

Fun, flying and business continues at Yelahanka

Day 2 at Aero India was fun and exhausting for us as we had barely slept because of our Show Daily preparations and schedules. The past 5 days at Bangalore setting up and preparing for the week is beginning to take its toll on the Vayu Team but spirits are still high (thankfully!). So far the event has been a high energy one with flying, meetings, interviews, catching up with old aviation friends, the endless walking to the chalets and halls etc. Pity Wednesday the 12th Feb is our last day!



“Looking for a deeper collaboration with India than before”: UAC

In an interaction with media personnel on Day 2 of Aero India, the CEO of United Aircraft Corporation (UAC), Vadim Badekha, discussed the capabilities of the Sukhoi Su-57 fifth-generation multirole fighter aircraft, as the platform was being showcased by the company at the airshow for the very first time. Badekha spoke about the feasibility of the aircraft for its potential clients including India. The company offers a modernised version of the Su-57, which can be tailor-made as per requirements. This is possible due to the platform's open architecture, which allows the integration of sensors and other sub-systems on the aircraft as per the operational needs of the IAF in future upgrades, similar to the Su-30MKI. It is also ready to produce the aircraft in India. The company emphasised its long standing partnership with India, as Russian origin fighters have been the backbone of the IAF fighter fleet even today, with the availability of MiG and Sukhoi fighters. Additionally, it is ready

to assist New Delhi with its indigenous Advanced Medium Combat Aircraft (AMCA). While the Su-57 is being pitched, Badekha also confirmed that no discussions are currently in place with India for the aircraft.

Report and photo by Rishav Gupta



GE Aerospace Signs Contract with Indian Air Force for T700 Engine Sustainment Solution

GE Aerospace signed a five-year Performance Based Logistics (PBL) contract with the Indian Air Force (IAF) to provide a comprehensive sustainment solution for the T700-GE-701D engines powering the IAF's fleet of AH-64E-I Apache helicopters.

Under this contract, GE Aerospace will be responsible for the Maintenance, Repair, and Overhaul (MRO) of the T700 engines as well as flight line parts to ensure engine availability to the IAF. The PBL solution is designed to streamline engine sustainment operations, improve turnaround times, and enhance the availability and operational readiness of the Apache fleet.

"We are honoured to continue our partnership with the Indian Air Force through this PBL contract, which underscores our commitment to deliver reliable and innovative sustainment solutions for

critical defence platforms," said Youngie Kim, vice president and general manager, Asia Pacific, Defense & Systems for GE Aerospace. "This agreement demonstrates GE Aerospace's focus on supporting the Indian Air Force's operational needs and mission readiness by ensuring the T700 engines are maintained at the highest level of performance."

The T700/CT7 family of turboshaft and turboprop engines powers 15 types of military and civilian helicopters and fixed-wing aircraft with more than 130 customers in over 50 countries. More than 25,000 T700/CT7 engines have been delivered and approximately 130 million total flight hours accumulated. The T700/CT7 design has proven itself in the harshest environments, logging millions of flight hours in hot-harsh combat zones like Iraq and Afghanistan.

BEL IAI Aerosystems begins operations to support India's Defence Forces

Heralding a new chapter in Indo-Israeli Defence and security cooperation, BEL IAI Aerosystems, a landmark joint venture between Navratna Defence PSU Bharat Electronics Limited (BEL) and Israel Aerospace Industries (IAI) announced the commencement of its operations at Aero India 2025.

Both companies have established a JV, which is a significant step towards strengthening international collaboration, paving the way for a robust strategic partnership envisaged to provide a single point of contact for extending long-term product support services for India's Defence Forces.

The JV is uniquely positioned as the exclusive support entity for post-warranty maintenance of India's defence systems. This initiative leverages manufacturing capabilities and technological innovations, fostering India's self-reliance in sync with the 'Make in India' vision even while delivering world-class solutions.

Beyond post-warranty maintenance, this

collaboration will also lead to the transfer of advanced technological capabilities to India, enabling the development of local expertise in critical defence systems. By establishing a dedicated support infrastructure, the JV will empower India to operate, maintain, and enhance its defence systems independently. The venture's long-term impact extends to creating job opportunities, upskilling the local workforce, and contributing to the growth of India's defence manufacturing ecosystem, reinforcing the nation's position as a global defence player.

Mr Boaz Levy, President & CEO of Israel Aerospace Industries, stated, "This collaboration is a historic milestone as it marks the first ever joint company established by leading defence firms of Israel and India. It reflects the robust and flourishing relationship between the two nations, and we are excited about the significant contributions this venture will bring to India's defence capabilities. We extend our gratitude to the Tri-Services for their unwavering partnership."

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HAL's Mk.1A Enthrals Spectators at Aero India

The LCA Mk.1A flew at the inaugural programme of Aero India 2025. Four Mk.1A aircraft flew in 'finger four' formation called Yodha formation. The Mk.1A second prototype did an amazing aerial display in front of the Raksha Mantri, enthralling the spectators. The Mk.1A, also called the 'Alpha,' is a more capable and significantly upgraded aircraft slated to be a part of IAF in the coming months.

The upgrade includes a new sensor suite, new more capable Mission and Digital Flight Control System, new weapons, net centric capability and Astra BVRs



apart from precision guided weapons. IAF has placed 83 aircraft order on HAL. The lead aircraft are poised to get Military Type Certificate and enter service.

KSSL and L3Harris Sign MOU to Collaborate on Advanced Technology in India

Kalyani Strategic Systems Limited (KSSL), a subsidiary of Bharat Forge Limited and L3Harris Technologies signed a Memorandum of Understanding (MoU) for wider collaboration in supporting advanced defence and security equipment in India.

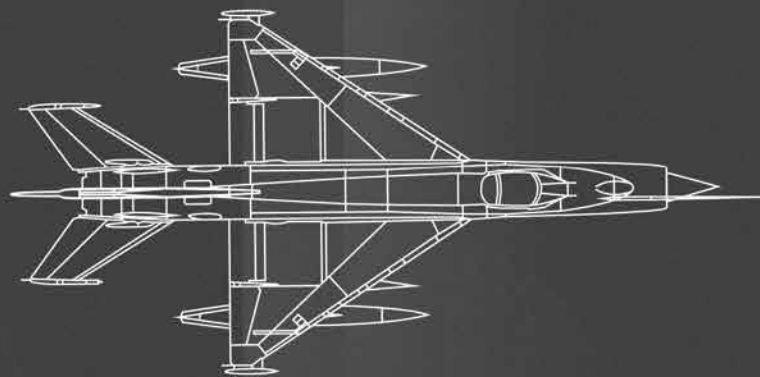
Under the two year agreement, both companies will work in close collaboration to provide solutions for mutually agreed opportunities in Command, Control, Communications, Intelligence, Surveillance and Reconnaissance (C4ISR) technologies. The MoU provides L3Harris with a strong, local partner to support tactical communications network development in India, extending an existing global install footprint of more than 1 million fielded radios across U.S. Department of Defense and allied inventories.

L3Harris has operated in India for more than 21

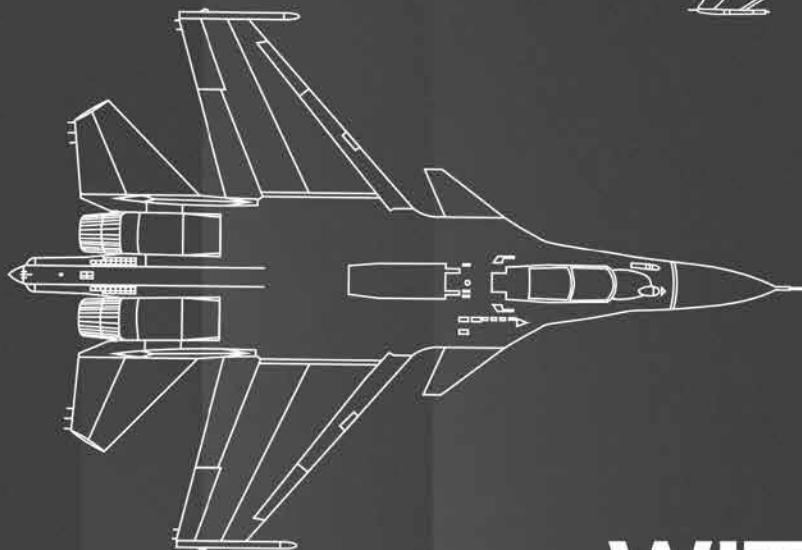


years, with facilities in New Delhi and Bengaluru. In addition to providing the Indian Armed Forces with sophisticated tactical radios and manned airborne electro-optic/infrared systems, the company provides Futuristic Telecommunications Infrastructure for all Indian airports in partnership with the Airport Authority of India.

3rd generation

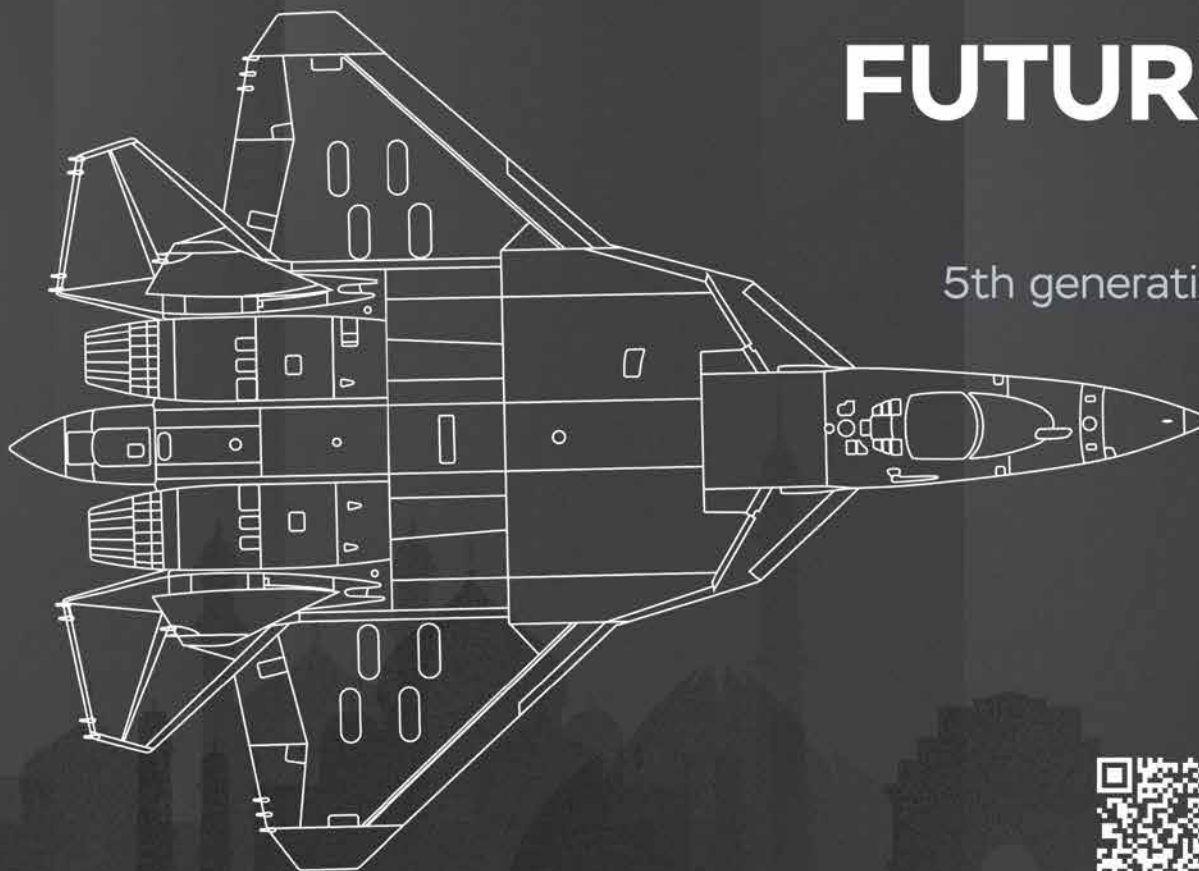


4th generation



LONG HISTORY WITH A BRIGHT FUTURE

5th generation



Saab at Aero India 2025

Saab is presenting a wide portfolio of products and systems for the air, land and sea domains at Aero India. Taking centre stage is the Full Scale Replica (FSR) of Gripen E and the Gripen E Cockpit Simulator. On display also is the Carl-Gustaf M4, which will be made in India at the manufacturing facility Saab are establishing in Jhajhar, Haryana.

