosystem, including an electric vertical take-off and landing (eVTOL) aircraft. The total amount guaranteed is up to R\$490 million and will be allocated exclusively to the development of Eve's eVTOL.

The line of credit was approved by Brazil's National Development Bank (BNDES) from the Finem Line and the Climate Fund, whose objective is to support the implementation of projects and technological development related to the reduction of greenhouse gas emissions and adaptation to climate change and its effects.

"This is a disruptive innovation project, with high technological intensity, which seeks to address relevant problems for the whole world: the limitations of ground space with increasing population density, the high costs of mobility infrastructure and the emission of greenhouse gases," said José Luis Gordon, director of Productive Development, Innovation and Foreign Trade of BNDES. BNDES' support, through the Climate Fund, is in line with the innovation and decarbonization guidelines of the new industrial

policies and is another important step in the long-standing partnership between BNDES and Embraer."

To date, proceeds totalling R\$127 million have been issued. Bradesco will allocate new proceeds gradually, according to BNDES' disbursement to Eve, who maintains the industry's leading backlog of 2,850 eVTOL aircraft.

"It is an innovative operation and represents an important milestone in the sector, demonstrating our commitment to the decarbonisation agenda, investing in more sustainable technologies with lower emissions," commented Bruno Boetger, executive director at Bradesco. "This reinforces Bradesco's partnership with Eve, which has been our partner since 2022. We believe that the ESG financing guarantee will serve as a reference for other companies that wish to adopt more responsible and sustainable practices in their business, an increasing trend in the credit market", concluded.

"At the recent COP28 in Dubai, global leaders discussed strategic actions to accelerate the reduction of global emissions by 2030. Eve's ESG financing guarantee directly reflects our commitment to sustainability, which is intrinsically linked to our corporate strategy. Our goal goes beyond offering greener solutions for urban air mobility; we are focused on building a value chain aligned with the best-in-market practices," explained Eduardo Couto, chief financial officer of Eve.

DAHER SUSTAINED ITS DELIVERY PACE FOR THE TBM AND KODIAK AIRCRAFT FAMILIES IN 2023, WITH NEW BOOKINGS EXTENDING THE BACKLOG INTO 2025

Daher's Aircraft Division announced the deliveries of 74 aircraft from its TBM and Kodiak single-engine turboprop product lines in 2023 while logging orders for another 100 of these aircraft to be delivered during 2024 and into early 2025.

Last year's deliveries were led by 56 of the efficient and very fast TBM family airplanes in the TBM 960 and TBM 910 versions, along with 18 Kodiak 100s/Kodiak 900s provided to customers and operators during the 12 months.

"These figures reflect the market's stabilization as we continue to see a strong demand for TBM and Kodiak aircraft, although challenges persist in affecting our industry – including employment and supply chain issues," commented Nicolas Chabbert, the Senior Vice President of Daher's Aircraft Division.

"There have been efforts made to address these difficulties and improve the situation. We are seeing the results of our solutions in the employment field through internal training and the attraction of new talent. For the supply chain, the importance of delivering on time will enable us to continue seeking opportunities in a strong market."

The majority of TBMs delivered during 2023 were the top-of-the-line TBM 960 version, with the largest percentage once again going to the North American market: 43 deliveries were in the U.S., and two were in Canada. Three TBMs



were delivered to customers based in Latin America: one in Brazil, one in Mexico and another in Bolivia. The demand remained steady in Europe, resulting in seven deliveries: three for Germany, two for France and two in the U.K. In addition, Daher registered a delivery to a new customer in central Asia.

As of December 31, 2023, a total of 1,187 TBM and 339 Kodiak aircraft had been delivered to owners and operators worldwide, with the global fleet accumulating nearly three million flight hours. They are backed by the resources of Daher's global support Network, which has been merged into a single entity called TBM & Kodiak Care.

AIRBUS HELICOPTERS AND HELIGO SIGN SERVICES CONTRACT FOR H145 FLEET

Airbus has signed an HCare Initial contract, a comprehensive by-the-hour services contract with Heligo Charter Private Limited for six Airbus H145 helicopters deployed for offshore and onshore operations in India.

Under this five-year contract, Heligo will benefit from Airbus' HCare Initial program, which will give the operator the freedom to replace scheduled and unscheduled components within 24 hours and pay a fixed rate per hour of helicopter flown. This will help Heligo to bring down their maintenance costs and the need to keep a regular inventory, thereby providing them with enhanced fleet availability for streamlined operations.

"We are proud to be the first operator to offer a



fleet of Airbus Helicopters' 5-bladed H145 to ONGC for offshore operations in India. Once these helicopters are delivered this year, Heligo will have the largest H145 fleet in India serving both offshore and onshore missions. The H145 is a modern, multi-role helicopter which is suited

for Indian conditions, offering exceptional performance and operational economics," said Nayan Jagjivan, Chairman, Heligo Charters Private Limited.

"We congratulate the Heligo team for being awarded the recent offshore contract with the H145s. This HCare Initial by-the-hour contract that we have just signed with Heligo for their H145 fleet will ensure efficient operations for these helicopters and their maximum availability. At Airbus, we believe in providing the best combination of support and services to our customers and we are proud of our long association with Heligo. This is Airbus Helicopters' largest By-the-Hour contract with an Indian operator," said Sunny Guglani, Head of Airbus Helicopters, Airbus India and South Asia.

BOMBARDIER UNVEILS UNIVERSITY OF VICTORIA AS FIRST ANNOUNCED ACADEMIC PARTNERSHIP IN THE PAN-CANADIAN ECOJET RESEARCH PROJECT

With a notice published on some financial newspapers, Piaggio Aero Industries and Piaggio Aviation's Extraordinary Commissioners - Mr Carmelo Cosentino, Mr Vincenzo Nicastro and Mr Gianpaolo Davide Rossetti - announced the rescheduling of the deadline to submit final and binding offers for the purchase of all the business complexes conducted by the Companies, both in extraordinary receivership proceedings.

Bombardier unveiled the first of many academic collaborations on its trailblazing pan-Canadian and sustainability-focused EcoJet Research Project. Bombardier's long-standing partnership with the University of Victoria Centre for Aerospace Research (CfAR) and British Columbia's SME Quaternion Aerospace was announced in a press conference hosted by the University. The three organizations presented how their shared vision of the positive role innovation plays in the sustainable transformation of the Canadian aerospace industry resulted in a fruitful collaboration on the flight-testing program of Bombardier's EcoJet project.

The multi-year EcoJet research project that debuted around 15 years ago kicked off its first phase of flight testing in 2017 with 8-foot-span prototypes and is now leveraging a flight vehicle more than twice as large. The complementary world-renowned expertise of Bombardier as a business aircraft OEM and of the CfAR and Quaternion Aerospace with scale vehicles strengthen the innovation capacities of all parties while fostering new knowledge about the next generation of more sustainable aircraft.

"Bombardier is proud to support forward-looking aerospace research all while involving a broad network of academic institutions," said Stephen McCullough, Senior Vice President of Engineering and Product Development, Bombardier. "Now that we have publicly disclosed some aspects of the first phases of the EcoJet flight-testing program, it is important for us to give credit and to share the phenomenal response with our partners who are instrumental to this dimension of the research project.



Collaboration between local businesses and top academic institutions is key in nurturing a strong and thriving Canadian aerospace industry. Our hand-in-hand work with the University of Victoria is a meaningful example of such innovation pathway that stimulates coast-to-coast skill transfer and talent development."

"For more than a decade, the Centre for Aerospace Research has grown from strength to strength, and our cutting-edge work with Bombardier represents the most significant research partnership in our history," said Afzal Suleman, Canada Research Chair, Director and Professor, Centre for Aerospace Research, University of Victoria. "Through this collaboration, our students and researchers are gaining critical real-world skills while helping to push forward the frontiers of sustainability and redefining the boundaries of what is possible for the future of the global aviation industry."

Piloted by Bombardier's market insight and vision for a future generation of aircraft, the

collaborative work on the design and fabrication of the EcoJet flight test vehicles involves multidisciplinary teams, consisting of Québec-based Bombardier engineers and technicians, along with BC researchers, engineers and students. All flight campaigns on BWB scale test vehicles, which have been exploring the prototypes' behavior in free flight and perfecting their radically different flight control laws, are the fruit of this tight collaboration.

"We are thrilled to contribute our university's expertise to Bombardier's groundbreaking EcoJet Research Project, a tangible example of UVic's dedication to a brighter future for all through innovation," said Dr. Kevin Hall, President, University of Victoria. "This collaboration marks a significant step forward in our commitment to sustainability, a greener future for the aviation industry, and the development of cutting-edge technologies that advance the frontiers of science and engineering right here in British Columbia and throughout Canada."

Horizon Aircraft Enters into LOI to Purchase \$250M of Cavorite X7 Aircraft, with an Option for up to \$500M



New Horizon Aircraft Ltd. doing business as Horizon Aircraft a leading hybrid electric Vertical TakeOff and Landing (“eVTOL”) aircraft developer, announced that it has entered into a Letter of Intent (“LOI”) with JetSetGo, a regional air operator servicing multiple mission profiles. This LOI allows JetSetGo to purchase 50 Cavorite X7 Aircraft at a purchase price up to \$5M USD per aircraft for a total aggregate consideration of \$250M USD, with an option to purchase an additional 50 aircraft for a total possible consideration of \$500M USD.

Brandon Robinson, Chief Executive Officer of Horizon commented, “We are truly honoured by this commitment from JetSetGo, a leading private aviation operator with a shared vision of a more sustainable and efficient on-demand regional travel. We are confident that our Cavorite X7 eVTOL will operate sustainably and profitably across India as well as many other global locations. As a hybrid electric aircraft, there is no need to install expensive charging support equipment across the travel network; it is a machine designed for challenging, real-world operations.”

Kanika Tekriwal, JetSetGo’s CEO and co-founder, stated, “Our decision to enter into this Agreement with Horizon Aircraft was not taken lightly. We ultimately decided to partner with a company with a deep operational and aerospace technology background that will deliver a product that will help usher in a new era of sustainable air travel while also providing significant value for our customers. This partnership will help JetSetGo profitably enter new markets by leveraging the versatility of the Cavorite platform to bring about the vision of Advanced Air Mobility in India.”