“We look forward to wide ranging discussions with the Indian Air Force on our Gripen E offer. We will also be engaging with Indian industry for Make in India as well as for discussions on expanding our sourcing from Indian companies which have emerged as suppliers to the world’s foremost aerospace companies,” stated Mats Palmberg, Chairman and Managing Director, Saab India.

“Aero India 2025 comes at a crucial juncture of global developments, leading to a greater focus on defence capabilities as well as on developing self-reliance along with the need for robust and modern technology. We are fully committed to supporting the Indian government’s Atmanirbhar approach to national defence capability. To that end, Saab is setting up a manufacturing facility for Carl-Gustaf M4 in India, further strengthening production in the country. The facility will

support the production of Carl-Gustaf M4 for the Indian Armed Forces as well as components for users of the system around the world. Saab will also be partnering with Indian sub-suppliers and the products manufactured in the facility will fully meet the requirements of Make in India,” Palmberg added.

At Aero India Saab is exhibiting among others:

Gripen E - The world’s most modern fighter, Gripen E, combines exceptional operational performance, a highly advanced networked warfare capability at a whole new level, superior sensor fusion, unique BVR features and an adaptability for new threats that is a decade ahead of any other fighter, making it a true game changer. The Saab offer for the Indian Air Force combines cost efficiency

with true and extensive transfer of technology through a comprehensive industrial E Mission Simulator.

Carl-Gustaf M4 is a man-portable multi-role weapon system that provides high tactical flexibility through its wide range of ammunition types. It is extremely lightweight (less than 7 Kgs), and has improved ergonomics for the gunner which reduces action time and aids accuracy. The Carl-Gustaf system has been in service with the Indian Army since 1976.

AT4CS AST is a lightweight, man-portable, unguided and fully disposable weapon system. AT4 weapon has been selected by the Indian Armed Forces and will be used by the Indian Army and the Indian Air Force.

The Next-Generation Light Anti-tank Weapon (NLAW) system is the shoulder launched,

Overfly Top Attack, anti-tank missile system that makes it the true tank killer for infantry which operate dismounted in all environments including built up areas.

Ground Combat Indoor Gunnery Trainer for ground combat weapon systems. To shape the best troops, training needs to be as realistic as possible.

The AUV62 System is the latest generation of Saab modular AUV systems. The AUV62-MR for mine reconnaissance has a high resolution side-looking sonar. It can autonomously search for and identify sea mines with a large area search capability.

Integrated Defence Aids Suite (IDAS) is a fully integrated end-to-end solution that provides protection for airborne platforms. IDAS includes radar warning, missile approach warning and laser warning sensors. In India IDAS is so far integrated on the ALH Dhruv helicopter.

Land Electronic Defence System (LEDS) is an integrated, modular, active protection system combining a laser warning system and effector control, providing armoured combat vehicles with vital situational

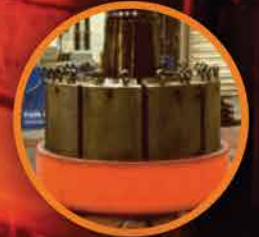
awareness of laser threats with manual or fully automatic responses against threats.

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Scan to know more

Safran and BEL Forge Partnership in Defence Sector

Bharat Electronics Limited (BEL) and Safran Electronics & Defense, France, announced the signing of a partnership to create a joint venture for the manufacturing, customisation, sale and maintenance of HAMMER (Highly Agile Modular Munition Extended Range) Smart Precision Guided Air-to-Ground Weapon in India.

As part of this partnership, BEL and Safran Electronics & Defense also plan to establish a Center of Excellence aimed at enhancing India's defence capabilities. HAMMER is a combat proven, precision guided weapon system known for its high accuracy and modular design, making it adaptable for multiple platforms, including the Rafale and LCA.



Thales and Bharat Dynamics Ltd Agree on Initial Supply of Man Portable Air Defence systems to India

Thales and Bharat Dynamics Limited (BDL) announced the signing of an initial supply of Laser Beam Riding Man Portable Air Defence systems (LBRM) in response to a requirement set out by the Indian Government to support India's air defence capabilities.

This initial supply of High Velocity Missiles (STARStreak) and launchers will be delivered this year and represents the first time that India has received this latest VSHORAD capability. This step confirms the foundation of a long-term collaboration and manufacturing partnership between Thales and BDL. In the spirit of the 'Make in India' initiative, this partnership will serve the current and future requirements of the Indian Ministry of Defence.

Thales, together with BDL, is "committed to the transfer of technology (ToT) of battle proven capabilities to India to equip the Indian Armed Forces".



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Hindustan-228

Interview with Nikhil Joshi

Managing Director, Boeing Defence India



VAYU: Boeing has a long standing presence in India's defence sector. How has this history influenced the company's strategic approach to supporting India's defence modernisation and operational readiness today?

NJ: Boeing's legacy in India, spanning over 80 years, has solidified our role as a trusted partner with unparalleled experience in supporting the Indian Armed Forces. This extensive history has been instrumental in shaping our strategic approach, ensuring that we not only provide platforms but also offer tailored, mission-ready solutions that align with India's defence modernisation objectives. The establishment of Boeing Defence India (BDI) in 2017 further reinforces our commitment to India by focusing on strengthening in-country capabilities and advancing operational readiness through localised support and collaboration. This effort aligns with India's broader goals, such as the Make in India initiative, and leverages Boeing's global technical

expertise to address evolving defence and national security priorities. Our continued investment in local infrastructure and partnerships ensures that we remain a pivotal player in India's defence modernisation journey while contributing to self-reliance in aerospace and defence.



VAYU: With India's rapid defence modernisation, how is Boeing ensuring that its platforms are not only available but optimised for long term performance in the field?

NJ: To ensure long-term performance, Boeing integrates comprehensive, cost-effective support solutions through frameworks like Performance-Based Logistics (PBL), which enhance fleet availability and reduce lifecycle costs. Boeing Defence India (BDI) plays a crucial role by providing timely maintenance, repairs, and access to advanced technological solutions that support mission readiness. Our PBL approach, including Next Generation Product Support, ensures optimal performance by minimising downtime, maximising asset lifespan, and improving operational effectiveness. This holistic lifecycle management, which has already proven successful for platforms like the C-17 under our Globemaster Integrated Support Programme (GISP), ensure that the platforms continue to deliver high performance for years to come, contributing to the Indian Armed Forces' ability to safeguard national security. The overwhelmingly positive feedback we receive from our defence customers in India further reinforces the value our platforms and support solutions bring to their missions.

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VAYU: *How does Boeing view the convergence of civil and defence MRO efforts in India, and what are the strategic advantages of this approach?*

NJ: The convergence of civil and defence MRO efforts is a strategic move that allows for shared resources, expertise, and infrastructure, driving cost efficiency and reducing turnaround times. Boeing sees this integration as an opportunity to introduce defence-grade technologies into the civil aviation sector, fostering innovation and strengthening India's overall aviation ecosystem. By expanding the MRO footprint, we are not only supporting defence needs but also positioning India as a global hub for aerospace services, furthering the country's aspirations for self-reliance in both sectors.

VAYU: *How is Boeing ensuring the P-8I fleet in India stays technologically advanced? How is Boeing preparing its support systems to address future challenges and complexities?*

NJ: In January 2024, Prime Minister Modi inaugurated the new state-of-the-art Boeing India Engineering

& Technology Centre (BIETC) campus in Bengaluru. Built with an investment of \$200 million, the 43-acre campus is Boeing's largest such investment outside the US and will become a cornerstone for partnering with India on next-generation products and services for the global aerospace and defence industry. The centre houses a talented pool of 6,500+ engineers and innovators across Bengaluru and Chennai who are helping drive innovation in aerospace. These technologists undertake high quality, advanced aerospace work and offer engineering expertise to Boeing's defence, space, and commercial businesses, spanning engineering design of structures and systems, manufacturing support, developing systems to test our aircraft, and providing digital solutions to our airline customers.

Cutting-edge R&D in traditional and emerging areas is performed at the centre, including next generation airplane health management, environment friendly coatings, advanced networks, and secure communications where teams leverage new age technologies such as Artificial Intelligence, Machine Learning, Internet-of-Things, Cloud, Model-Based Engineering, and Additive Manufacturing through our offerings like Next Generation Product Support (NGPS), to enhance quality, safety, and productivity, and above all, mission capability and readiness.

In India, Boeing is driving innovation that is transforming the aerospace and defence sector, and we are proud that our team here is now an integral part of the Boeing global engineering ecosystem and India's global technology capabilities. Boeing continues to invest in next generation technologies and support solutions that enhance operational efficiency and adaptability. We are focused on building scalable, flexible support models that can quickly respond to changing defence needs, especially with the integration of advanced technologies like artificial intelligence, machine learning, and autonomous systems. Additionally, our continuous collaboration with Indian partners ensures that we remain agile in the face of evolving geopolitical and technological challenges, keeping Boeing's service support at the cutting edge of operational effectiveness.



(All photos: Boeing)



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Lockheed Martin C-130J fleet soars past 3 million FH



Lockheed Martin, at the Farnborough International Airshow, has announced that the worldwide C-130J Super Hercules fleet recently surpassed 3 million flight hours. With 545+ Super Hercules delivered worldwide, this achievement reflects the C-130J's unmatched global reach, multi-mission versatility and proven tactical performance capabilities.

Operators and crews from 21 nations contributed to this achievement, logging hours through 18 different mission requirements including combat, transport, aerial refueling, Special Operations, medevac, humanitarian relief, search and rescue, weather reconnaissance, firefighting and commercial freight delivery.



“From the highest landing strip in the world to the snow packed runways of Antarctica and all the many mission

locations in between, these 3 million hours represent the proven power and wide reaching presence of the C-130J's global fleet,” stated Rod McLean, vice president and general manager of Lockheed Martin's Air Mobility & Maritime Missions line of business. “In celebrating this achievement, we also honour the many crew members, maintainers and airlift partners who truly keep the global Super Hercules fleet ready for any and every mission requirement.”

3 million hours by the numbers

- These hours were logged beginning with the C-130J's first flight on 5 April 1996, through the beginning of July 2024.
- Countries with C-130Js contributing to these flight hours include (in order of delivery) the United Kingdom, United States (the USAF, Marine Corps and Coast Guard; Pallas Aviation), Australia, Italy, Denmark, Norway, Canada, India, Qatar, Iraq, Oman, Tunisia,



Israel, Kuwait, South Korea, Kingdom of Saudi Arabia, France, Bahrain, Bangladesh, Indonesia and Germany.