Archer Aviation and NASA Sign Space Act Agreement To Collaborate on Mission-Critical eVTOL Aircraft Technologies

Archer Aviation Inc. a leader in electric vertical takeoff and landing (eVTOL) aircraft announced it has signed a Space Act Agreement with the National Aeronautics and Space Administration (NASA). The collaboration will kick off with an initial project focused on studying high-performance battery cells and safety testing targeted for Advanced Air Mobility (AAM) and space applications.

Archer believes that while the supply chain for electric vehicles in the U.S. is maturing, the supply chain for electric aircraft remains nascent not just here in the U.S., but globally, so this testing will help push progress forward. NASA’s goal is to test Archer’s battery cell and system design and share the results to push the entire AAM industry forward. Maturing battery technology is anticipated to be a key enabling factor for the mass production and adoption of electric aviation.

Archer plans to deliver a high-performing battery pack with leading levels of safety to its Midnight electric air taxi, validating that these cells are tailor made for aerospace applications, including electric vertical take off and landing (eVTOL), electric conventional take off and landing (eCTOL) aircraft and potential usage in space.

“We’re extremely proud to partner with NASA, who has pioneered the eVTOL industry over the last 3+ decades, in support of our collective mission to ensure U.S. leadership in aerospace



continues for decades to come,” said Adam Goldstein, Archer’s Founder and CEO. “Many countries around the world are challenging the U.S. in this new era of flight and our country is at risk of losing its global leadership position unless we work together, government and industry, to ensure we seize the moment and pioneer this new era of aviation technology, which stands to benefit all Americans.”

As part of the joint efforts around battery characterization, NASA and Archer will focus on further testing the safety, energy and power performance capabilities of the battery cells. Tests will be performed using one of the most advanced high speed X-ray facilities in the world, the European Synchrotron Radiation Facility (ESRF), to understand how the cells function during extreme abuse cases. Archer has chosen these cells to power the proprietary electric powertrain system Archer has designed, developed and is beginning to mass manufacture for its production electric air taxi, Midnight. The battery cell form factor chosen by Archer, a cylindrical cell, has a track record of safety, performance and scalability proven through decades of volume manufacturing, deployed across many applications globally, including in millions of electric vehicles.



SkyDrive Signs MoU with Marut Drones to Collaborate on Transformation of Indian Air Transportation

SkyDrive Inc. a leading Japanese eVTOL aircraft manufacturer based in Japan and Marut Drones, a leading drone technology manufacturer in India signed a memorandum of understanding (MoU) to enter into the partnership to make a significant milestone in the development of futuristic air transportation in India. Under the agreement, SkyDrive and Marut Drones aims to explore and establish mutually beneficial relationships and networks.

LILIUM AND AJW GROUP FORM STRATEGIC COLLABORATION ON MATERIAL MANAGEMENT AS PART OF LILIUM'S AFTERMARKET SERVICES

AJW Group and Lilium N.V., developer of the first all-electric vertical take-off and landing ("eVTOL") jet, have signed an agreement to develop global material services and distribution to support the Lilium Jet's global aircraft operations and Lilium's Aftermarket Services Business.

The strategic collaboration between Lilium and AJW will include the management of Lilium's eVTOL spares inventory, the delivery of unparalleled warehouse and logistics services, repair and asset management, and AJW serving as the exclusive parts distributor for Lilium's worldwide customers. The partnership solidifies AJW's commitment to innovation and excellence in the next-gen aviation industry. The partnership supports Lilium's commitment to best-in-class customer service and Lilium's goal of delivering competitive operating costs and superior parts availability. Material management will be a core component of Lilium's Aftermarket Service Business, comprising also training, digital, ground operations, and in-service support functions.



Scott Symington, AJW Group's Chief Commercial Officer, commented, "Innovation is one of our core values at AJW, deeply embedded in the fabric of our operations. We are driven to pioneer revolutionary products, strategically positioning the Group at the forefront of transforming aviation efficiency. Our partnership with Lilium marks a significant stride towards realizing this vision and steering the industry towards a more sustainable aviation future."

Sebastien Borel, Lilium's Chief Commercial Officer added, "We are delighted to announce this strategic collaboration with AJW Group. This is a very important step as we advance towards our planned

entry into service in 2026 and a major milestone in the development of our strategic and comprehensive support offerings for our customers. AJW's proven world-class expertise in material management and exemplary warehouse and logistics services align seamlessly with our commitment to excellence. Together, we look forward to driving innovation, efficiency, and sustainability in the aviation sector, showcasing our collective dedication to delivering cutting-edge solutions and supporting our customers with attractive unit economics." Lilium began production of the Lilium Jet in late-2023, following Lilium's Design Organization Approval by EASA, evidencing that Lilium has the organization, procedures, competencies, resources, and demonstrated rigor required to certify aircraft according to the very highest safety standards. As the Lilium Jet enters into service and the global fleet size grows, Lilium is expecting material profit contribution in recurring revenue from its Aftermarket Service Business.

Thales air data solution to enable the smooth and safe flight of Eve Air Mobility's eVTOL aircraft



Eve Air Mobility selected Thales air data solution to equip its future eVTOL, providing pilots and onboard systems with critical information, such as airspeed, airflow and altitude, to ensure the safe and efficient flight of the aircraft, in all weather conditions. ?

Electric Urban Air Mobility (UAM) is emerging as a solution to the dual challenge of traffic congestion and reducing the environmental impact of transport in urban areas. 100% electric, EVE's aircraft has seduced the market, amassing letters of intent for more than 2,800 aircraft.

Committed to environmental protection and supporting its customers with innovative and eco-

responsible solution, Thales invents technological solutions to enable new forms of sustainable mobility. Selecting Thales air data solutions to secure its eVTOL flights, Eve is underlining the leading position of the Group's technologies and expertise on the emerging UAM market and the added value of this product range.

Powered by eight lift rotors and one push propeller and featuring fixed wings, the aircraft requires a light and compact air data solution offering superior performance in both the low- and high-speed conditions of vertical flight and cruise flight.

Comprising MEMS sensors (Micro

Electro Mechanical System) and a computer, Thales air data solution inherits from more than 20 years' experience of in-house development and series production of MEMS pressure sensors and millions of flight hours in regional air transportation, military aircraft and helicopters. It offers the lowest Size, Weight and Power ratio (SWaP) on the market and optimized performance for vertical Take Off and Landing as well as cruise speed conditions.

While more than 50,000 air data units have been delivered for conventional aircraft, this new-generation solution extends Thales's recognized product range to the booming Urban Air Mobility Market.

"With Eve, we share an innovative spirit combined with aeronautics expertise that will enable to shaping the sustainable skies of the future," said Yannick Assouad, Executive-Vice President, Avionics, Thales. "We are thrilled to consolidate our partnership and widen Thales portfolio of solutions contributing to environmentally-responsible Urban Air Mobility."

IndiGo and GHIAL Sign MOU to Transform Passenger Experience through an Industry Consortium

IndiGo and GMR Hyderabad International Airport Limited (GHIAL) signed a Memorandum of Understanding (MoU) with an aim to transform passenger experience. Through this collaborative initiative, IndiGo and GHIAL look for avenues to establish an industry consortium within the aviation ecosystem, that will address customer issues through transformative digital initiatives, innovations, and technology integration. The shared objective is to improve operational efficiency and elevate customer satisfaction.

This first-of-its-kind initiative was inked by the two partners at Wings India 2024 and will explore cutting edge technologies such as Artificial Intelligence, Internet of Things (IoT), Blockchain, Data Mesh et al, to integrate the aviation ecosystem in service of passengers and enhancing their journeys.



Speaking on the occasion, Mr. Rajesh Kumar Singh, Special Director, IndiGo said, "We are thrilled to launch this unique initiative, jointly with GHIAL. An aviation ecosystem, orchestrated in real-time using digital innovations, with the customer at its heart, has the potential to provide breakthrough experiences unparalleled anywhere else in the world. I am confident in our ability to create this outlier in the world of Aviation in close cooperation with our ally GHIAL."

Expressing enthusiasm, Mr. SGK Kishore ED- South & Chief Innovation Officer, GMR Airports, said "GMR Group

stands as a pioneering force in advancing technological innovations within the aviation landscape. This consortium serves as a testament to our unwavering commitment to innovation and our leadership in the digital and emerging technology arenas. Currently, GMR Group is steering a range of initiatives geared towards elevating business prospects, including the delivery of superior customer experiences, revenue enhancement, cost reduction opportunities, and the establishment of agile and efficient internal processes. Our dedication to pushing the boundaries of innovation remains steadfast, and we anticipate introducing forward-thinking solutions in the years ahead with the entire aviation ecosystem. This initiative will harness digital technologies to create a future-ready and efficient aviation infrastructure in India."

BLR AIRPORT SEES STEADY GROWTH IN 2023; PASSENGER NUMBERS UP BY 35%

Kempegowda International Airport Bengaluru (BLR Airport) has seen a notable growth in passenger numbers in CY 2023. The Airport served a total of 37.2 million passengers, marking a 35.3% increase compared to CY 2022. Additionally, BLR Airport continues to maintain its standing as a reliable hub for handling Perishable (PER) cargo in India for the third consecutive year, emphasising its commitment to seamless cargo operations.

Passenger Milestone: BLR Airport enjoyed a significant passenger rebound in 2023, welcoming a total of 37.2 million travellers, of which, 32.7 million were domestic passengers and 4.5 million travelled to international destinations. On April 29, 2023, the Airport recorded the highest number of passengers in a single day for CY2023 at 116,688 passengers. This figure exceeded pre-pandemic levels and highlights the airport's resilience and adaptability.

In 2023, factors such as reduced travel limitations, improved economic conditions, and increased demand for leisure and business travel led to a notable rise in growth numbers. The highest number of air traffic movements (ATMs) was witnessed on March 17, 2023, reaching an impressive 748 ATMs in a single day. It is a notable recovery, considering that the highest ATMs on any single day in CY 2022 was 693. Domestic ATMs last year saw a substantial 22% recovery, while international ATMs showed a 15% increase. These indicators reflect the positive momentum in the aviation sector, demonstrating the gradual return to pre-pandemic level travel patterns.