- Also contributing to these flight hours is the Lockheed Martin Flight Operations team, whose crews are the first to fly every C-130J produced, and the US Air Force Defence Contract Management Agency crews that support C-130J test flights at Lockheed Martin's Aeronautics site in Marietta, Georgia, home of Super Hercules production line.

- Super Hercules variants used to log these hours include: C-130J and C-130J-30 (tactical airlifter), KC-130J (tanker), WC-130J (weather reconnaissance), EC-130J (information operations), MC-130J (Special Operations), HC-130J (search and rescue, US Air Force and US Coast Guard variants), AC-130J (gunship) and LM-100J (commercial freighter).

- Hours flown include test, training and operational missions on all seven continents.

Always evolving, continually innovating and ready for what's next, the Super Hercules leads the charge by setting standards and shaping the future of tactical airlift missions, offering a multitude of advantages found in no other medium-sized tactical airlifter in production or operation today.

These discriminators include proven operational readiness with the greatest ease of transition, increased reliability, superior tactical airlift and combat airdrop capabilities, certification by more than 20 airworthiness authorities, and engine-out performance with extended range. The C-130J also delivers unmatched interoperability with NATO and global air forces, robust industrial partnerships and verified low life-cycle costs with significant fuel savings resulting in a reduced carbon footprint compared to other medium-sized jet airlifters.

Courtesy: Lockheed Martin

Photos: C-130J of the IAF at Aero India 2023 by Vayu Aerospace Review

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U.S. Marine Corps photo by Sgt. Luke Kuennen

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Dassault Aviation in 2024



Deliveries, order intakes and backlog in number of new aircraft as of 31 December 2024

Aircraft delivered in 2024: 21 Rafale (14 France, 7 Export) were delivered, while 20 had been guided, versus 13 Rafale (11 France, 2 Export) delivered in 2023. 31 Falcon were delivered, while 35 had been guided, versus 26 Falcon delivered in 2023.

Aircraft ordered in 2024: 30 Export Rafale were ordered versus 60 Rafale (42 France, 18 Export) in 2023. 26 Falcon were ordered versus 23 Falcon in 2023.

Aircraft in backlog:

As of 31 December 2024, the backlog includes 220 Rafale (164 Export, 56 France) versus 211 Rafale as of 31 December 2023. 79 Falcon versus 84 Falcon as of 31 December 2023.





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Updates from Saab

Sweden for Mobile Short-range Air Defence

Saab has received an order for its Mobile Short Range Air Defence (MSHORAD) solution from the Swedish Defence Materiel Administration (FMV). The contract period is 2024–2026 and the order value is approximately SEK 300 million. Saab booked the order in the fourth quarter 2023. FMV and the Swedish Armed Forces will use the acquired solution for two configurations, both integrated on the BvS10 armoured vehicle, to further define Sweden's future mobile air defence requirements.



GlobalEye support contract with UAE

Saab and the United Arab Emirates (UAE) Ministry of Defence have signed a contract and Saab has received an order regarding in-service support for the GlobalEye Airborne Early Warning and Control (AEW&C) solution. The order value is approximately USD 190 million with a three year contract period that runs until 2026. The contract includes maintenance and logistics support, as well as training services.



Order to produce T-7A fuselage systems

Saab has received an award from Boeing to produce T-7A aft fuselage systems. The order value for Saab is USD 101.7 million (approximately SEK 1 billion) and the order was booked in the fourth quarter 2023. The

T-7A aft fuselage systems will be produced at Saab's manufacturing facility in West Lafayette, Indiana.



Saab to complete Lima Airport's Digital Apron Management

In a significant stride towards addressing traffic congestion and bolstering integrated situational awareness, Lima Airport Partners (LAP) has selected Saab to enhance its Digital Apron Management Centre with a comprehensive suite of surveillance solutions. Saab's surveillance system includes a fully integrated platform featuring ADS-B surveillance sensors, the Aerobahn surface management system, TactiCall voice communications integration, and Digital Towers equipped with high definition cameras, ensuring a thorough digital visualisation of the airport's surface.



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.

Updates from MBDA

MBDA and UK MoD renew complex weapons partnership

MBDA and the UK Ministry of Defence have renewed their strategic partnership on complex weapons for a further decade, with a renewed Portfolio Management Agreement (PMA). Known as PMA2 and worth at least £6.5 billion, the agreement will deliver complex weapons to the UK Armed Forces faster, at lower cost and with greater agility. PMA2 will also support British jobs, skills and industrial investment.

Eric Beranger, CEO of MBDA, stated, “PMA2 underlines the excellent work done by our colleagues to innovatively support the UK, acting as both a key sovereign national champion and as a conduit for international co-operation across our group and worldwide.”

The new agreement confirms MBDA as the MoD’s preferred supplier of complex weapons. Its framework will drive a further £2 billion in benefits and efficiencies while enhancing current capabilities. The new agreement also is anticipated to deliver new systems such as the Future Cruise and Anti-Ship Weapon (FC/ASW), Land Precision Strike and continue the evolution of Meteor.



German procurement of MBDA’s Brimstone

MBDA has received a contract from Germany to manufacture and supply Brimstone 3 precision strike missiles for the Bundeswehr’s Eurofighter combat aircraft. A final assembly line and a service centre for Brimstone will be set up at MBDA’s Schrobenhausen site for this purpose.

Brimstone 3 is a tactical precision strike missile characterised by very high levels of accuracy, effectiveness and reliability. Brimstone 3 enables the forces to hit stationary and fast moving targets with pinpoint accuracy

in all weathers. Brimstone is also being integrated onto unmanned aerial vehicles such as the Eurodrone and MQ-9B and is a suitable armament option for land vehicles, helicopters and heavy remote carriers.



Orchestrike/AI for SPEAR cruise missiles

MBDA has made rapid advances to its Orchestrike collaborative weapons artificial intelligence (AI) over the past 12 months and can announce the SPEAR family of weapons will be the first cruise missiles to feature AI enhanced collaboration, while keeping a human operator in the loop.

Orchestrike will enhance the performance of SPEAR missiles via AI driven coordination, collaboration and



cooperation between the missiles and the pilot controlling them from the launch aircraft. Orchestrike will enable SPEAR missiles to react to threats and work together with the pilot to solve tactical challenges, increasing both missile and platform survivability and overall mission performance. The missiles will only ever operate within the boundaries of operator input, ensuring legal and ethical utilisation at all times.

MBDA new MANPADS VSHORAD

MBDA showcased for the first time ever at Farnborough International Airshow, its new MANPADS (Man Portable Air Defence System) VSHORAD (Very Short Range Air Defence) solution, under development for the Italian Army and ready to be marketed to export customers.



The new VSHORAD missile is a supersonic, fire and forget, all day interceptor, equipped by a seeker with image processing capabilities. It can target fighters, helicopters, small drones. Its design will allow a smooth integration either on current (VTLM2 by IDV with Leonardo turret, as displayed on MBDA stand) and on future vehicles, equipped by automated turrets. Being man portable, this VSHORAD solution will be suitable for paratroops

and amphibious forces, while giving tactical advantage when mounted on military vehicles. This VSHORAD system will also be integrated in Sky Warden, MBDA's modular, scalable and evolvable flagship system to counter unmanned aerial systems (C-UAS).

The system is in development following an Italian Army operational requirement expressed last year for a very short range man portable air defence missile. The system characteristics and performances are fully compliant with NATO standards.

The new Sky Warden

MBDA has unveiled a new effector concept for its Sky Warden counter-uncrewed aerial systems (C-UAS) modular solution.

The new effector concept is a ground launched anti-air munition targeting threats that include Class 1 and smaller Class 2 small uncrewed aircraft systems (sUAS) and loitering munitions. Collaborating with Fortem Technologies and utilising their DroneHunter technology, the concept enables the rapid incorporation of a warhead on a drone to defeat threats at lower cost.

Next gen rotorcraft capability concept

NATO has awarded a contract to Airbus Helicopters, MBDA and Collins to lead a concept study in the frame of the Next Generation Rotorcraft Capability (NGRC) project under which

the participants combine efforts to work on design, development and delivery of a medium multi-role helicopter.



Rosoboronexport to help equip airborne forces



BMD-4M



BTR-MDM

JSC Rosoboronexport (part of Rostec State Corporation) is offering its foreign customers its services in organising and fully equipping airborne units as part of the national armed forces.

The Company is ready to assist in forming an organisational structure of airborne units, establishing the necessary ground infrastructure, equipping the units with all types of military equipment and weapons and training military personnel. Rosoboronexport's efforts will result in the emergence of a fully operational branch of the foreign customer's armed forces.

In the framework of organising airborne units in the partner armies, Rosoboronexport proposes to equip them with all the necessary state of the art military equipment for performing combat missions. In recent years, Russian defence companies have developed new models of military equipment, as well as heavily

modernised weapons tested in real conditions, equipping them with regard to relevant and advanced warfighting concepts.

The BMD-4M airborne assault vehicle from Rostec's High-Precision Systems is an air-droppable tracked amphibious fighting vehicle armed with a 100mm gun, a 30mm cannon and a 7.62mm machine gun. It has a three-man crew and accommodates seven equipped paratroopers. Its airborne platform is fitted with an adjustable hydro-pneumatic suspension that provides a ground clearance from 100 to 500 mm, thus reducing the profile of the vehicle when it is used in defence.

High-Precision Systems' upgraded 2S25 125mm self-propelled anti-tank gun (Sprut light amphibious tank) is the only light amphibious combat vehicle in its class that is similar in firepower to the T-90MS tank and compatible with munitions for Russian main battle tanks. It is equipped with a lethal weapon system, including a 125mm gun with a 7.62mm coaxial machine gun and a 7.62mm remote-controlled machine gun mount. The vehicle is fitted with a guided missile system designed to defeat armoured targets, including those equipped with ERA, at ranges up to 5 km.

The BTR-MDM armoured personnel carrier, manufactured by High-Precision Systems, is designed to transport up to 13 troops, ammunition, spare parts, fuels as part of assault units in all conditions of combat employment. Command post vehicles, mobile signal centers, medical vehicles and technical support vehicles can also be equipped on the BTR-MDM chassis.



SPRUT-SPTP

GE Aerospace Foundation announces 'Next Engineers' expansion to Bengaluru

The GE Aerospace Foundation has announced the expansion of its 'Next Engineers' college readiness programme to Bengaluru, India, to advance the programme's goal of encouraging young people to pursue careers in engineering.

The expansion of 'Next Engineers' will help build a strong engineering pipeline in India. With this announcement, the GE Aerospace Foundation, alongside leadership and volunteers at the Bengaluru facility, will now move forward with identifying an academic partner to be announced in late 2025.

"GE Aerospace in India has supported new technologies for the industry collaborating with academia for more than 25 years," stated Alok Nanda, Chief Technology Officer at GE Aerospace's India Technology Centre. "The expansion of the 'Next Engineers' programme locally allows increased engagement for students interested in engineering careers."

Bengaluru was selected using a range of criteria, including GE Aerospace's employee footprint, the strength of GE Aerospace's manufacturing and engineering presence, and anticipated engagement in the programme. GE Aerospace in India supports the entire lifecycle of the company's engines and products. It has a strong history of volunteering in the local community, including STEM education.

"We are immensely proud to announce our 'Next Engineers' programme in Bengaluru," stated GE Aerospace Foundation President Meghan Thurlow. "Nearly 22,000 students around the world have experienced the power and possibility of engineering through our programme and the GE Aerospace volunteers that support it. We look forward to reaching even more students with this programme expanding to India."

In 2024, the GE Aerospace Foundation committed \$20 million through 2030 to expand 'Next Engineers'. This commitment will help bridge the gap for students in middle school to college who are interested in engineering careers. The Next Engineers programme currently serves students in Cincinnati, Ohio, Greenville, South Carolina in the United States, Johannesburg (South Africa), Staffordshire (United Kingdom), and Warsaw (Poland), reflecting the global reach and impact that GE Aerospace has in communities around the world.

The GE Aerospace Foundation, an independent charitable organisation funded by GE Aerospace,

complements the company's purpose to "lift people up" in communities where employees live and work around the world. The Foundation's philanthropic strategy and programmes focus on engineering education, workforce development and disaster relief. We also support GE Aerospace employees through programmes such as Matching Gifts and STAR Awards. When GE Aerospace launched as an independent company in 2024, the GE Foundation was relaunched as the GE Aerospace Foundation, commencing a new chapter that builds on the successful, 100+ year legacy of the previous GE Foundation.

GE Aerospace is a global aerospace propulsion, services, and systems leader with an installed base of approximately 45,000 commercial and 25,000 military aircraft engines. With a global team of approximately 53,000 employees building on more than a century of innovation and learning, GE Aerospace is committed to inventing the future of flight, lifting people up, and bringing them home safely.



GE F404 front view



IAF LCA powered by GE F404 engine

GE Aerospace has been a partner to India's aviation industry for over 40 years. 1400 GE Aerospace and partner engines are in service, powering major Indian airlines. GE Aerospace's defence engines and systems power Indian Air Force's Light Combat Aircraft Tejas Mk 1 and helicopters and Indian Navy's aircraft carrier battleships and frigates. Its Pune manufacturing facility and 13 local India partners are part of the company's global supply chain. Researchers and engineers at the company's 25-year-old India technology centre in Bengaluru are building the latest aviation technologies.

Text courtesy: GE

CAS at the annual media press conference at Akash Mess, New Delhi



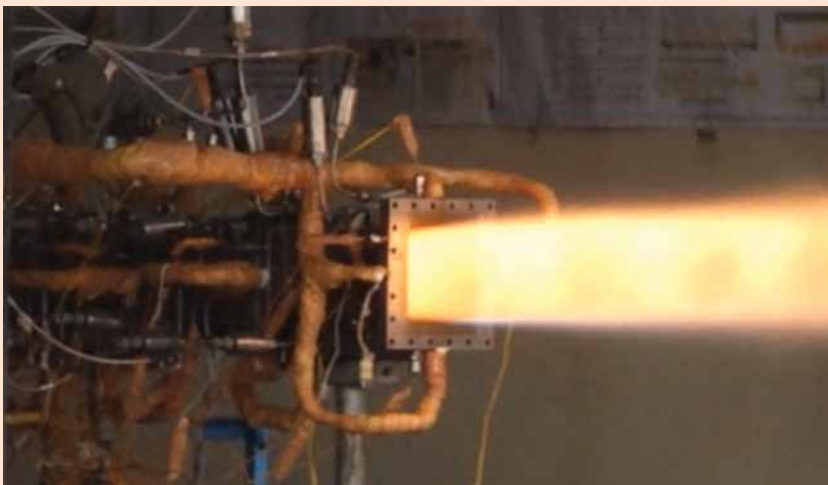
Some highlights:

1. Astra Mk.1 inducted; Astra Mk.2 and 3 being developed. IAF is committed to those.
2. LCA Mk.1A deliveries soon.
3. Eventually 200+ LCA Mk.1 and 1A.
4. LCA Mk.2 and AMCA: IAF is committed to them. Currently being developed. IAF plans on inducting 4-6 squadrons of both types.
5. SAM regiments being increased with more Akash and MRSAMs to be inducted.
6. IAF in the process of inducting many types of air to surface weapons. Some inducted, some being developed and IAF committed to inducting them.
7. "We are looking at inducting the long-range surface to air-guided weapons like the Kusha".
8. Large number of Akash missiles have been inducted; now looking at Akash NG.
9. Agniveers will make IAF proud.
10. "If you want to fight the war like it is being fought where 200-300 missiles are being fired, it needs to be manufactured indigenously".
11. Three S400 units are operational with India (2 more next year).
12. "When it comes to building the capacity, one is capability, another one is capacity. So building the capacity, it becomes important for our manufacturing agencies to come forward and increase their production rate".



DRDO conducts Scramjet engine ground test

Defence Research & Development Laboratory (DRDL), a Hyderabad based laboratory of Defence Research and Development Organisation (DRDO) has taken the initiative in developing a long duration Supersonic Combustion Ramjet or Scramjet powered Hypersonic technology. DRDL recently developed these technologies and demonstrated a cutting edge Active Cooled Scramjet Combustor ground test for 120 seconds for the first time in India. The successful ground test marks a crucial milestone in developing next generation hypersonic missiles. The ground test of scramjet combustor showcased several notable achievements, demonstrating its potential for operational use in Hypersonic vehicles, like successful ignition and stable combustion. Ignition in a scramjet



engine is like 'keeping a candle lit in a hurricane'. Scramjet combustor incorporates an innovative flame stabilisation technique that holds continuous flame inside the combustor with air speed in excess of 1.5 km/s.

India joins Eurodrone programme as observer



The Government of India (GoI) has officially become the newest Observer State in the OCCAR managed MALE RPAS (Eurodrone) programme led by Airbus Defence and Space as

the industrial prime. The Organisation for Joint Armament Cooperation (OCCAR), based in Bonn, Germany and overseeing several European defence programmes, has granted the GoI the Observer Status in the Programme following a formal request received in August 2024.

The Eurodrone is a Remotely Piloted Aircraft System (RPAS) designed to carry out various long endurance missions ranging from Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) and Attack to, for example, Maritime Surveillance, Anti-Submarine Warfare and Airborne Early Warning missions in the future. It is currently under development by Airbus Defence and Space in Germany as prime contractor, together with Leonardo (Italy), Dassault Aviation (France) and Airbus Defence and Space in Spain, for their respective nations.

HAL LCA Tejas news and updates

ADA signs MoU with Indian Air Force

Aeronautical Development Agency (ADA), on 21 February 2024, signed an MoU with the Indian Air Force (IAF) for integration of futuristic Weapons and Sensors for LCA Tejas aircraft. The MoU was signed by Mr. Prabhulla Chandran VK, Technology Director (Avionics and Weapon Systems) of ADA and Air Vice Marshal KN Santosh, Commandant, Software Development Institute (SDI) of IAF. Aeronautical Development Agency (ADA) is a premier organisation under the aegis of the Department of Defence R&D with mandate to Design and Develop Tejas LCA and its Variants.

In present war scenario, there is a continuous need of upgrading the weapons and sensors suite of the aircraft and towards this, ADA has initiated the knowhow transfer for integration of weapons and sensors to SDI. This will facilitate the IAF to independently carry out sensors, weapon integration and flight testing to enhance the operational capability of Tejas LCA fighter. ADA has successfully developed and type certified Tejas LCA with a credit of more than 10,000 sorties of incident free flying. IAF has already formed two squadrons of this fighter aircraft and twin seater aircraft are also being inducted.

DFCC for Tejas Mk.1A flown successfully

In a significant development towards Tejas Mk.1A

programme, the Digital Fly by Wire Flight Control Computer (DFCC) was integrated in prototype LSP7 and successfully flown on 19 February 2024. DFCC has been indigenously developed by the Aeronautical Development Establishment (ADE), Bengaluru for the Tejas Mk.1A. Digital Fly by Wire Flight Control Computer features Quadraplex Power PC based Processor, high speed autonomous state machine based I/O controller, enhanced computational throughput and complex onboard software complied to DO178C level A safety requirements.

All critical parameters and performance of the flight controls were found satisfactory. The maiden flight was piloted by Wg Cdr Siddarth Singh KMJ (Retd) of National Flight Test Centre.

Digitronics order from BEL for Tejas

Digitronics, a JSC Group enterprise, has landed a major order from Bharat Electronics to manufacture and supply fully indigenised DC-DC Converters and EMI Filter for use in LCA Tejas Mk.1. This move aligns with Digitronics' commitment to supporting the Government of India's Atmanirbhar Bharat initiative.

Under the contract, Digitronics will design, manufacture, and supply 1500 sets of DC-DC Converters for use in the Pylon Interface Box (PIB) for LCA Tejas Mk.1 combat jet.



HAL displays at Avionics Expo

Chief of Defence Staff, General Anil Chauhan, inaugurated HAL's Avionics Expo in Delhi. Speaking on the occasion, he said avionics was the backbone of any modern flying machine. "My deepest appreciation to the HAL team for being an important cog in the process of strengthening the aviation capability of the nation. Today's Avionics Expo underscores HAL's commitment towards Atmanirbharta. Immediate beneficiary of such an initiative will be the Armed Forces.

The two day Expo provided a platform for networking between Avionics Industry and the Services, understanding the requirements of the services, and evolving solutions that fit our terrain, climate and operational requirements. In a data driven battlefield of tomorrow, avionics systems have to be capable of collecting, processing and disseminating information in real time for the decision makers", he added. CDS also walked through the expo and evinced keen interest in the avionics products displayed on the occasion.

The presence of CDS inspires the entire Aerospace fraternity, stated Mr. C.B. Ananthkrishnan, CMD (Additional Charge), HAL.



"We have achieved self reliance in most of the avionics systems such as mission computers, navigation systems, communication systems, weapon systems and display systems. Avionics is the fastest growing market with high margin potential.

Given the design and certification challenges of avionics systems at the global level, it is high time for Indian Industries to take up Avionics System R&D and manufacturing on a war footing", he stated. "We will demonstrate HAL's capabilities and contributions toward self reliance in avionics, to our stakeholders,

A pleasant surprise: UHF datalink for the Kiran UAV



(Image of the LED screen is not clear because of its very bright light)

including the Indian Armed Forces, Ministry of Defence, Ministry of Civil Aviation, DRDO and other important institutions.”

“The event will serve as a hub for professionals, industry leaders and stakeholders from the aviation sector. They will have ample networking opportunities to establish meaningful connections, foster collaborations and explore potential business partnerships. It is a

testament to HAL’s commitment to advancing aerospace technology in India”, stated Dr D K Sunil, Director (Engineering and R&D). Later, Dr. D.K. Sunil proposed a vote of thanks and urged participants to make good use of panel discussions that featured experts from the Indian Armed forces, HAL, partner organisations, academia and live demonstrations of avionics products and systems.

HAL avionics equipment for the Dornier 228 upgrade



Glass cockpit for Indian Navy MiG-29K upgrade of navigation guidance and air to ground combat capability to be carried out through integration of LDP 4i and LGB with indigenous mission computer, Smart Multi Function Display and Data and Video Recording System.





Lockheed Martin delivers 2,700th C-130 Hercules

Lockheed Martin recently delivered the 2,700th Hercules multi-mission tactical airlifter, increasing the size, reach and strength of the worldwide C-130 fleet. This landmark aircraft was a KC-130J Super Hercules tanker operated by the US Marine Corps Aerial Refueler Transport Squadron 252 at Marine Corps Air Station at Cherry Point, North Carolina.

Defined by its proven performance and unmatched versatility, operators in 70 nations around the world fly C-130 airlifters to support any mission— anywhere, any time. The current C-130 production model is the C-130J Super Hercules, which includes the KC-130J tactical tanker. To date, the C-130J is certified to support 18 different mission requirements.

“The Lockheed Martin team is honoured to deliver this milestone Super Hercules to the US Marine Corps, where it will be part of the largest KC-130J fleet in the world and provide true force amplification across the globe,” stated Rod McLean, vice president and general manager of Lockheed Martin’s Air Mobility & Maritime Missions line of business. “Not only does this Hercules represent the 2,700th C-130 delivered, but it also reflects



the inherent mission and performance adaptability that fuels the C-130’s ongoing relevance.”