Connectivity and New Routes: In September 2023, BLR Airport seamlessly transitioned international operations from T1 to T2, marking a crucial milestone. November witnessed the launch of Lufthansa's thrice weekly non-stop Bengaluru-Munich flights, providing enhanced connectivity for travellers. October 2023 marked the introduction of Maldivian Airlines, catering to Male with thrice-weekly operations. Furthermore, five new domestic routes were introduced, contributing to the overall capacity growth. AIX (created by the merger of Air India Express and Air Asia India) commenced domestic operations in October 2023, further diversifying the airline portfolio and expanding connectivity for passengers. Top domestic routes in the calendar year 2023 included Delhi, Mumbai, and Hyderabad.

BLR Airport served 25 international destinations last year, with Dubai, Singapore, and Doha emerging as the top sectors contributing to the international traffic. The airport's strategic focus on global connectivity continues to position it as a key gateway for travel across South and Central India.

Cargo Growth: In terms of cargo traffic, BLR Cargo continues to be India's No.1 hub for handling perishable cargo for the third consecutive year with a tonnage of 53,751 metric tonnes (MT) in FY 2023. BLR Cargo processed a total of 422,644 MT of cargo during CY 2023, indicating a 2% increase from previous year. The domestic sector soared with an impressive 11% growth, highlighting BLR's strengthening position as a rapidly growing cargo hub in India.

Perishables continued to be a key focus,

with coriander exports surging by 67%. The export of mangoes reached a three-year tonnage record, achieving a 124% year-on-year growth. 684 MT of mangoes were exported, facilitated by an 86% increase in the number of pieces shipped. This accomplishment highlights BLR Cargo's robust cold chain capabilities and dedication to efficient perishable handling.

Strategic Infrastructure Developments: BLR Cargo's strategic infrastructure developments in May 2023 welcomed two new Cargo terminal operators: Menzies Aviation Bangalore Pvt Ltd (MABPL) and WFS Bangalore Pvt Ltd (WFSBPL). MABPL provides dedicated facilities for domestic cargo and international cargo processing, while WFSBPL offers specialised cold chain capabilities in addition to international cargo processing. These partnerships are anticipated to enhance efficiency, expand capacity, and sustain cargo growth for the Airport in the coming years. The developments aim to elevate BLR Cargo's cargo capacities to approximately ~1 million MT by the end of this decade.

July 2023 also marked a significant milestone for BLR Cargo, handling the highest monthly domestic tonnage since the Airport's opening, totalling 16,507 MT. Additionally, Oman Airlines commenced freighter operations last year, further diversifying and strengthening BLR Cargo's global connectivity.

Looking Ahead: As we reflect on 2023 as a year of resilience and milestone achievements, Kempegowda International Airport Bengaluru aims to maintain its position as one of the leading aviation hubs and the preferred gateway to South and Central India, with a commitment to continuous growth and excellence.

Boeing Names Independent Advisor to Lead Comprehensive Quality Review



Boeing named Admiral Kirkland H. Donald, U.S. Navy (Ret.) as special advisor to Boeing President and CEO Dave Calhoun. The appointment is effective immediately.

Admiral Donald and a team of outside experts will conduct a thorough assessment of Boeing's quality management system for commercial airplanes, including quality programs and practices in Boeing manufacturing facilities and its oversight of commercial supplier quality. His recommendations will be provided to Calhoun and to the Aerospace Safety Committee of Boeing's Board of Directors.

"Admiral Donald is a recognized leader in ensuring the integrity of some of the most complex and consequential safety and quality systems in the world," said Calhoun. "I've asked him to provide an independent and comprehensive assessment with actionable recommendations for strengthening our oversight of quality in our own factories and throughout our extended commercial airplane production system. He and his team will have any and all support he needs from me and from across The Boeing Company."

Admiral Donald served as a nuclear trained submarine officer for 37 years. In his last Navy assignment, he served as Director, Naval Nuclear Propulsion Program for eight years, ensuring the safe and effective operation of all nuclear-powered warships and supporting infrastructure. The program is recognized worldwide for excellence in reactor safety and reliability. He currently serves as Chairman of the Board for the largest military shipbuilding company in the United States, Huntington Ingalls Industries, Inc. He also chairs the board of the non-profit Battelle. His public board service also includes Entergy Corporation, where he is Chairman of the Nuclear Committee. Admiral Donald graduated from the United States Naval Academy with a Bachelor of Science in Ocean Engineering.

As a leading global aerospace company, Boeing 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.

Gulfstream Promotes Amy Ariano to Senior Vice President, Chief People Officer



Gulfstream Aerospace Corp. announced Amy Ariano has been promoted to senior vice president, chief people officer. Ariano joined Gulfstream in 2015 as vice president of human resources.

"Under Amy's leadership, we have transformed Gulfstream's human resources function by enhancing the workplace experience for our employees which, in turn, ensures our people exceed our customers' expectations," said Mark Burns, president, Gulfstream. "In this new role on the senior leadership team, Amy's focus on engagement, development and career growth will continue to help us fulfill Gulfstream's vision for the future and contribute to our overall ongoing success."

Prior to joining Gulfstream, Ariano served as vice president, human resources, for the private brands and commercial foods segments of ConAgra Foods. While there, she held a series of roles with increasing responsibility across human resources. Before joining

ConAgra, Ariano held several human resources positions at SPX Corp., a global multi-industry manufacturer.

Ariano earned her bachelor's degree in sociology from the University of Michigan in Flint and a master's degree in training and organizational development from Oakland University in Rochester, Michigan.

AJW Capital Appoints Accomplished Aviation Industry Leader, Erlendur Svavarsson as New CEO



AJW Capital, a key player in aviation asset management, part of the AJW Group, is proud to announce the appointment of Erlendur Svavarsson as its Chief Executive Officer (CEO).

Svavarsson brings a wealth of experience to the role, having served as an accomplished CEO and Board of Directors member within the airline and aviation industry with roles previously held at Cabo Verde Airlines, Loftleidir Icelandic, Arctica Finance, and Faradair Aerospace. With a proven track record in leadership, business development, strategic planning, organisational change, international business, negotiations, and mergers & acquisitions, Svavarsson is a highly skilled professional. He is a graduate of the University of Iceland and holds an MBA, summa cum laude, from Reykjavik University, as well as completing studies at the prestigious Harvard Business School.

In his new role at AJW Capital, Svavarsson will spearhead the company's strategic initiatives as it continues to thrive within the aviation industry. As part of the AJW Group of companies, AJW Capital serves as the principal investing division responsible for the purchase, sale, and lease of large aviation-related capital assets, including whole aircraft and

engines.

AJW Capital actively engages in creating and managing joint venture vehicles, acquiring packages of aircraft and engine spare parts for utilisation, and employing sophisticated strategies such as sale, teardown, or lease to maximise asset value.

Commenting on this appointment, Christopher Whiteside, Chairman of AJW Group, expressed his confidence in Svavarsson's ability to lead the company into its next phase of growth, saying,

"We are thrilled to welcome Erlendur as the new CEO of AJW Capital. With his extensive leadership experience in the aviation industry, we are confident that Erlendur will steer AJW Capital towards new heights of success, ensuring our continued commitment to excellence in aviation asset management."



**Aviation Update Contributing Editor
Dr. (Hon) M R K Menon in conversation with**

Mr. Hari K Marar

Managing Director & CEO, Bangalore International Airport Limited



Q How did you happen to enter the world of Airport Management?

A That's an interesting story. I entered the world of aviation and airport management through a unique opportunity with Jet Airways. Despite my background in the hospitality sector, Jet Airways recognized the value of infusing hospitality professionals into their business. They sought individuals with a track record of delivering high-quality service, and I was among those recruited. Embracing this radical move turned out to be fortuitous, marking the beginning of my journey in the aviation industry.

Q What does it take to run an Airport efficiently?

A Running an Airport efficiently is a multifaceted task. Beyond ensuring an excellent customer experience, successful airport management involves fostering strong

relationships with various stakeholders and partners to guarantee smooth operations. Adherence to regulations is paramount, and alignment with government priorities is crucial for overall success. Managing an airport goes beyond daily operations; it requires a forward-looking perspective to anticipate future needs and adapt to the dynamic aviation landscape. A combination of a long-term vision, meticulous planning, and timely execution is essential for sustained efficiency in airport management.

Q What do you look for in a potential Airport employee at the junior level?

A When considering potential employees at a junior level, I prioritise the concept of 'Hire for attitude, train for skills.' We seek individuals with a strong service orientation, a determined drive for results, a genuine eagerness to learn, and effective team collaboration skills. These

qualities form the foundation for a successful and cohesive workforce, allowing us to cultivate and enhance skills through training for a thriving and motivated team.

Q What do you look for in a potential Airport Employee at the Management level?

A When evaluating potential candidates at a management level, my focus centres on robust leadership skills. I value individuals who can effectively empower and inspire their teams, fostering a collaborative and productive work environment. Additionally, the ability to mentor and guide team members is crucial, ensuring continuous growth and development of our employees. This combination of leadership, empowerment, and mentorship contributes to the overall success of our management team and the organization as a whole.

Q What part of your job do you like most?

A What I find most enjoyable in my role as an airport CEO is the constant dynamism of the job. Each day brings a unique set of challenges, ensuring there's never a dull moment. The ability to make impactful decisions that directly influence people's lives and contribute to the socio-economic development of the surrounding communities and region is immensely rewarding. Being part of the endeavour to build the nation's futuristic infrastructure and enhance its global reputation brings a sense of pride and fulfilment to my role, making each day a meaningful and exciting experience.

Q What are some significant milestones in your career at KIA or BIAL?

A Throughout my career at Bangalore International Airport, several significant milestones underscore our commitment to excellence. We take pride in the accolades and recognition that reflect our hard work.

Recently, BLR Airport received the prestigious 'Best Airport of the Year' award at the Wings India Awards 2024, a testament to our dedication to providing exceptional services. We were honoured with the '>25 MPPA Traffic Award' in the Airports category, recognizing our substantial passenger traffic achievements.

Our commitment to aesthetic excellence was recognized with the World Special Prize for Interior 2023 at UNESCO's Prix

Versailles 2023, a noteworthy acknowledgement of our dedication to creating a world-class airport environment.

Further affirming our position, we were awarded the title of 'Best Domestic Airport' at the 12th edition of Travel + Leisure India's Best Awards 2023, solidifying our reputation as one of the leading players in the aviation industry.

Q Have you groomed your Successor at work?

A Grooming a successor is an ongoing initiative within our organization. We have identified individuals who show promise and are currently in the process of providing them with the necessary mentorship and developmental opportunities. Ensuring a seamless transition and cultivating leadership within the team is a priority as we work towards preparing capable individuals to take on future leadership roles.

Q How do you think AI is going to impact Airport Operations?

A BLR airport has always been at the forefront of the adoption of new technologies including AI. We use an AI-based platform that connects more than 500 live camera feeds across T2 to visual AI technologies that can do nearly a dozen functions in real time. The results have been encouraging. With the technology rapidly evolving, AI will be used for several other aspects of airport operations. However, it is still too early for me to comment on when and to what extent they will influence our daily operations and



Kempegowda

INTERNATIONAL
AIRPORT
BENGALURU

decision-making.

Q What next for your Airport?

A Looking ahead, there are several key initiatives on our radar at BLR Airport. Firstly, we are gearing up for the next phase of expansion, with a comprehensive plan in place to accommodate the growing demands of the aviation sector. Concurrently, we're actively refurbishing Terminal 1 to elevate our domestic services.

Investing in cutting-edge technologies is a top priority, and we're committed to enhancing customer experiences. The success of Digi Yatra technology is just the beginning, as we explore and implement other innovations to streamline our day-to-day operations.

On the infrastructure front, we have embarked on the ambitious project of developing a world-class Airport city, marking a significant milestone in our journey. The groundwork for this project is already in progress, promising a vibrant and modern extension to BLR Airport.

As we navigate these exciting ventures, it's indeed a dynamic and promising time for BLR Airport, and we are dedicated to shaping the future of aviation

with innovation, expansion, and a relentless commitment to excellence.

Q How does a young person prepare for a job in Airport Administration?

A For aspiring individuals seeking a career in airport administration, enrolling in a course focused on Airport Management is a valuable initial step. However, beyond academic qualifications, cultivating a genuine joy in serving others is crucial. The willingness to learn and adapt to the dynamic nature of the aviation industry is equally essential. Combining a specialised education with a service-oriented mindset and an adaptive attitude will better prepare young individuals for the multifaceted challenges of airport administration.

Q Which is your favourite Airport and Why?

A Changi Airport in Singapore holds a special place as my favorite. It stands out for its exceptional development as a hub, emphasising efficiency and operations. The airport's infrastructure, cutting-edge technology, and thoughtfully designed spaces are all exemplary. Whether one is arriving in the country or simply transiting through, Changi Airport offers an unforgettable experience, showcasing a level of excellence that serves as a constant source of inspiration for me.

Q What is the legacy you would like to leave behind?

A The legacy I aspire to leave

behind is deeply intertwined with the enduring success of the airport. I envision a legacy that transcends individuals, focusing on the airport's profound impact on the surrounding communities and region and its role in job creation. The achievements and contributions made during its development are poised to outlive all those involved, serving as a lasting testament to the transformative impact we've had on the aviation landscape. This enduring legacy will reflect our contribution to the sustained growth and economic prosperity of the region.

Q Tell us something about the CSR activities of KIA or BIAL?

A The Kempegowda International Airport Foundation (KIAF), established in 2020, represents the social responsibility arm of Bangalore International Airport Limited (BIAL). Recognizing the integral role community development plays in our region's prosperity, KIAF implements impactful initiatives focusing on education, healthcare, water management, heritage preservation, and sustainable livelihoods.

KIAF focuses on five key areas through its flagship programs:

Namma Shikshana fosters holistic development in surrounding schools. This includes infrastructure upgrades, teacher training, and student mentoring, resulting in improved learning outcomes and enhanced enrolment rates. We actively engage with School Development Management Committees (SDMCs), empowering parents

and fostering community ownership. Additionally, focused mentoring sessions for 7th-grade students have significantly improved learning outcomes, demonstrating the initiative's efficacy in enhancing educational standards.

Namma Nela-Namma Jala:

Namma Nela-Namma Jala aligns with UN SDG 6, focusing on clean water and sanitation. We actively promote rainwater harvesting, installing household units across villages, and bolstering groundwater reserves. Initiatives like the award-winning "Sthree Toilet" address sanitation needs, particularly for women. Additionally, BIAL provides infrastructure support, such as portable cabins for Bengaluru City Police, demonstrating our commitment to societal well-being.

Namma Arogya: During the COVID-19 pandemic, KIAF played a crucial role in supporting the community. We established a transit care center and donated oxygen concentrators to hospitals, demonstrating our commitment to public health. Ongoing initiatives like medical equipment donations to rural hospitals further strengthen healthcare access in underserved areas.

Namma Parampare: Namma Parampare reflects our commitment to UN SDG 11, sustainable cities, and communities. We actively collaborate with stakeholders to conserve our region's rich heritage, including developing the Devanahalli Fort as a heritage site and promoting cultural activities.



Namma Ooru: Namma Ooru aligns with UN SDGs 10 and 17, addressing inequalities and fostering partnerships. We promote the cultivation of the endangered Devanahalli Pomelo, a GI-tagged flora, preserving its legacy and supporting local livelihoods.

Q Do you plan to write a book on Airport Management?

A There are no immediate plans to write a book on Airport Management. However, I remain open to the possibility, and perhaps in the future, as inspiration strikes, I may consider sharing my perspectives and experiences in the aviation industry through a book.

Q How do you relax from the stresses at work which is never ending?

A To unwind, I find solace in a few pastimes. Listening to music, watching movies, and delving into books provide a much-needed escape. Additionally, I thoroughly enjoy socialising with friends, and

engaging in conversations that offer a refreshing break from the demands of my job role. These activities not only serve as relaxation but also contribute to maintaining a healthy work-life balance.

Q Who has inspired your good self during your career in the field of Aviation?

A Throughout my career in the field of aviation, inspiration has come from various sources rather than a single individual. My leadership style is adaptable, evolving according to the demands of the moment, drawing influence from diverse role models who have demonstrated different styles of leadership.

In terms of team management, I find inspiration in figures like MS Dhoni, whose calm and composed leadership style, coupled with a profound trust in his team, serves as a model for effective collaboration.

Jamshedji Tata's philosophy has also left a lasting impact on me. His belief that communities are not just essential stakeholders

but the very reason for the existence of a business resonates deeply, shaping my perspective on the purpose of our endeavours. My father, with his commitment to principled and ethical business management, has been a consistent source of inspiration, instilling in me a foundation of values that guide my approach to leadership. During my early days at BIAL, my boss, Marcel Hungerbuehler, a Swiss gentleman, played a pivotal role in shaping my mindset. His influence introduced a sense of discipline, the Swiss way – emphasising the importance of punctuality, professionalism, and meticulous business management. In essence, my journey in aviation has been enriched by many influences, each contributing a unique perspective to my leadership philosophy.

Q Do you make New Year's resolutions? If so, please give us a few goals you have set for yourself.

A Of course, I do. For the upcoming year, my primary focus is on prioritizing and investing in my health.



Aviation Update Editor B. Kartikeya in conversation with

Mr. Capt. D S Basraon Managing Director of FSTC

Q Airlines, not just in India, but the world over are expanding their fleets, creating a huge demand for commercial pilots across the world. At FSTC, you provide pilot training courses. Can you give us some details as to how are you contributing in creating a solid base of industry-ready pilots for aviation sector? (Facts & Figures, how many pilots pass out of your institute every year)

A Since our inception in 2012, FSTC has made significant strides in advancing the aviation sector under ATMANIRBHAR BHARAT (Self Reliant India). We take immense pride in the fact that FSTC has trained over 3000 pilots, making us the leading organization in providing employment opportunities for a significant number of pilots in India. Approximately, 40% of the pilots flying in India have received training from FSTC. About 50,000 hours of simulator training FSTC extends to carriers flying in Indian skies.





Q Can you throw some light on the simulator training offered by FSTC? What are the type of simulators? Do you have any plans to add further in 2024?

A We started with Two (02) simulators in 2012 and today, we proudly operate Eleven (11) simulators—a testament to our growth and commitment to the industry. Today, on the ATO side, we operate and train pilots on 05 Airbus A320 Ceo/Neo, 02 Boeing B737 NG, 01 ATR 72-600, and 01 Bombardier Dash 8 Q400. To further ramp up airline operations, in the year 2024, we are inducting 01 Boeing B737MAX, 01 A320 NEO, and 02 FTDs dedicated to Boeing operations.

Q In most FTOs, there is a conflict between making

a profit and quality of training. Your views. In what way is FSTC different from other institutes offering same courses?

A India is rapidly aiming to become the 03rd largest in the world's aviation market by 2030. With a growing economy and surge in air travel, all existing and upcoming airlines are in expansion mode. This creates massive requirements for pilots with a minimum Commercial Pilots License (CPL), which the FTOs in India must meet.

In civil pilot training, there is a conflict between business interests and the quality of training. The growing demand for pilots gives rise to the creation of a large number of FTOs, it may meet the numbers, but the quality is usually

compromised for profitability.

FSTC is primarily an airline-driven organization and a large corporate setup. Our primary responsibility is to train and provide industry-ready pilots to our partners as per international standards practices and procedures with no scope of any shortcuts on account of any under-trainee pilots/instructors. The performance is mapped and documented in real-time as it is directly related to the flight safety of the airline. We provide end-to-end solutions from Ab-Initio to advanced-type training on large Jet/propeller aircraft. Our training devices and aircraft serviceability is 99% throughout the year to achieve the syllabus in the stipulated period to avoid any cost overruns.

With the quality of flying and ground instructors, our

students perform exceedingly well during their employment tests conducted by the various airlines. Hence, FSTC-trained pilots are the first preference of any airline during their inductions.

Q Can you tell us something about the trainers and their qualifications as they say the quality of training is only as good as the faculty.

A Providing cadets with the knowledge and skills necessary to help them safely and efficiently fly commercial airliners, our programmes are taught by hands-on, expert instructors who bring real-world experience into the classroom learning environment. Our team comprises qualified professionals who are Ex-Defence and Ex-airline with tons of flying and instructional experience in all the types of aircraft/simulators we operate. They hold certifications from esteemed organizations such as the Directorate General of Civil Aviation (DGCA) and the European Union Aviation Safety Agency (EASA).