The KC-130J is the global standard for tactical tankers, refueling a majority of rotary wing aircraft in operation today and multiple fixed wing aircraft including the Lockheed Martin F-35B/C Lightning II fighter aircraft. With its truly tactical design, the KC-130J has the ability to fly at the slow speeds and low altitudes that are ideal when refueling helicopters.

Always evolving, continually innovating and ready for what’s next, the Super Hercules leads the charge by setting standards and shaping the future of tactical airlift missions — including humanitarian operations around the world. The global C-130J fleet spans 26 operators in 22 nations with 20+ air worthiness certifications. With nearly 3 million flight hours logged across the global fleet of 540+ C-130Js, invaluable insights gained from missions in every scenario equip the C-130J for what’s next.

Text: Lockheed Martin

Photos: IAF C-130J taken by the Vayu Team



Lockheed Martin MH-60R Seahawks commissioned into Indian Navy



The Indian Navy commissioned the newly inducted MH-60R Seahawk (a maritime variant of the Blackhawk helicopter) multirole helicopter on 6 March 2024 at INS Garuda, Kochi marking a pivotal moment in India's defence modernisation journey. The Seahawks squadron was commissioned in the Indian Navy as INAS 334. The helicopters are a part of the 24 aircraft FMS contract signed with the US government in February 2020.

The Indian Navy is set to witness a significant surge in its maritime prowess with the induction of the Seahawks. The helicopter is designed for anti-submarine warfare (ASW), anti-surface warfare (ASuW), search and rescue (SAR), medical evacuation (MEDEVAC) and vertical replenishment (VERTREP). The helicopter has been rigorously tested in Indian Reference Atmosphere (IRA) conditions and is fully integrated into the fleet. The advanced weapons, sensors and avionics suite make the Seahawks ideal for the Indian Navy's maritime security needs, offering enhanced capabilities for both conventional as well as asymmetric threats.

"The MH-60R helicopter would enhance India's blue-water capabilities, extending the operational reach of the Navy and supporting sustained naval operations

across spectrums and over vast maritime domains. The Seahawk's deployment in the IOR would strengthen the Indian Navy's maritime presence, dissuading potential threats and ensuring a secure and safe environment in this strategically crucial region. The commissioning of the Seahawks underscores Indian Navy's steadfast dedication to fortifying maritime security, aligning seamlessly with the Government of India's visionary goal of ensuring Security And Growth for All in the Region", stated Indian MoD.



The Russian Super Weapons



Kh-47M2 Kinzhal (Images: Reddit and Wikimedia)

The Kh-47M2 Kinzhal/Dagger (AS-24 Killjoy) is a Russian nuclear capable Air Launched Ballistic Missile (ALBM) and qualifies as a long range standoff weapon. It has a claimed range of more than 2,000 km, Mach 10 speed and an ability to perform evasive manoeuvres at every stage of its flight. It can carry both 480 kg conventional High Explosive (HE) fragmentation or 100 to 500 kT nuclear warheads and can be launched from Tupolev Tu-22M3 (Backfire) bombers or MiG-31K (Foxhound) interceptors. The Kinzhal entered service in December 2017 and has been deployed at airbases in Russia's Southern Military District and Western Military District. The missile is designed to strike United States and North Atlantic Treaty Organisation (NATO) warships, including aircraft carriers, posing a threat to Russia's strategic military assets and to destroy NATO military infrastructures like airfields as well as Command & Control (C&C) nodes protected by Ballistic Missile Defence (BMD) system by overcoming any known or planned United States BMD systems including MIM-104 Patriot, Terminal High Altitude Area Defense (THAAD) and ship based Aegis.

The missile first stage solid propellant rocket is probably shared with OTK 9K723 Iskander-M Short Range Ballistic Missile (SRBM) and the guidance section is specifically designed for this missile offering greater range and flexibility. It has similar dimensions as the OTK 9M723 Iskander-M, the Kinzhal has a length of 8 m, a body diameter of 1 m, and a launch weight of approximately 4,300 kg. There are key distinct features from the ground-based Iskander, however, including a redesigned tail section, reduced rudders, and a special stub at the missile's tail designed to protect engine nozzles during high speed flight.

Within seconds from launch, the missile accelerates to hypersonic speed and performs manoeuvres at all stages of the flight to evade enemy missile defences. Guidance is inertial with possible fine adjustments by GLONASS series of satellites. The high speed of the Kinzhal likely gives it far better target penetration characteristics than

lighter subsonic cruise missiles. Being three times as heavy and almost twelve times as fast as Tomahawk cruise missiles, the Kinzhal has more than 432 times the on-cruise kinetic energy. Russian media claims the missile's range is 2,000 km when launched by the MiG-31K and 3,000 km when launched by the Tupolev Tu-22M3. An aircraft's ability to launch from unpredictable directions would strain sectorised (non-360 degree) radars, such as those currently deployed with the MIM-104 Patriot system. Circular Error Probable (CEP) is 10 to 20 metres. The weapon made its public debut during the Aviadarts international contest in August 2019. On 18 October 2023, Vladimir Putin ordered the Russian Aerospace Forces to begin permanent patrols over the Black Sea region with MiG-31K aircraft armed with Kinzhal missiles. Russian sources claimed that these missiles have received the capability of midflight re-targeting.

On 19 October 2022, Russian, and subsequently Indian media claimed that a Russian Sukhoi Su-57 shot down a Ukrainian Sukhoi Su-27 using the Vypel R-37M Beyond Visual Range Air to Air Missile (BVRAAM). This was the first registered "kill" by the fifth-generation Sukhoi Su-57 while the R-37M missile has risen to prominence during the 'Special Military Operations' repeatedly demonstrating Single Shot Kill Probability (SSPK) and enabling the Russian Air Force to maintain air superiority. R-37M was derived from the Vypel R-37 (AA-13 Arrow) BVRAAM developed to replace the MiG-31 mounted R-33 (AA-9 Amos). R-37 was designed and developed to shoot down ultra high value airborne platforms like Airborne Early Warning & Control (AEW&C), Air to Air Refuelling (AAR), Long Range Maritime Patrol (LRMP) and Joint Surveillance Target Attack Radar System (J-STAR) platforms, from stand-off ranges without necessarily having first to deal with their fighter escorts. Mid-body strakes enhance lift while folding tail controls allow semi-conformal carriage.

The new version is known as R-37M/Izdelye 610/RVV-BD (Raketa Vozduh-Vozduh Bolyshoy Dalnosti) armed with powerful Agat 9B-1388 active seeker



R-37M/Izdeliye 610/ RVV-BD (Image: Wikimedia)

designed for engaging low altitude targets. The dual mode solid fuelled R-37M/RVV-BD BVRAAM was unveiled at MAKS-2011 for the first time, capable of fulfilling the BVR role for “outer air battles” by taking out enemy AEW&C and AAR platforms at the initial stages of conflict. However, the missile has proven potent even against fighter sized targets. 4.06 m long RVV-BD weighs 510 kg, has a range up to 398 km in “cruise glide” mode and is capable of destroying targets with overload up to 8 g at an altitude from 15 m to 25 km. The hypersonic (Mach 6) missile is armed with a 60 kg high explosive fragmentation warhead. The R-37M is launched in fire and forget mode towards the target’s hypothesised position, and once the R-37M comes within suitable range of the target; it activates its own active seeker and homes in on the target at high speed providing little reaction time to the adversary. The active seeker is equipped with a new miniature digital processor with an abundant memory and increased speed and resistant to electronic warfare. The missile is equipped with non-contact active radar and standby contact fuzes.

In Russian Air Force service the R-37M missiles arm the MiG-31BM interceptors, Sukhoi Su-35S and Sukhoi Su-57 air superiority fighters. It is not clear whether R-37M/RVV-BD arms Indian Air Force Sukhoi Su-30MKI air superiority fighters although the missile has undergone extensive live firings in India’s test ranges.

The 1,500–2,500 km ranged 6.2 m long Novator 3M14E/P-900 Kalibr (SS-N-30A) Land Attack Cruise Missile (LACM) has been designed to destroy ground based targets and consists of a booster stage and a subsonic low-flying sustainer stage. The onboard control system includes a barometric altimeter used to maintain altitude in terrain following mode (making the weapon stealthier than designs which rely on radar altimeters), plus a receiver for the GLONASS Satellite navigation system. The highly accurate (2–3 m CEP) missile has a low flight altitude, 20 meters above sea and 50–150 meters over land at a speed of Mach 0.8. At the terminal stage of

the flight the guidance is effected by the ‘Korrelatsionaya’ system. This guidance system employs a Scene Matching Area Correlator package, which guides the missile to a set of coordinates within a preprogrammed image surrounding the target, similar technology to the Digital Scene Matching Area Correlator (DSMAC) in the BGM-109 Tomahawk. European sources claim this guidance package can hit completely hidden targets providing their location is well known relative to visually prominent features surrounding the aimpoint.

The missile exists in two versions, the 3M14E for submarine-launch and the 3M14TE for surface ships. Designed to be fired from standard 533mm torpedo tubes, the missile is almost identical in shape to that of the Klub-S/Klub-N 3M54E1 anti-ship missile. Pre-launch preparation and handling are done using the same hardware as is used for the other missiles of the Klub-S/Klub-N system. The only difference between the two land attack variants is that the 3M14E can be launched from a depth of 30–40m below the sea surface, while the 3M14TE surface ship version is compatible with vertical or slant launch from the TPS (transportno puskovoy stakan) transport launching container. The modified 3M14EE missile fitted with an enlarged 450 kg conventional unitary fragmentation warhead or bomblets (a mix of incendiary, armour piercing, high explosive, which can be varied to meet requirements).

The 3M14E and 3M14TE are intended for use against stationary ground targets such as administrative and economic centres, weapon and petrochemical storage areas, command posts, seaports and airports. Once the mission data needed by the mid-course navigation system has been prepared, it is loaded into the missile’s onboard computer prior to launch. Both versions are launched under the power of a tandem solid propellant rocket booster fitted with four small lattice stabilisers. Once the missile has reached flying speed, it is powered by a small turbojet engine. For most of the flight to the target area, the missile flies autonomously, following the pre-programmed route and turning points.



Article by Sayan Majumdar

Once over land, it uses a terrain-following flight path that will make it a difficult target for enemy air defences. This low level flight mode poses a higher load on the wings and missile structure than flight over the sea surface, so the land attack missile has slightly redesigned wings of shorter span and deeper chord, plus a stronger structure.

Israel Defence Industry updates

IAI's interception of long-range BM by "Arrow"

Israel Aerospace Industries (IAI) congratulated the IDF on the successful interception of a long range ballistic missile by the "Arrow" missile defence system. The Arrow is an advanced air defence system created and designed to intercept ballistic missiles outside of the Earth's atmosphere. The system is developed in collaboration between Israel's "Homa" Directorate within the Ministry of Defence, the US Missile Defence Agency (MDA), and IAI with the involvement of security industries in both Israel and the United States.



Rafael tests advanced Spyder

Rafael announced the successful completion of a test for its advanced Spyder air defence system in its newest configuration – All in One which was conducted by Rafael with the Israeli Ministry of Defence Directorate of Defence Research & Development. The test involved intercepting a unmanned aerial vehicle (UAV)

in a challenging operational scenario, achieving a direct and effective hit.