Q The term ‘inability to learn flying’ is common in terms of pilot training. Can you tell us a bit more about this.

A Flying training requires the achievement of specified standards within stipulated time frames. In the interest of



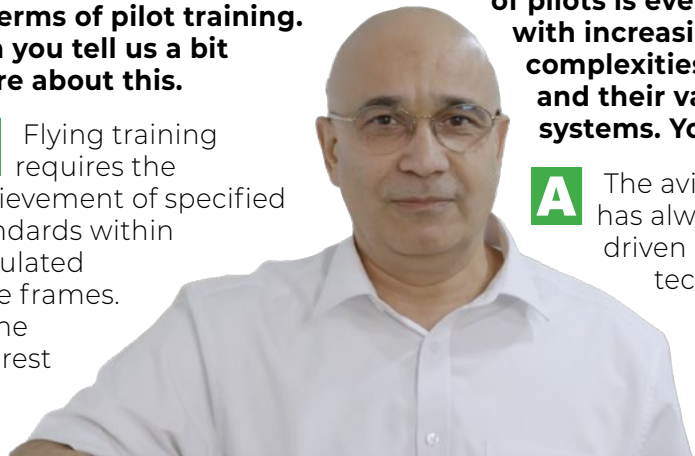
flight safety, during induction at FSTC, we use advanced tools to assess cadets’ abilities of their cognitive & psychometric skills. These abilities include long-term memory, recall, hand-eye coordination, spatial awareness, response time, data analysis, and pattern recognition.

Apart from their regular medical requirements, these processes help us identify the limitations of an individual. Post filtration, our dedicated team works on successful candidates to achieve the prescribed syllabus of DGCA.

Q With time, the demand for the technical abilities of pilots is ever increasing with increasing complexities in aircraft and their various systems. Your views.

A The aviation industry has always been driven by technological

advancements, from the development of the first plane to the latest cutting-edge aircraft systems fly-by-wire technology, and fuel-efficient Aero engines. As technology continues to evolve, its impact on the aviation industry is becoming even more complex and significant. Therefore, it is imperative for pilots to continuously update with the latest configurations of the machines fitted with various subsystems and major assembly so that they are comfortable in taking the most appropriate actions during various stages of flights and various emergencies, as most of the aircraft are now computer-aided and controlled by different versions of Software’s. So, pilots are required to continuously learn and update each day as flying envelopes change every hour in real-time scenarios based on the mission’s requirements.





**Aviation Update Editor
B. Kartikeya in conversation with**

**Capt. Mohit Teotia
Founder - Poetic Pilot Academy**

Q Our readers love to hear the stories from the industry people. Why don't you share yours?

A I was born in a middle class family with very less privileges that time. My father was in army but due to crunch of money & proper finances, I was unable to do my pilot training. But then my family took loan and sent me to Canada for my flight training. I worked very hard in Canada and became a flight instructor after a lot of sleepless nights and hard work and then became a chief flight instructor for 8 years and taught as many students as I could. I absolutely loved the process of teaching people how to fly. I realised that time how passionate I am for teaching.

After coming back to India I joined an airline and became a captain. This passion of flying and instructing makes me happy and I spread this happiness through my poetry which brings smiles on my passengers' faces and make their journey more comfortable and beautiful.

Q What are the various courses that you are offering at Poetic Pilot Academy?

A There is lack of information in the market regarding aviation & how to proceed and pursue this line of profession.

Once a student is out of class XII, till the time that student becomes a pilot in an airline, we at PPA (Poetic Pilot Academy) provide all the necessary information, all the courses including DGCA exams, medicals, computer number, flight training

in India / abroad, their license conversion, airline preparation classes and helping them get them into airlines in India and even abroad.

Q What are the pros & cons of Pilot career? What are the necessary points to remember for aspiring pilot?

A **Pros :** Pilots have an extremely handsome package, you get to stay in 5 star hotels on layovers living the 5 star life, you are your own boss, you get to wear that uniform, you get that rush when flying through clouds and up at 40,000 feet, you get to see different cities all over the world and experience different cultures which no other job offers and much more!

Cons: Sleep cycle gets distributed as there is no fixed routine for flying because sometimes you fly at night, sometimes at early morning, there is no weekend, you can't spend festivals with your families because you are flying and you tend to miss on lot of family occasions.

NECESSARY POINTS FOR ASPIRING PILOT

- Flying training requires a big investment and without studying/working hard you cannot become a pilot.
- Health is the most important thing as you have responsibility of 200-300 passengers behind your back.
- You should enjoy your training part because that initial CPL training part never comes again. Cherish it.
- Safety comes first in the aviation sector.

■ Always listen to your senior pilots, there is no retake in aviation, only one take off and one landing!

Q What do you see as the most significant challenges and possibilities for the industry in the years ahead?

A The rate at which the Indian aviation is expanding right now, it's going to be very challenging to fulfill the demands because they need a lot of infrastructure & pilots in the coming years.

Airbus has predicted 41000 pilots in next 20 years.

Current orders - 1200 plus aircrafts which requires more than 15000 pilots in next 5-7 years in India itself.

Maximum number of pilots the aviation sector has given in a year is only 1600 pilots, which was in 2023 itself.

For 15000 pilots only it will take atleast 9-10 years.

For an airport/aircraft to operate we need cabin crew, ground staff, technical staff and much more work force and professionals.

Aviation sector would have to cope up with the safety aspects, infrastructure and the huge workforce demand.

We need to get infrastructure ready and the professionals.

This according to me would be a big challenge. It would require a lot of efforts and I am sure we will be able to handle it if everyone is working together for it.

It is hard but not impossible.

If we are able to do this, we, India

will be the biggest hub in the aviation sector.

Q What is your Wishlist for 2024? Your cheering message for our fellow aviators would be..?

A When people see you in uniform they don't know your name, your religion & they just trust you as a pilot because of your uniform. They respect the uniform, respect the trust they have built in us as aviators in terms of safety, because passengers know that they will reach their destination safely and it is all because of the pilot. It is because of the aviators that the world is able to celebrate holidays/vacations with a smile on their faces. We, pilots, serve a very crucial role on this planet by helping people go from point A to point B, safely and unite them with their families and work.

Good news for aspiring pilots is that there are a lot of vacancies coming up in the next few years and this is the best time to start your aviation journey!

My wish list? - There are hundreds of pilots trained by me who are flying with different airlines all over the world. When I see them at the airport, nothing makes me happier, it just makes my heart full.

I want to train many more pilots to fly up there, make me proud and fulfil their own passion of flying.

I wish PPA to be able to provide India with more well trained pilots & fulfil atleast some part of the pilot crunch for the Indian aviation which will be experienced in the coming years and help be part of the growth curve of the Indian aviation.

AIRCRAFT AND ENGINE TEARDOWN

Commercial aircraft eventually will end their lease life or working life with completion of their specific life cycle. In many cases the owners and operators decide to withdraw the aircraft from service due to increased airplane maintenance cost, the need for expensive airframe and avionics upgrades, difficulty locating replacement aircraft parts, and increasing number of service expired aircraft parts. Once the decision is made to retire the aircraft, the owners face the challenge of finding a new operator or owner.

Currently many aircraft operators and airlines store their end-of-life aircraft as these airplanes are taken out of service. Aircraft storage, however, is expensive and the Engines are planned for dismantling. Aircraft teardown and sale of valuable parts and reusable components in a timely manner can in many cases lead to generating more money for the out of service aircraft as compared to its value if put back to service after a long period of storage. It has been demonstrated that up to 80 percent of an aircraft's parts could be re-used, recovered, or recycled in a secure and environmentally sensitive way. We have the expertise and experience to dismantle airplanes and recycle aircraft parts and components in an environmentally conscious manner.

Additionally, with years of experience in aviation parts distribution and with plans to become a FAA authorized repair facility we



will be able to inspect, certify, maintain, and sell the recovered aircraft parts generating maximum return in shortest possible time.

The current business is to acquire Engines & Aircrafts

- Aircraft End-of-life Consulting and Support
- Aircraft teardown, disassembly, and recycling
- Marketing and sales of removed aircraft parts and components.
- Logistics and inventory management for

removed aircraft components.

- Aircraft parts inspection and trace verification
- Repair, overhaul and recertification of dismantled aircraft parts and components.
- We find what you need when you need it
- We support comprehensive parts sourcing services. Using supply chain partners allows us to easily and efficiently manage the logistics and documentation on the hundreds or thousands of airplane parts for operation requirements.





Mr. Niranj Kumar
CEO - GNAT Aviation

ATR 72 TEARDOWN PROJECT

Recently, one such teardown project was successfully handled by GNAT Aviation Pvt. Ltd. under the leadership of its CEO Mr. Niranj Kumar. Under his leadership and guidance, the dismantling of an ATR 72 aircraft was carried out in March 2023.

ATR-72 registered under erstwhile Jet Airways was grounded at Delhi IGI Airport for about four years. This aircraft was auctioned by the owner M/s Investec and was successfully bid for by GNAT Aviation, post which GNAT Aviation planned for its teardown. After completing the regulatory process for deregistration from the Indian registry, this

aircraft was cleared for teardown in Feb 2023 for teardown and within just two months the whole aircraft was successfully dismantled.

After removal of the Engines, Landing Gears, Empennage, Cabin, and Cockpit Interiors the aircraft was shifted to HAL Hangers in Nasik and further teardown for parts was carried out in collaboration with Hindustan Aeronautics limited (HAL).

Parts harvested from the aircraft were secured and preserved at HAL facility under proper environmental conditions and the hull was later sold to a third party. A parts handover ceremony was conducted by HAL at its Nasik facility in June 2023 wherein the parts harvested from this aircraft were handed over to GNAT Aviation.

At the Biennial Wings India 2024 in January at Hyderabad, GNAT Aviation and HAL showcased their competency in commercial aircraft teardown/recycling. The unveiling of the joint capability for aircraft recycling/teardown was inaugurated by CEO GNAT Aviation and CEO MIG Complex HAL.

As part of the convergence mission of Govt. of India to cross utilize resources of defense and civil aviation, HAL has established a facility for recycling commercial aircraft at their Nasik plant and this ATR Aircraft was the first aircraft to be completely dismantled at HAL facility in Nasik, thereby paving way for more such projects in future.

ENGINE TEARDOWN PROJECT

GNAT Aviation Pvt. Ltd along with its partner company Gretel Network of Aircrafts and Turbine Engines Private Limited has started a project on

Aero Engine overhaul and maintenance. As a first project, disassembly of an Aero engine was carried out.

After removing the exhaust cone and tilting the Engine into Vertical position, all the external accessories were removed. Hot end and cold end were separated, Accessory and Reduction Gear box were separated, centrifugal compressor, Turbine assembly were dismantled followed by arm assembly. Standard OEM procedures were followed while disassembling the Engine. Special tools and general tools were made available for the task. With the establishment of this facility, GNAT Aviation is taking strides in the areas of Aero engine repair and overhaul.

Our Contribution : Our Contribution, expertise and skill teams has supported Global MRO, Airlines and Operators, small Aggregators in the supply chain. 90% of the parts are recycled or retained in full form without the structure, thereby contributing to lower Carbon footprint.

GNAT Aviation serves both national and global customers in the areas of Aero engine management, Aero Engine Repairs, MRO Services, Aircraft par sales to name a few.

About Mr. Niranj: He is a senior and well experienced aviation professional who has been active in the industry for more than 40 years and has held board roles in various companies. Previously associated with marquee companies like Pratt & Whitney (US & Canada), Cyient and HAL, Mr. Niranj has worked in diverse areas of this industry and in 2017 started GNAT Aviation.

DRDO CONDUCTS SUCCESSFUL FLIGHT-TEST OF NEW GENERATION AKASH MISSILE OFF ODISHA COAST

Defence Research and Development Organisation (DRDO) conducted a successful flight-test of the New Generation AKASH (AKASH-NG) missile from the Integrated Test Range (ITR), Chandipur off the coast of Odisha at 1030 hrs on January 12, 2024. The flight-test was conducted against a high-speed unmanned aerial target at very low altitude. During the flight-test, the target was successfully intercepted by the weapon system and destroyed. It has validated the functioning of the complete weapon system consisting of the missile with indigenously developed Radio Frequency Seeker, Launcher, Multi-Function Radar and Command, Control & Communication system.

The system performance was also validated through the data captured by a number of Radars, Telemetry and Electro Optical Tracking System deployed by ITR, Chandipur. The flight-test was witnessed by senior officials from DRDO, Indian Air Force (IAF), Bharat Dynamics Limited (BDL) and Bharat Electronics Limited (BEL). The AKASH-NG system is a state-of-the-art



missile system capable of intercepting high speed, agile aerial threats. The successful flight test has paved the way for User trials.


Raksha Mantri Shri Rajnath Singh has complimented the DRDO, IAF, PSUs and the Industry for the flight-test. The successful development of the system

will further enhance the air defence capabilities of the country, he said.

Secretary Department of Defence R&D and Chairman DRDO Dr Samir V Kamat also congratulated the teams associated with the successful flight test of AKASH-NG.

India's premier aviation monthly magazine

Aviation UPDATE



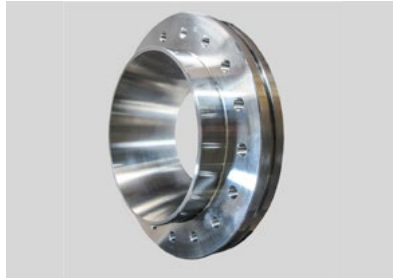
FOR EDITORIAL & MARKETING

Editor-in-Chief
 B. Kartikeya, +91 94444 99221
 Kartikeya@futureaviation.in
 E-mail : aviationupdatemag@gmail.com

GKN Aerospace Collaborates With NGC on SMART Demo Rocket Test Motor

GKN Aerospace has been selected by Northrop Grumman to help develop components for a revolutionary solid rocket motor demonstrator. The first Solid Motor Annual Rocket Technology Demonstrator (SMART Demo) successfully tested a new motor that was developed in less than a year to showcase innovative technologies, including alternative manufacturing materials and processes. Underpinned by GKN Aerospace's ground-breaking AM capability, the project demonstrated technologies that could reduce production lead times by up to 75 percent.

Shawn Black, President of GKN Aerospace's Defense Business, said, "We are delighted to collaborate with Northrop Grumman on SMART Demo. Programmes like this underscore the significant benefits additive manufacturing can bring, such as reducing production costs and lead times for mission-critical products that support our Armed Forces and the commercial aviation industry. We are committed to innovation and to rapidly advance this technology to support our customers and to provide greater resilience across the aerospace and defence industrial base."



GKN Aerospace has been a pioneer in additive manufacturing for around two decades, with prominent research and technology centres in Sweden and the UK, as well as the USA. This month, the business announced a joint investment of £50 million with the Swedish Energy Agency into cutting-edge additive technology in Trollhättan, Sweden.

GKN Aerospace has been a supplier to Northrop Grumman for many years. In 2022 GKN Aerospace showcased its additive manufacturing leadership with an 8-foot titanium demonstrator, the largest AM component it had ever produced, in partnership with NGC.

Saab and MBDA to Strengthen Co-Operation



In this context, a major new step has been taken in the relationship between the two countries. On 31 January, Micael Johansson and Eric Béranger, the CEOs of Saab and MBDA, expressed their willingness to support this process in the fields of anti-tank and air defence, two capabilities identified as particularly critical for the armed forces of both countries, especially in the context of high-intensity conflicts. They signed Letters of Intent to strengthen the co-operation between their companies in these two fields, at the Business Forum organised in the presence of the highest French and Swedish authorities.

"The closeness between Saab and MBDA is reflected in our co-operation over many years, and the deepening and broadening of that through these Letters of Intent is most welcome. Doing this here in Stockholm during the state visit by President Macron to Sweden is symbolic of how two European governments working together can facilitate industry in strengthening our collective security," said Micael Johansson, President and CEO of Saab.

Eric Béranger CEO of MBDA, said: "This is an exciting new step in our long-standing partnership with Saab. We are both world leaders in the anti-tank and air defence domains and we will be combining our expertise to deliver the best capabilities for the armed forces on the battlefield. The signature of these Letters of Intent is further proof that co-operation lies at the very heart of MBDA's values."

Co-operation in the anti-tank field has resulted in an initial focus on the AKERON MP. A first contract has been awarded to Saab and MBDA by the DGA, the French contracting entity, and the Swedish Defence Materiel Administration (FMV - Försvarets Materielverk). This will enable the pooling of Saab and MBDA's expertise in the anti-tank domain, in order to support the Swedish and French armed forces' choice of the AKERON MP weapon system in the short term. This will also enable the implementation of a joint capability roadmap to develop new functionalities associated in particular with beyond line-of-sight firing, and also to prepare the missile to address the future generation of targets that will arrive on the battlefield. This roadmap will maintain AKERON MP's position as the benchmark weapon in its field, and an indispensable tool in high-intensity conflicts. Saab and MBDA are long-standing partners, as illustrated by their co-operation on the Meteor air-to-air missile programme and the TAURUS cruise missile, as well as in the European MARSEUS consortium that aims to provide a sovereign European beyond line-of-sight missile firing capability.

RTX Completes Milestones on DARPA Blackjack Program with 4 Blue Canyon Technologies Satellites



RTX's small-satellite manufacturer and mission services provider, Blue Canyon Technologies (BCT), announced the satellites supporting the Defense Advanced Research Projects Agency (DARPA) Blackjack program have completed critical milestones activities.

Using Blue Canyon Technologies' Saturn-class bus platform, the Blackjack program is a demonstration of cost-effective reconnaissance satellites that will operate in low Earth orbit.

National security space assets, critical to U.S. warfighting capabilities, traditionally reside in a geosynchronous orbit to deliver persistent overhead access to any point on the globe. To potentially replace

these large systems, the Blackjack program seeks to establish an equally effective network in low-Earth orbit using a constellation of four connected satellites.

"The Blackjack program is a perfect example of how RTX and Blue Canyon Technologies are working to solve the hardest problems in aerospace and defense," said Chris Winslett, general manager for Blue Canyon Technologies.

The successful operation marks a significant achievement for BCT in the swift commissioning of multiple spacecraft. This paves the way for global high-speed networks in LEO orbit and a continued growth of commoditized small satellite buses for LEO constellations and beyond.

BAE Delivers 1st Production-ready ACV Command Variant to USMC



BAE Systems delivered the first Amphibious Combat Vehicle Command and Control (ACV-C) variant under the full-rate production contract to the U.S. Marine Corps. The ACV-C will provide Marines with a mobile command center which enables situational awareness and operations planning in the battlespace.

ACV-C provides true open-ocean and ship-to-objective amphibious capability, land mobility, survivability and ample growth capacity and flexibility to incorporate and adapt future technologies. Through previous studies with the Marine Corps, BAE Systems has proven that the ACV is truly customizable and has the built-in growth capacity to integrate future mission critical technologies, including new battle management capabilities, advanced communications, multi-domain targeting management, beyond-line-of-sight sensors, and Manned-Unmanned Teaming (MUM-T) with autonomous and unmanned systems.

"We are thrilled to deliver this critical capability into the hands of Marines in the field," said Garrett Lacaillade, vice president of the amphibious vehicles product line for BAE Systems. "As the Marines begin to familiarize themselves with the new ACV-C, we remain ready to fulfill any of the Corps' critical amphibious warfighting needs to ensure the Fleet Marine Force is mission ready."

The Marine Corps and BAE Systems entered full-rate production on the ACV program with a contract award in December 2020. Currently, two of the four ACV variants are in production today at BAE Systems facility in York, Pennsylvania: the ACV Personnel variant (ACV-P), which provides transport for 13 combat-loaded Marines and three crew, and the new ACV-C variant. Production Representative Test Vehicles (PRTVs) are currently in production for ACV 30mm (ACV-30). ACV-30 is armed with a 30mm Remote Turret System that provides the lethality and protection Marines need while leaving ample room for troop capacity and payload.

The fourth variant on contract, the ACV Recovery variant (ACV-R) recently completed phase one of the design process. BAE Systems will deliver production representative test vehicles in 2025. ACV-R will provide direct field support, maintenance, and recovery to the ACV family of vehicles.