The Spyder system, produced by Rafael, is operationally used by several military forces worldwide, providing air defence solutions against various airborne threats, including missiles, UAVs, aircraft, helicopters, and tactical ballistic



missiles (TBMs). The system intercepts threats using two families of Rafael manufactured interceptor missiles, Python and Derby. Recently, Rafael introduced a new configuration for the Spyder – the All in One, featuring an integrated radar, electro-optical launcher, advanced control and command system, and Python and Derby interceptors, all mounted on a single platform.



Rafael Trophy APS for Leopard 2 A8 MBT

EuroTrophy GmbH has been awarded a contract from KNDS (KMW+NEXTER Defence Systems) for the Leopard 2A8 programmes for Germany and Norway. KNDS is the result of the association of Krauss-Maffei Wegmann and Nexter, based in Germany and France and forming the European leader in Land Defence systems. Trophy has become the most successful active protection system integrated on Western Main Battle Tanks including Leopard 2, Abrams M1 and Merkava IV, as well as lighter platforms such as the Namer APC and other wheeled and tracked IFVs.



IAI to deliver long range LMs

Israel Aerospace Industries (IAI) signed two separate agreements with two countries to deliver long range loitering munitions. These two significant orders follow a previous contract signed earlier, that has also declared the purchase of IAI's long range loitering munitions. This series of orders represent the growing global demand for IAI's long range loitering munition family and "demonstrates IAI's unique capability in this market segment".



Elbit Advanced Skylark for IDF

Elbit Systems Ltd will produce and provide the Artillery Corps of the Israeli Defence Forces (IDF) with the Skylark 1 Transitional Vertical Take-Off and Landing Small Tactical Unmanned Aerial Systems (Skylark 1 eVTOL), combined with through-life maintenance



services for all the IDF Ground Force's STUAS systems (Skylark 1 & Skylark 3). Weighing up to 20kg, the new Skylark 1 eVTOL is a man-packed or vehicle-based platform offering the endurance and range of a fixed-wing STUAS with the capability to hover, take-off and land vertically.

Elbit SkyStriker LMs for export

Elbit Systems Ltd announced that it had been awarded a \$95 million contract to supply SkyStriker loitering munitions (LM) to a European country. The contract will be carried out over a period of two years. As part of the contract Elbit Systems will provide several hundred SkyStriker units. Elbit Systems' SkyStriker LM is a fully autonomous loitering munition that can locate, acquire and engage operator designated targets with a warhead of up to 10 kg, enabling high precision performance.



Elbit Systems Crossbow Turreted Mortar System

Elbit Systems' Crossbow Next Generation Turreted Mortar System made its first appearance at the Company's booth during the previous DSEI exhibition in London, England. The automatic mortar system was developed by Elbit Systems' Land under an Israel Defence Force contract and is MIL-STD-810G compliant. The Crossbow system has a capability of shooting the first round in less than 30 seconds, has a maximum rate of ten rounds per minute with a sustained rate of fire of six



rounds per minute, with a short sensor-to-shooter circle. It can fire a variety of munitions including the Iron Sting guided mortar munition providing effective range of up to 10 kilometers.

Elbit Systems UK and British Army

Elbit Systems UK has been awarded a contract by the UK Ministry of Defence to develop and provide artillery and mortar training simulators. The Interim Indirect Fire Simulation (IIDFS) will be provided to the Royal School of Artillery (RSA) at Larkhill, the Combined Arms Manoeuvre School (CAMS) at Warminster and the Collective Training Group (CTG) at training locations in the UK and abroad.

Elbit Systems UK will develop, produce and integrate simulators for the British Army's 81mm mortars and 105mm Light Gun, providing simulated ammunition and a unique, high technology interface for live communication between instructors and military personnel.



Spike NLOS airworthiness

Lockheed Martin successfully fired eight Rafael Spike NLOS all up rounds (AURs) over the course of five days from the US Apache Echo Model V6 at Yuma Proving Ground in Arizona.

The successful live fire event clears the Spike NLOS Long Range Precision Munitions Directed Requirement (LRPM DR) system for Airworthiness Release (AWR)



for the US Apache platform, which paves the way for starting to equip the system onto the US Army's current Apache V6 platforms.

Israel for M830A1 120mm tank cartridges

Israel has requested to buy thirteen thousand nine hundred eighty-one (13,981) 120mm M830A1 High Explosive Anti-Tank Multi-Purpose with Tracer (MPAT) tank cartridges. Also included are publications and technical documentation; US Government and contractor engineering, technical, and logistics support services; studies and surveys; and other related elements of logistics and programme support. The estimated total cost is \$106.5 million.



Hermes 650 Spark unveiled

Elbit Systems has unveiled its latest addition to its market leading Hermes family. This Next Generation Unmanned Aerial System (UAS) boasts "outstanding endurance, versatility, and cost-effective performance across land, air and sea operations". With a useful load of 260kg, the UAS boasts eight modular storage stations, accommodating large payload bays in the fuselage and six hard points on the wings.

This allows it to carry payloads up to 120kg on full fuel capacity without compromising flight endurance. The system's multi-payload capability integrates high-quality electro-optics (EO), radar, SIGINT, and other advanced functionalities simultaneously. It has the ability to execute long missions within SATCOM range and has an extended endurance lasting up to 24 hours.



Interview with Mr Suresh Kumar K V, Director (Marketing), BEL



VAYU: *How do you look at the current international market for defence products, and what strategies is BEL employing to strengthen its global presence?*

The Ministry of Defence has set an ambitious target of Rs. 50,000 Crore exports by 2028–29. BEL is, therefore, fast expanding its global presence by making all-out efforts to tap new export markets across the globe. In the last few years, we have made substantial progress, both in terms of export orders acquisition and dispatches. We have identified multiple products and systems for targeted marketing in focussed export markets. In a bid to develop new markets in the Indian Ocean Region and friendly foreign countries (FFCs), we have also operationalised new overseas marketing offices.

All these efforts have paid rich dividends. Our exports business saw a robust uptick in FY 2023–24 with sales growing by 92% to a record USD 92.98 million. BEL's products continued to find increased acceptance in countries such as France, USA, Spain, Israel, Germany, Armenia, Sri Lanka, Mauritius, UK, etc, a clear indication of the company's growing capabilities. BEL also has a healthy export order book of USD 387 million USD. BEL is enhancing its geostrategic reach and strategically opening overseas marketing offices in the Indian Ocean Region, South East Asia, Middle East Region and Americas.

VAYU: *Can you elaborate on your diversification plans?*

Defence has traditionally been contributing to around 80% of the Company's annual sales revenue. BEL,

however, has been continuously exploring opportunities in allied Defence and Non-Defence areas. The Company aims to increase its Non-Defence share in the overall business in the coming years. The total opportunity in the Non-Defence business segment being pursued by BEL in the next 10–15 years is more than Rs. 2 Lakh Crores. Some of the areas BEL is focussing as part of diversification efforts include solutions for Civil Aviation, Unmanned systems, Railway & Metro systems, Network & Cyber Security, Smart City solutions, Space Electronics, Arms & Ammunition and Seekers, Medical Electronics and Artificial Intelligence.

VAYU: *Tell us about your expansion plans*

From time to time, depending upon the growth needs and opportunities, BEL has been taking major initiatives to modernise and expand its infrastructure. Some of the new infrastructure initiatives taken up recently include setting up of a Defence System Integration Complex for Missiles and Weapon Systems at Palasamudram, Andhra Pradesh; state-of-the-art manufacturing facility for Electro Optics and IIR Seekers at Nimmaluru; Fuze manufacturing facility at Nagpur; manufacturing facility for Land-based EW systems at Ibrahimpatnam, Telangana; modernisation of storage magazine and hot integration facility for arms & ammunition at Vellore; and integration facility for QRSAM at Agra.

VAYU: *Please tell us about your company's financial performance, turnover, order book position, etc.*

BEL has always been a profit making PSU despite various challenges including stiff competition. FY 2023–24 saw the company achieve a record turnover of Rs. 19,819.93 Crore as against Rs. 17,333.37 Crore in FY 2022–23, thereby registering a growth of 14.35%. The growth was driven by strong performances across all segments. Defence contributed to 81% of revenue in FY 2023–24 with the balance 19% coming from the non-defence segment. Profit after Tax grew by 33.7% to Rs. 4,020 Crore in FY 2023–24 as against Rs. 3,007 Crore in FY 2022–23.

BEL also continued the momentum in order acquisition by booking highest ever annual order inflow of Rs. 35,046 Crore during FY 2023–24. The company's order book position as on 1 January 2025, stands at around Rs. 71,000 Crore, giving it stable revenue visibility.



The Indian Special Forces



Cobra Cdo Badge

SAG Badge

GARUD Badge

Balidan

The Indian Special Forces are forces which perform special operations for the Indian Armed Forces. These forces are versatile in nature and have a wide range of mandates. The three Indian SFs are:

The Indian Special Operations Forces or Indian SOFs are the most elite of the Indian Armed Forces. Their mandate is to perform special operations. These organizations aren't versatile like the Indian Army. The Indian SOFs are: 1.SFF 2.NSG

Also, there are even more Cdo and SOF units under the umbrella of the Indian Armed Forces. Below are the badges worn by these units during their tenure in Siachen.



Jump Indicator Badge



SFF Arm Patch



Archer Cdo Badge



Parav

Courtesy: SFF & SG Logo by Mrityunjay Raghuvanshi (@MrityunjayRagh2 on X). Balidan Badge by @officialTatya_1 on X.

SFF, Siachen, Parawings, Archer Cdo, Victor Cdo, CFF, Jump Indicator, Arm Patch and SGs badge by Abhinav N

Special Operations



Paras Badge

MARCOS Badge

SFF Badge

SGs Badge

(Worn by both the SGs)

Specialized roles, these organizations are under the umbrella of the Indian SFs and have a wide spectrum of roles which define their nature and have a wide spectrum of roles which define their nature:

1. PARA SF
2. GARUD SF
3. MARCOS

These forces which perform very specific type of Ops, defined in the Indian SFs and conduct only a certain type of missions.

3. SGs of SFF & 4. COBRA of CRPF.

Under the umbrella of HQ SFF. Like the 1 Archer Cdo, Archer Column, Zulu Column (Siachen Badge is only worn by troopers who have served at Siachen Glacier):



Paras Wings



Victor Cdo Badge



SFF Siachen Badge



Combat Freefall Badge

IA, IN, IAF, NSG & CRPF Logo and Badges from Open Source. Ashoka Lions and Indian Flag from Open Source.

Logo of Team VAYU. Infographics and Artwork by Abhinav Negi of Team VAYU. @ThatArticleGuy on X. @thatarticle.guy on Instagram.

Fun times and cooling (Vayu Team escaping)



g off over the years... (the heat of Yelahanka)



MKU Ltd: Pioneering excellence in defence manufacturing and global reach-Part 2

MKU's SCH 111T addresses a significant gap in protective headgear for Sikh soldiers globally, including those in the US, Canada, and the UK. The helmet's bolt free design ensures uncompromised protection, and the Twisfit stability harness offers excellent stability with accessories. This initiative by MKU not only enhances safety but also brings awareness to the need for specialised protective equipment for the Sikh community, both in military and civilian contexts. MKU's portfolio also includes platform armouring solutions for land, sea, and air vehicles, offering both internal and external armour plating. Their armouring solutions are deployed in various helicopters, armoured vehicles, and naval vessels for both Indian and international customers.