BAE Receives 418M Contract for M109A7 Self-propelled Howitzers and M992A3 Ammunition Carriers

BAE Systems to continue production of M109A7 Self-Propelled Howitzers and M992A3 ammunition carriers for the U.S. Army. BAE Systems has received a \$418 million contract from the U.S. Army to produce and deliver additional sets of M109A7 Self-Propelled Howitzers and their companion, the M992A3 ammunition carriers. The contract, which was awarded in November 2023, extends the period of performance with vehicle deliveries through 2025.

The M109A7 is the latest howitzer in the BAE Systems M109 family of vehicles and the primary indirect fire support system for the Army's Armored Brigade Combat Teams (ABCT). The vehicle is equipped with modernized capabilities in size, weight, power, cooling, readiness, force protection, and survivability, which together provide Army commanders with a more capable and sustainable vehicle on the battlefield.

"This contract furthers our commitment to helping the U.S. Army meet its mission needs," said Dan Furber, director of ground vehicle production for BAE Systems' Combat Mission Systems business. "The battlefield is constantly changing, but the ABCT can feel assured in the indirect fire support capability this vehicle provides."

The M109A7's new design includes a new



chassis, engine, transmission, suspension, steering system, a new high voltage architecture, and improved survivability. The M109A7 program's improved commonality across the ABCT eases the logistics burden and reduces operational sustainability costs. The vehicle is also engineered to support higher-caliber extended-range cannon assemblies critical to achieving the Army's extended range lethality goals.

BAE Systems received the initial contract for M109A7 production in 2017. This most recent order brings the total contract value to \$2.5 billion.

M109A7 and M992A3 production and support takes place at the Anniston Army Depot in Alabama and BAE Systems facilities in York, Pennsylvania; Minneapolis, Minnesota; Sterling Heights, Michigan; Endicott, New York; Elgin, Oklahoma; and Aiken, South Carolina.

Milrem Robotics to Supply World's Largest Combat UGV Order to the UAE MoD

Milrem Robotics, Europe's leading developer of robotics and autonomous systems, has signed a contract to supply 20 tracked robotic combat vehicles (RCVs) and 40 TheMIS unmanned ground vehicles (UGVs) to the United Arab Emirates (UAE) Ministry of Defence. The agreement, which represents the world's largest combat robotics programme, was announced at the Unmanned Systems Exhibition & Conference (UMEX 2024) being held at the Abu Dhabi National Exhibition Centre (ADNEC) until 24 January.

Under the terms of the contract, Milrem Robotics will lead an experimentation and trial programme aimed at integrating unmanned ground capabilities into the UAE Armed Forces' arsenal. This initiative is a significant step towards enhancing the Armed Forces' combat capabilities through the deployment of TheMIS UGVs and tracked RCVs, which are both equipped with advanced autonomy features, third-party payloads and high-quality communication solutions.

Kuldar Väärsi, CEO of Milrem Robotics said: "EDGE Group's investment in Milrem Robotics has opened new avenues for us in the region, further expanding our international growth and market presence. Initiating



the world's largest combat robotics programme with the UAE Ministry of Defence not only demonstrates the competitive edge of our solutions but also highlights the strategic value of incorporating advanced robotic systems into force structure, thereby enhancing their combat capabilities and operational efficiency."

The contract includes the supply of tracked RCVs with 30mm MK44 cannons, TheMIS Combat units equipped with 30mm M230LF Remote Weapon Stations and with Indirect Fire Systems, and TheMIS Observe units with radar and camera systems, including shot detection capabilities. Milrem Robotics will also provide comprehensive training and supervision to ensure the relevant personnel achieve a satisfactory skill level in operating combat unmanned ground systems.

Amentum Awarded \$946M Contract to Manage US Army Fixed Wing Aircraft Fleet Used in Transport Missions



Amentum was awarded a \$946 million contract to provide complete system maintenance and modernization solutions for the U.S. Army's government-owned fixed wing transport aircraft fleet. Leveraging advanced technologies and best practices, the company will provide life-cycle transport aircraft system modernization, integration, logistical and operational solutions, as well as pilot services and management processes.

"Leveraging Amentum's expertise performing these services, this win demonstrates the U.S. Army's confidence in Amentum's ability to manage a large-scale complex program while maintaining a quality and long-term solutions approach," said Dr. Karl Spinnenweber, President of the Critical Missions Group. "Amentum's approach to delivering life-cycle aviation solutions enables us to distinguish what we can do for our customers and be the key partner to the customer for this critical mission."

Under this contract, Amentum performs life-cycle services including sustainment, modernization, and logistics for a combined fleet of 150 aircraft. The Army's transport fleet includes C-12, C-26, T-6, and UC-35 aircraft

Amentum has teamed with Stevens Aerospace and Defense Systems of Greenville, South Carolina as the primary depot maintenance facility.

To ensure a technical advantage, Amentum can incorporate the use of its Augmented Reality Remote Expert™ offering and other maintenance-augmenting technologies. Advanced technologies like augmented reality headsets can connect resources at the work location with off-site subject matter experts such as engineers, safety experts, program management offices and other government points-of-contact in real time.

"Integrating our advanced technologies into our system maintenance and modernization offerings continues to provide our customer with industry leading solutions," said Joe Kelly, SVP of Sustainment Analytics and Aviation Solutions.

The hybrid firm-fixed price contract will begin January 2024, has one base year and five one-year options, and is contracted through Army Contracting Command - Redstone Arsenal. The customer is the U.S. Army's Program Executive Office - Aviation, Fixed Wing Project Office. Work on the contract will be performed in various domestic and international locations.

Dassault Aviation Receives an Order for 42 Rafales for the French Air and Space Force



At the end of December 2023, the French Defense Procurement Agency (DGA) awarded Dassault Aviation an order for 42 Rafale combat aircraft, known as "tranche 5", for the French Air Force (AAE).

"On behalf of Dassault Aviation and the 400 companies involved in the Rafale program, I would like to thank the Ministry for the Armed Forces, the DGA and the AAE for their renewed confidence. We are ready and determined to use our skills as prime contractor and complex systems integrator to serve the sovereignty of our nation. This military industrial sovereignty is an exception in Europe. It guarantees the superiority of our combat aviation. It is also an asset for diplomatic influence and an economic strength in export trade," says Éric Trappier, Chairman and CEO of Dassault Aviation.

The Rafale is a technical, operational and commercial success which continues to position France at a world-class level in combat aircraft.

The Rafale has been designed to evolve by successive standards, in order to adapt the latest technologies to user needs. Standard 4, focusing particularly on connectivity, is under development. Standard 5, which is currently preparing for launch, will bring new capabilities in collaborative combat.

The Rafale is a success in the export market, with seven customer countries to date. The order book, plus the new "tranche 5" contract, secure production activity for the next ten years.

Airbus partners with TASL and MASPL to reinforce commitment to 'Make in India'



Airbus is reinforcing its commitment to 'Make in India' by partnering with Tata Advanced Systems Limited (TASL) and Mahindra Aerospace Structures Private Limited (MASPL) for the procurement of commercial aircraft components.

Under this agreement, TASL and Mahindra Aerostructures will manufacture metallic detail parts, components, and assemblies for Airbus' A320neo, A330neo and A350 programmes. These two companies are already part of the more than 100 India-based suppliers supporting Airbus with components, engineering and digital services for various programmes.

Rémi Maillard, President and Managing Director of Airbus India and South Asia, stated, "Airbus has made 'Make in India' a core element of its strategy in the country. Our goal is not only to boost the Indian commercial fleet but also to strengthen the entire aerospace ecosystem, including enhancing manufacturing and engineering capabilities with our Indian partners. Tata Advanced Systems and Mahindra Aerostructures are already vital contributors to our aircraft programs, and these new contracts deepen our collaboration."

India plays a strategic role for Airbus, serving as a resource hub for aircraft assembly, component manufacturing, engineering design, development, MRO support, pilot and maintenance training and academic partnerships to nurture talent. Every Airbus commercial aircraft currently incorporates components and technologies manufactured in India, such as the A220 escape hatch door and flap track beams for the A320neo and A330neo aircraft. The company's annual procurement of components and services in India stands at around US\$750 million (£581 million), and these new contracts will significantly contribute to this figure.

Airbus continues to invest in the broader Indian aerospace ecosystem, including establishing a final assembly line for the C295 military aircraft in Vadodra through an industrial contract with TASL, as well as providing training for commercial pilots and maintenance crews.

Airbus and Tata Group to set up India's first helicopter FAL



Airbus Helicopters has announced that it is partnering with the Tata Group to establish a final assembly line (FAL) for helicopters in the country. The FAL will produce Airbus' H125 helicopter from its civil range for India and export to some of the neighbouring countries.

The FAL will be the first instance of the private sector setting up a helicopter manufacturing facility in India, providing a major boost to the Government of India's 'AtmaNirbhar Bharat' (self-reliant India) programme. Under this partnership, Tata Advanced Systems Limited (TASL), a subsidiary of Tata Group, will set up the facility along with Airbus Helicopters.

The announcement was made during the two-day visit of French President Emmanuel Macron to India as Chief Guest at the Republic Day celebrations on January 26.

The FAL in India will undertake the integration of the major component assemblies, avionics and

mission systems, installation of electrical harnesses, hydraulic circuits, flight controls, dynamic components, fuel system and the engine. It will also do testing, qualification and delivery of the H125 to customers in India and the region. The FAL will take 24 months to set up and deliveries of the first 'Made in India' H125s are expected to commence in 2026. The location of the FAL will be jointly decided by Airbus and the Tata Group.

The H125 produced in India will catalyse the use of helicopters in the country. This multi-mission workhorse will revolutionise passenger and goods transportation and will also be used for segments such as emergency medical services (HEMS), disaster management, law enforcement, tourism and aerial work missions. Providing last mile connectivity to remote areas, the H125 will significantly contribute to the Government of India's regional connectivity scheme - Ude Desh ka Aam Naagrik (UDAN) that will further promote the tourism sector in the country.

Lufthansa Technik partners with Air India Express for engine maintenance

During last week's 'Wings India' event in Hyderabad, India, Lufthansa Technik (LHT) and Air India Express have inked an agreement in the realm of engine maintenance services (EMS). This contract encompasses the overhaul of a minimum of three CFM56-7B engines utilised in the Boeing 737-800 fleet.

This newly finalised agreement marks the first-ever collaboration between the global MRO (maintenance, repair, overhaul) provider and the subsidiary of Air India. Beyond engine maintenance services, LHT is also extending support to a portion of the carrier's Boeing 737 fleet, encompassing ad hoc component repairs and exchanges, as well as aircraft on ground (AOG) services.

Anil Jain, Head of Engineering at Air India Express, expressed enthusiasm about the partnership: "We are extremely pleased to announce this cooperation with Lufthansa Technik. Thereby, Air India Express now



has access to Lufthansa Technik's industry-leading experience and years of knowledge that will further assist us in our growth and operational reliability."

Johanna Koch, Vice President Corporate Sales Southeast Asia & Indian Subcontinent at Lufthansa Technik, conveyed appreciation to Air India Express, stating, "We extend our gratitude to Air India Express for entrusting us with their vital maintenance needs. Lufthansa Technik holds this collaboration in high regard and eagerly anticipates the development of this new and mutually beneficial partnership."

SAFRAN AND ONERA START WIND TUNNEL TESTS OF FUTURE OPEN FAN

Safran Aircraft Engines and France's national aerospace research agency ONERA have begun first wind tunnel tests with the ECOENGINE, a 1:5 scale demonstrator of the future Open Fan. The trials are at ONERA's wind tunnel facility in Modane, France. This disruptive architecture, a key pillar of the CFM RISE technology demonstration program,[1] is currently the most promising in terms of reducing the environmental footprint of aviation. The Open Fan aims to reduce fuel burn and CO2 emissions by 20% – and up to 80% when combined with SAFs or sustainable aviation fuels – for the next generation of single-aisle commercial jets by 2035.

To support the process of bringing the Open Fan's aerodynamics and acoustics to maturity, Safran Aircraft Engines and ONERA recently signed a framework agreement for an ambitious test plan from 2024 to 2028, building on previous trials with the ECOENGINE.

Tests on the ECOENGINE backed by the French Civil Aviation Authority (DGAC) as part of the CORAC[2] plan aim to demonstrate the aerodynamic and acoustic performance of the fan module by simulating real-world airspeeds in a wind tunnel and validate the design of the fan blades. The blades play a key role in the engine's overall efficiency. In total, over 200 hours of testing will be performed during this campaign,



followed by simulation tests with the engine mounted on a demonstrator plane wing section. For these tests, Safran Aircraft Engines benefits from the knowledge and expertise of the ONERA teams and use of the world's largest sonic wind tunnel. The S1MA tunnel is a unique test facility in terms of size – 8 meters across or over 26 ft – and airflow speed, making it possible to test engines in isolation or mounted on a wing structure. It therefore plays a crucial role in the development of new propulsion systems for the next generation of planes.

"As scientific experts in aerospace, ONERA is a key player in efforts to reduce the environmental footprint of aviation," said Marie-José Martinez, Wind Tunnels Director for ONERA. "The partnership we've set up with Safran reflects our shared drive to support the development of cleaner, greener aircraft. ONERA is proud to be making available our exceptional facilities, funded by the French government, and our world-renowned engineers and technicians."

"This series of wind tunnel tests is a major milestone in our Research & Technology roadmap, which aims to develop the technological building blocks for the next breed of commercial jet engines," said Pierre Cottenceau, VP Engineering and R&T for Safran Aircraft Engines. "With the RISE program, Safran Aircraft Engines is contributing our long-standing expertise to the development of the fan module to demonstrate the benefits of an unshrouded engine architecture on the ground and in flight by mid-decade."

The company is coordinating demonstration of the Clean Aviation[3] OFELIA project (Open Fan for Environmental Low Impact of Aviation), which involves 26 European partners, including ONERA. Safran is also working on a number of other major technological building blocks in conjunction with the Open Fan architecture, such as hybrid propulsion.

DAE LEASES TWO ATR 72-600S TO INDIAN CARRIER FLY91

Dubai Aerospace Enterprise (DAE) has signed an agreement with FLY91 for the lease of two ATR 72-600 aircraft. These planes are set to be delivered in 2024 and will mark the initial additions to FLY91's fleet.

FLY91, a regional carrier, aims to improve air connectivity from smaller towns in India, specifically tier 2 and tier 3 cities. Founded by industry veterans with solid financial backing, the airline strives to make air travel accessible to every Indian. The carrier's choice of the ATR 72-600 fleet aligns with its goal of efficient and sustainable operations from most regional airports in the country.

Manoj Chacko, Chief Executive



Officer of FLY91, added, "India's aviation sector is expanding at an unprecedented rate, and FLY91 is proud to be part of this growth story. We are firmly committed to the country's development through last-mile air connectivity, aiming to serve the unserved and under-served cities in India. As we prepare for take-off, our focus is to provide safe, reliable, and comfortable flights to our customers. We are thrilled to partner with DAE on this exciting journey and are thankful for their reaffirmation of FLY91's vision for strengthening regional aviation in India."

Currently, DAE owns and manages a total of 66 ATR 72-600 aircraft.

MEHAIR PLACES ORDER FOR 20 ZEROAVIA ZA600 HYDROGEN-ELECTRIC ENGINES

ZeroAvia has announced that MEHAIR has placed a conditional order for up to 20 ZA600 hydrogen-electric engines. The order adds to the over 2,000 engine pre-orders secured by ZeroAvia.

MEHAIR (Maritime Energy Heli Air Services Pvt Ltd.) has historically offered services across the Indian sub-continent, commencing with the Andaman and Nicobar Islands in 2011. The company now has ambitious plans to grow across a range of sub-regional routes across India with both amphibian and wheeled aircraft.

MEHAIR will explore a range of options for financing the acquisition and retrofit of the engines to its upcoming fleet of ten Cessna Caravan aircraft, including working with potential leasing partners. The company already has a relationship with MONTE as its preferred ZA600



lessor partner. ZeroAvia and MEHAIR will also work

together on establishing the fuel supply for the operator's services across India.

ZeroAvia plans to certify the ZA600 by the end of 2025 and is already working closely with the UK's CAA as well as other regulators to ensure harmonization and rapid certification globally.

India has big aspirations to use hydrogen as a key enabler of its clean energy future, particularly in hard-to-abate sectors like aviation, and to deliver net-zero by 2070. A target of reaching five million metric-tonnes of hydrogen production per annum has been set for 2030.

Aviation too is growing dramatically across the country, with passenger numbers more than doubling over the last decade and more than 500 million passengers per annum predicted by 2030 according to CAPA, India.

AKASA AIR AND CFM INK DEAL FOR OVER 300 LEAP-1B ENGINES

As part of the state visit by French President Emmanuel Macron to India, Akasa Air and CFM International have jointly revealed an agreement for the acquisition of CFM LEAP-1B engines to power 150 Boeing 737 MAX airplanes. The announcement follows the recent declaration of the sale of these aircraft. This comprehensive agreement encompasses spare engines and a services contract, further solidifying the collaboration between the two entities.

Having commenced operations in August 2022, the Mumbai-based carrier had previously placed an order for a total of 76 LEAP-1B-powered 737-8 aircraft, with 22 currently in active service.

Vinay Dube, Founder and CEO of Akasa Air, expressed confidence in the enduring partnership, stating, "This significant, long-term agreement is testament to the confidence that CFM International has in Akasa Air. Continuing to partner with CFM as our engine maintenance provider not only reaffirms our focus on



operational reliability but equally underscores Akasa Air's relentless pursuit of world-class safety."

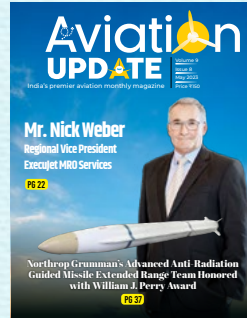
Dube added, "With CFM as our long-term engine maintenance provider, we remain confident in our path to becoming one of the top-30 leading airlines in the world by the turn of this decade."

This latest order contributes to CFM's expanding presence in India, with over 400

CFM-powered aircraft currently in service and 2,500 LEAP engines in the backlog. Notably, CFM's parent companies, GE Aerospace and Safran Aircraft Engines, have made substantial investments in India, establishing cutting-edge facilities dedicated to LEAP production and maintenance. These endeavours align with strategic partnerships formed with Indian aerospace companies, as part of the "Make in India" policy.

Aviation UPDATE

India's premier aviation
monthly magazine



BE PART OF OUR SPECIAL EDITION

SINGAPORE AIRSHOW 2024



For Editorial & Advertisement : +919444499221, Kartikeya@futureaviation.in

ANANTH TECHNOLOGIES PVT LTD



An AS-9100D & ISO
9001:2015 certified company
Committed Partner for Indian
Aerospace & Defence Programs

Facilities

- Complete satellite manufacturing facilities under one roof
- Launch Vehicles Facilities
- Design and Manufacture of Space and Defence Equipment
- Contributed to 91 Satellites and
- 71 Launch vehicles so far
- In-house environmental test facilities
- Class 100K, 10 clean rooms with SMT Production lines

Products

- Assembly, Integration & Testing (AIT) of Satellites for LEO and for GEO orbits
- Digital & Embedded systems
- EW systems & Simulators
- Laser & Optical Systems
- Sights for weapons
- AIT of Launch Vehicles
- Telemetry & Tracking systems
- On-board computing systems
- Sensor Systems
- Navigation & Controls systems
- RF and Microwave systems

Meeting Quality & Reliability Standards for Space & Defence programs
Dr. SUBBA RAO PAVULURI, CHAIRMAN & MANAGING DIRECTOR,
E-mail : subbarao@ananthtech.com

Headquarters

ANANTH TECHNOLOGIES PVT LTD.

Ananth Info Park, Plot No.39,
Phase-II Madhapur

Hyderabad – 500 081

Tel:+91-40-6615 6615

Fax:+91-40-6615 6531

E-mail: subbarao@ananthtech.com

mail@ananthtech.com

Satellite Facilities

ANANTH TECHNOLOGIES PVT LTD.

No:64, KIADB Bangalore
Aerospace Park, Singahalli Village,
Budigere Post, Bangalore
North Taluk

Bangalore – 562129

Tel:+91-80-6616 6616

E-mail: mail@ananthtech.com

Launch Vehicles Facilities

ANANTH TECHNOLOGIES PVT LTD. Plot No.51(b) KINFRA Park,
Menamkulam Sub-Dist : Kazhakuttom Thiruvananthapuram, Kerala

Tel:+91-471-2315913 E-mail: mail@ananthtech.com