NETRO Aviation night vision goggles

NETRO NB-3101 Aviation Night Vision Goggles (ANVG) is one of the latest products by MKU which has gained interest from the Indian Armed Forces. The Indian Air Force had contracted the company to procure the system for Mi-17 and Advanced Light Helicopter (ALH) crew. The Gen III Night Vision system has 10,000 hours of service life, until the tube gets burned. It can provide effective visual aid in the night and pitch dark conditions, safeguarding the life of the crew and helicopter during mission in the hours of darkness. We had the opportunity to closely interact with the system, looking at its functionality and adaptability. ANVG



5100 Driver Night Sight is a sophisticated solution currently being integrated on T-90S "Bhishma" tanks. It utilises a fusion of thermal core and day optic technologies to provide enhanced situational awareness, allowing tank operators to manoeuvre their tanks efficiently at night and in pitch dark conditions. Offering improved depth perception, situational awareness, and detection ranges, the driver night sight compatible with other T-series tanks, BMPs, and armoured vehicles.

can be fitted on different types of aircrew helmet, as per the requirement by the client. The Indian Air Force currently equips the helicopter pilots with French MSA Gallet helmet.

Tank night sight system

The Indian battle tank fleet has started getting integrated with night sight systems by MKU. The Netro TD-



Future MRSAS: VR for tank crew

In efforts for modernisation of armed forces, MKU Ltd. is jointly working with Vegvisir to develop Mixed Reality Situational Awareness System (MRSAS), a state

of the art visual aid system for armoured crew, which will be tailor made to cater Indian requirements. The system will be based on the existing CORE platform, which is tested across certain armoured vehicles. The new version will be introduced with better and more functionalities, and suitable for assets in Indian mechanised infantry and armoured units, including Main Battle Tanks. MRSAS for vehicle crew is same as a Helmet Mounted Display (HMD) for fighter pilots. It will digitally display most of the information to the personnel without looking at external screens or dials.

The system includes vehicle mounted cameras, sensors, and a headset for crewman. It is capable of offering obstruction less view, so that the crew don't need to fully rely on manual sighting systems. It will be similar to a Virtual Reality (VR) experience, providing a 360° view to the operator, though with complex, realistic and serious applications. MKU Ltd and Estonian company Vegvisir had signed the Memorandum of Understanding (MoU)

in February 2024 for co-operation in development of situational awareness systems. However, it is confirmed that MRSAS is currently one of the systems on which the work is undergoing.

MKU's legacy is built on producing a wide range of state of the art products that undergo rigorous testing before delivery. Customer feedback consistently confirms the effectiveness and quality of their products, with MKU addressing any issues that arise. With a strong presence in Western Europe, the Middle East, and North Africa (MENA), MKU is poised to further expand its global footprint. MKU's dedication to innovation, quality assurance, and global outreach firmly positions it as a notable contributor to the defence manufacturing sector, promising modern military technology with high grade quality and proven performance.

Article by Nitin Konde and Rishav Gupta

Photos (positioned in no particular order): The Vayu Team



New products from MKU- the MW-5000 Sighting System for crew-served weapons.



Embraer at Aero India with KC-390 Millennium



A render of the KC-390 in Indian Air Force colours

Embraer is showcasing its KC-390 Millennium tactical air transport aircraft and solutions spanning its defence portfolio at the Aero India 2025 at Bengaluru. “Embraer is excited to be back at AeroIndia as we showcase the KC-390 Millennium and our broad portfolio of defense and security solutions to the industry,” stated Bosco da Costa Junior, President & CEO, Embraer Defense & Security. “It is an aircraft that is growing its global operator base and impressing the industry with its modern capabilities and reflects the versatility and reliability that our aircraft are known for. The Embraer team and its partners are at Aero India in full force, in support of India’s aviation and defence aims”.

Embraer is showcasing the “exceptional versatility and performance” of the KC-390. The aircraft has proven its capability, reliability, and performance across a variety of missions. By carrying more payload (26 tons) compared to other medium sized military transport aircraft at a faster speed (470 knots) and over a longer distance, the KC-390, which is configured with air-to-air refueling equipment, supports a wide range of critical missions including transporting and dropping cargo and troops, medical evacuation, search and rescue, firefighting, and humanitarian missions,

operating on temporary or unpaved runways such as packed earth, soil and gravel. It has proven its aerial refueling capacity both as a tanker and as a receiver, in this case by receiving fuel from another KC-390 using pods installed under the wings.

Since entering service with the Brazilian

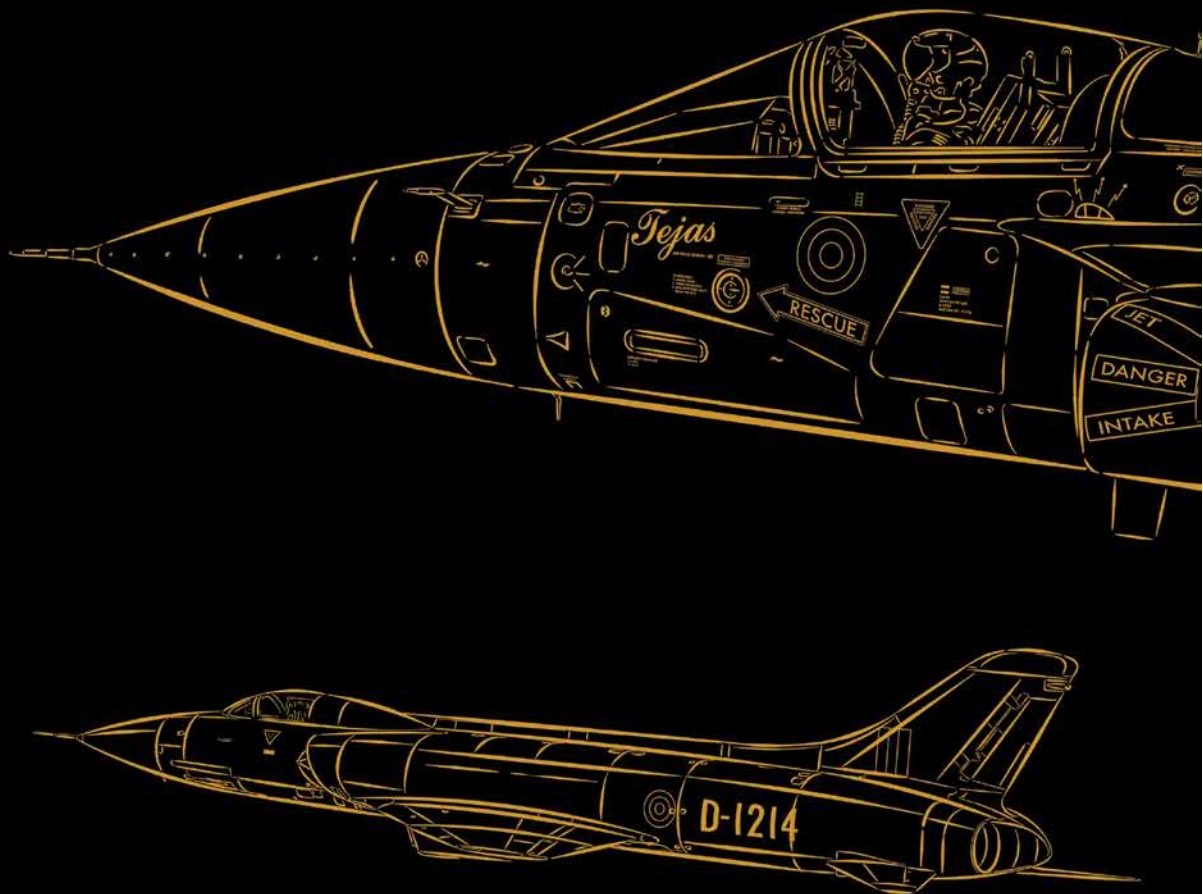
Air Force in 2019, the Portuguese Air Force in 2023, and the Hungarian Air Force in 2024, the aircraft has shown 93% mission capability, mission completion rate above 99% and has clocked in more than 16,300 flight hours demonstrating “exceptional productivity” in its category.

In addition to Brazil, Portugal and Hungary, the Netherlands announced its choice for the Millennium in 2022. In 2023, Austria, the Czech Republic and Korea also selected the KC-390, confirming the success of this “game-changer platform”. In 2024, Sweden, Slovakia and an Undisclosed Customer have also opted for the KC-390.

Embraer has more than 40 aircraft and 11 aircraft types operating in India across defence, commercial aviation and executive jets, reflecting the diversity of Embraer’s portfolio in the country. This includes the Legacy 600 aircraft used for the transportation of government officials and VIPs by the Indian Air Force (IAF) and Border Security Force (BSF) and the ‘Netra’ AEW&C aircraft based on the Embraer ERJ145 platform operated by the IAF. Star Air, one of the largest regional airlines in the country is an all-Embraer aircraft operator with a fleet of E175 and ERJ145 aircraft.

VAYU

Aerospace & Defence Review



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MEHAIR and ZeroAvia paving way for India's Next Green Revolution

ZeroAvia, a British-based aircraft powerplant manufacturer signed an agreement with Maritime Energy Heli Air Services Pvt. Ltd. (MEHAIR), an Indian air-service provider to supply hydroelectric engines for its upcoming Cessna 208 Caravan aircraft. This is a conditional order involving 20 ZA600 engines, the first ever commercial product by ZeroAvia which already secured more than 2000 units ordered by customers worldwide.

The first lot of the Caravan aircraft will be delivered to MEHAIR by mid-2024. However, these will be equipped with standard Pratt & Whitney PT6 engine. The transition to hydrogen electric engines will be carried out only after ZA600 completes the series of full certification processes in both India and abroad, which will likely take 2 years overall.

A Dornier 228 aircraft testbed is undergoing flight tests in the UK, featuring the standard combustion engine on one side and the 5-blade config ZA600 on the other. Completion of these tests will pave the way for engine integration into new aircraft models, including the Caravan, initiating another phase of certifications.

ZeroAvia has been working on hydrogen electric engines for a very long time now. It has been recognised globally as an important player in promoting green travel experience with its powerplant development, ranging from small turboprop aircraft to regional jets like Bombardier CRJ. The engines aim to offer performance nearly equivalent to that of the factory counterpart but provide an eco-friendly solution as well as lower operating costs in the long term.

MEHAIR establishing an ecosystem

When looked at with a wider perspective, MEHAIR aims to establish a new ecosystem in the country. When founded in 2011, the company had managed to bring seaplane experience for the very first time in India. Catering primarily to the Andaman & Nicobar Islands, the company offered seaplane flights for tourists and regular travellers across the islands. Being the sole provider of such service, it was not only an airline but also a pioneer in establishing an ecosystem of seaplane operations in the country. It was actively involved in training individuals for operating and maintaining a seaplane, which has its own set of technicalities as compared to standard wheeled aircraft. The advent of Covid-19 had shut down the business for more than 3 years but now the company is looking to revive itself under the UDAN scheme which will connect various

small cities. MEHAIR comes with an advantage. As Director Siddharth Verma explained, "We start where airlines end". With its seaplane fleet, MEHAIR can connect the locations that don't accommodate a proper airport but a water body that can house waterdrome. The newly launched UDAN 5.3 will introduce routes to cater to the public in Gujarat region, allowing MEHAIR to operate regular flights to boost both daily and tourism connectivity as well as seaplane business in India.

The company's endeavors are poised to usher in a new phase for the Indian aviation industry, capitalising on the country's vast untapped coastal region and contributing to a greener future.

Article by Rishav Gupta



On the right is Siddharth Verma, Director, MEHAIR.

UK-INDIA DEFENCE AGREEMENTS BOOST 'ATMANIRBHAR BHARAT' AMBITION

The UK-India strategic partnership has taken another major step forward with the formal launch of Defence Partnership – India (DP-I) and the signing of several defence agreements at Aero India 2025.

Announcing DP-I, UK Defence Minister Lord Vernon Coaker opened the UK-India Defence Partnership Pavilion, establishing a dedicated programme office within the UK's Ministry of Defence that will serve as a one-stop shop for strengthening bilateral defence collaboration between the two countries.

The UK and India have agreed to expand their collaboration on next-generation weapons with Thales and Bharat Dynamics Limited (BDL). Thales and BDL have signed a contract that will deliver Laser Beam Riding MANPADs (LBRM), with an initial supply of High Velocity Missiles (STARStreak) and launchers to be delivered this year. This contract represents an

important next step for UK-Indian defence co-operation in the critical area of air defence.

Following the signing of this initial LBRM contract, both Thales and BDL will further collaborate to produce Lightweight Multirole Missiles (LMM). This develops and expands the partnership between Indian and British industry, laying the foundation for BDL and Indian industry to form an integral part of Thales' global supply chain. It will address mutual security concerns, create jobs in both countries and enable interoperability by both armies.

In a separate development, MBDA UK and BDL have been working together on the installation of a first of its kind Advanced Short-Range Air to Air Missile (ASRAAM) assembly and test facility in Hyderabad, arming current fleet of India's fighter jets as well as exporting to the world.

Dynamatic Technologies and Deutsche Aircraft Collaborate at Aero India 2025

Dynamatic Technologies Limited has partnered with Deutsche Aircraft, a regional aircraft OEM, at Aero India 2025. Dynamatic is hosting the Deutsche Aircraft team at chalet number 40, marking a significant step in the aviation sector and supporting the "Make in India" initiative.

As India evolves into a major hub for regional aviation, Deutsche Aircraft is advancing its D328eco, a 40-seat turboprop aircraft designed to enhance connectivity, sustainability, and economic efficiency. The D328eco features a fuel-efficient engine and state-of-the-art avionics, aligning perfectly with India's UDAN scheme, which promotes connectivity to Tier 2 and Tier 3 cities. In addition, the aircraft's versatile design allows it to serve various roles, including passenger transport, cargo, and specialized mission operations.

Through collaboration with Dynamatic Technologies, Deutsche Aircraft is strengthening its supply chain resilience while reinforcing its commitment to the Indian



aviation sector. The D328eco is poised to "revolutionize regional air travel worldwide, offering a spacious interior and exceptional performance capabilities, along with outstanding design and operational adaptability".

Israel Aerospace Industries at Aero India 2025

IAI is showcasing its latest advancements in defence technology, demonstrating its commitment to India as a strategic partner and a key market in the defence sector. The company's presence at the exhibition highlights its nearly 40 years of collaboration with India and its dedication to strengthening defence cooperation between the two nations.

Over the past year, IAI has made several additional investments in the Indian market, including with its subsidiary AeroSpace Services India (ASI); its partnership with IIT Delhi, demonstrating its commitment to the next generation in India; the launch of its NeuSPHERE Innovation Acceleration Programme, enabling collaboration with Indian deep-tech startups and most recently; and the opening of its new HELA Systems facility in Hyderabad, enhancing localised Maintenance, Repair, and Overhaul (MRO) capabilities for advanced radar systems and reducing turnaround times for India's defence forces.

At Aero India 2025, IAI is exhibiting a diverse portfolio of solutions:

- OptSAR 550 – A dual-payload electro-optical and synthetic aperture radar (EO/SAR) tactical observation system designed for real-time intelligence and reconnaissance missions
- MCS – A cost-effective digital communication satellite offering robust and secure connectivity for military and government operations
- Heron TP – A multi-role, medium-altitude long-endurance (MALE) remotely piloted aerial system (RPAS) providing superior intelligence, surveillance, and reconnaissance (ISR) capabilities

- B767 FRA – A strategic flight refueller aircraft capable of extending the operational range of combat aircraft and enhancing air superiority
- APUS – A long-endurance quadcopter designed for persistent surveillance, border security, and tactical reconnaissance missions
- MRSAM– An integrated air and missile defense system providing advanced protection against aerial threats, including missiles, aircraft, and UAVs
- Oron Aircraft (ELI-3150) – A multi-mission airborne reconnaissance and surveillance system designed for persistent intelligence gathering and situational awareness
- Eitam Aircraft (ELW-2085) – A conformal airborne early warning and control (AEW&C) system equipped with state-of-the-art radar and battle management capabilities



Rolls-Royce and Triveni Engineering in MoU for 4MW marine gas turbine generators

Rolls-Royce Marine North America Inc and Triveni Engineering and Industries Limited have signed a Memorandum of Understanding (MoU) to explore opportunities to collaborate on programmes for 4MW marine gas turbine generators (GTG) for customers in India. This would include several key areas including design, development and manufacturing of the marine GTGs, as well as comprehensive sales and support activities.

Abhishek Singh, SVP of Business Development and Future Programmes for India and Southeast Asia, Rolls-Royce, added, "This MoU with Triveni is part of our efforts to bring the combined strengths of our naval marine products and services to the customer here. This is significant, given the potential to establish end-

to-end support for our marine gas turbine generator in India, from installation and testing to after-market support. Rolls-Royce has proudly supported India's defence forces for several decades, and over the years, we have continued to build strategic partnerships in-country to enable the localisation and production of our products."

With over 80 years of experience in naval markets, Rolls-Royce is a leading provider of power and propulsion solutions on major global programmes. In India, Rolls-Royce is well-positioned with a strong ecosystem for aerospace and defence, and its mtu engines power several vessels of the Indian Navy and Coast Guard.



Hall-D
Yelahanka, Air Force Station, Bengaluru

10 - 14 Feb 2025

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GE Aerospace's role in strengthening maritime defence Propelling India's Naval modernization



that will power the Indian Navy's new Nilgiri-class P17A frigates (seven ships and 14 gas turbines). The first frigate, INS Nilgiri, was commissioned on January 15, 2025.

We are presently engaged in a number of new propulsion system opportunities with our technology development—to

include the next generations of Indian Navy vessels.

India's maritime landscape is undergoing a significant transformation, driven by a strategic focus on enhancing naval capabilities and self-reliance under the "Make in India" initiative. As the nation expands its naval fleet with advanced warships and modern propulsion systems, GE Aerospace is a key partner offering advanced technologies and steadfast support to the Indian Navy.

GE Aerospace is aligned and prepared to support the Indian Navy by providing reliable technology to ensure the success of each ship's mission. Hindustan Aeronautics Limited provides local assembly and testing capabilities. We are working closely with HAL on growing our partnership to serve the Indian Navy with proven technology enhance the Indigenous content in line with the Government's policy of 'Make in India'. GE Aerospace has a proven track record of successful achievement of indigenous content programmes.

GE Aerospace's philosophy is to provide in-country support from initial gas turbine manufacture to commissioning to lifetime maintenance. That's why GE Aerospace Marine Engines & Systems and Hindustan Aeronautics Limited (HAL) have a deep collaboration in India for decades and continue to work together to provide the Indian shipbuilding industry with innovative propulsion solutions.

GE Aerospace Marine Engines & Systems has long been a trusted supplier to the Indian Naval Forces; presently powering the Indigenous Aircraft Carrier with four LM2500 gas turbines and the three Shivalik-class frigates with two LM2500's each. We have delivered LM2500 gas turbines and gas turbine auxiliary equipment

In 2023, GE Aerospace implemented a first of its kind LM2500 Digital Twin on the INS Vikrant. We worked very closely with Cochin Shipyard and Indian Navy during the implementation phase of the digital twin to ensure its usability.

In August 2024, GE Aerospace received a contract to supply LM2500 gas turbines, composite base and enclosure along with auxiliary equipment for the Indian Navy's Next Generation Missile Vessels (NGMV) built by Cochin Shipyard Limited located in Kochi, India.

Now in wide distribution with US and other international navies, the LM2500 composite enclosure provides significant benefits to ship designers and sailors compared to its steel walled counterpart. While maintaining its full US MIL-S-901D shock rating, it provides 5,500-pound weight savings, and is 60% quieter while having lower wall temperatures (25 to 50°F) and improved heat rejection.

GE Aerospace's LM2500 gas turbine engines are poised to propel the Indian Navy into the future. These contracts further solidify GE Aerospace's strategic cooperation with India focused on cutting-edge technology and local expertise. Leveraging a legacy of innovation, the LM2500 family of gas turbine engines' track record of combat readiness and ease of maintenance, as well as its global service network, make it the clear choice for navies around the world.

Courtesy: GE

Interview with Air Marshal Nagesh Kapoor

Air Officer Commanding-in-Chief (AOC-in-C) Training Command (TC)



VAYU: *What are the attractions at Aero India this time?*

Aero India is much more than just an event—it's a celebration of dreams taking flight. Aero India is not just an industry event but also a chance to experience the thrilling world of aviation and aerospace up close. The air shows, live demonstrations, and static displays of cutting-edge aircraft, defence technologies, and aerospace innovations create an exciting and immersive experience for attendees.

The general public, especially aviation enthusiasts, get an incredible opportunity to witness first hand some of the most advanced military and civilian aircraft in action. The flying displays are a major highlight and draw large crowds. For many, it's a once-in-a-lifetime experience to see such advanced technologies in motion.

In addition to the excitement, the event also provides a platform for civilians to learn more about aerospace and defence technologies. With various exhibitions and interactive sessions, visitors can gain insights into the technical aspects of aviation, the future of defence systems, and the role of innovation in the industry.

We are also focused on creating an inspiring experience for the young students attending Aero India. We believe that moments like these have the power to ignite the spark of curiosity and ambition in young minds, and we're committed to making sure they leave with a sense of wonder, possibility, and motivation.

We'll also be hosting career guidance sessions that are all about showing students the limitless opportunities in this field. Whether they're drawn to flying, designing, building, or innovating, we want them to know that they have a place in this industry. The world of aerospace is vast and full of opportunities, and we want these students to understand that the sky is not the limit—it's just the

beginning. Aero India is more than just an exhibition; it's a platform for young people to envision the future and to realise that they can be the ones to shape it. We hope to inspire them to dream fearlessly, work hard, and never stop believing in their potential.

VAYU: *What do you envision the future of Aero India in the coming years?*

Aero India is not just an airshow—it's a launch pad for the future of aerospace and defence. In the coming years, we envision it evolving into a global powerhouse, where cutting-edge technologies, game-changing collaborations, and next-gen innovations take centre stage. We also expect to witness AI-driven combat systems, autonomous drones, and futuristic aviation concepts redefining air superiority. With India's rapid strides in defence manufacturing and space exploration, Aero India will showcase not just aircraft but the future of aerial warfare, sustainability in aviation, and space-defence integration. Attendees can look forward to a bolder, more immersive experience—start-up showcases, and deep-dive sessions with global defence leaders. Aero India will continue to be the ultimate convergence of visionaries, strategists, and innovators shaping the future of aerospace.

VAYU: *How does the IAF plan to leverage the technology and partnerships showcased at Aero India for the future?*

Aero India has already carved a niche for itself globally as a premier aerospace exhibition with 14 successful editions organised since 1996 in Bengaluru. The 2025 edition aims to surpass these achievements, and promises to be even bigger in scope and grandeur. The event will provide a platform for forging partnerships between foreign & Indian firms and the discovery of newer avenues in the global value chain to accelerate the indigenisation process. The IAF will take a look at the consolidated take aways at the end of the event.



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Some Vayu friends at Yelahanka

Not glamorous



Ashish Sharma of WB India

Glamorous



Richa Gupta of Saab

Quite glamorous



Loïc Piedevache, MBDA Group
Marketing Director and Ludovic
Dumont, MBDA India General Delegate

Glamorous



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