



# SHOW DAILY

11 February 2025

# VAYU Day 2

## **Aero India 2025: Great surprises and displays!** **“Working for a Better World Order”**

“Aero India 2025, a confluence of critical and frontier technologies, will provide a platform to further strengthen relations among like minded countries based on mutual respect, mutual interest and mutual benefit to deal with today’s uncertainties,” stated Raksha Mantri Mr. Rajnath Singh while inaugurating the 15th edition of Aero India at the Yelahanka Air Force Station in Bengaluru on 10 February 2025.

He exuded confidence that Aero India 2025 would showcase the country’s industrial capability and technological advancements to the world, while further strengthening symbiotic relations with friendly countries. “Lasting peace could only be achieved if nations became stronger together and worked for a Better World Order”, the Minister further said.

This 15th edition of Aero India will showcase, over the next five days, India’s aerial prowess and indigenous cutting-edge innovations alongside state-of-the-art products of global aerospace companies. In line with ‘Aatmanirbhar Bharat’ and ‘Make in India, Make for the World’ vision, the event will also provide a stage to forge international collaborations to fast-track the indigenisation process, thereby providing a thrust to Prime Minister Mr. Narendra Modi-led Government’s resolve of making the country Viksit Bharat by 2047.



*On the left is the CATS-Warrior and on the right the 1:1 scale model of AMCA.*

## Stealth rivals steal the show!

As everyone was busy running around Yelahanka and its exhibition halls, the aero display area was buzzed by two showstoppers delivering the most dramatic spectacle ever in aviation history! As soon as the Su-57 ended its first marvellous display, the F-35 surprised the crowd with an unexpected taxiing towards the runway and eventually taking off for an enthralling flight display. While global observers and enthusiasts were still recovering from the fact that two rival nations had brought their stealth fighters to the same venue, they were once again jolted after hearing that these aircraft had decided to perform consecutively on the same day. As soon as the F-35 returned after a five minute display, the Su-57 (T-50-4), piloted by Sukhoi's Chief Test Pilot Sergey Bogdan, took off once again for another display, a second time within half an hour! The event became unforgettable as the flagships of US and Russian aerospace engineering put on a thrilling show. Only in Bharat? We think yes!



**Reporting by Rishav Gupta**  
**Photo by Abhishek Singh Chauhan**



# SMART AND TO THE POINT.

## LITE BEAM™

A Mobile High Energy Laser Weapon System



RAFAEL - Making in India, Committed to Atmanirbhar Bharat



See us at  
**AERO INDIA**  
**Hall A, Stand A8.6-A8.7**



**RAFAEL**

# Interview with Air Marshal Nagesh Kapoor Air Officer Commanding-in-Chief (AOC-in-C) Training Command (TC)



**VAYU:** *What kind of exhibits are you anticipating in this Aero India? Are AI-driven defence systems participating?*

Aero India continues to evolve with the latest trends in defence and aerospace. With global interest in automation and smart warfare capabilities, this Aero India is likely to feature a mix of emerging technologies and industry collaborations. While unmanned systems have played a significant role in past editions, this year's focus may extend to AI-powered solutions, automation and enhanced operational capabilities. As technology advances, events like these provide a great opportunity to explore innovations shaping the future of defence and security. As always, technological evolution remains a key theme, and we also look forward to seeing what's on display.

**VAYU:** *How does Aero India contribute to the AtmaNirbharta/Make in India initiative?*

Aero India plays a crucial role in supporting the 'Make in India' initiative by providing a global platform for Indian aerospace and defence manufacturers to showcase their capabilities and in that, it fosters collaborations between domestic and international companies, encourages indigenous production, and highlights advancements in aerospace technology developed within India reinforcing Atmanirbharta in aerospace and defence.

The India Pavilion at the Aero India will showcase India's commitment to its Make-in-India initiative by showcasing indigenous defence manufacturing capabilities and cutting-edge technologies ready for the global stage, including the



future prospects. Promotion of Indian start-ups is a focus area at Aero India 2025 and a wide spectrum of state-of-the-art technologies/products developed by them will be showcased at an exclusive IDEX pavilion.

**VAYU:** *What are the major defence agreements expected to be signed during this event & how do global defence collaborations at Aero India benefit India's air power?*

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 last edition achieved remarkable milestones as it attracted over seven lakh visitors, dignitaries from 98 countries and 809 exhibitors including businesses, investors, start-ups & MSMEs. Over 250 partnerships, including 201 MoUs, major announcements, product launches and technology transfers worth more than Rs 75,000 crore, were witnessed. 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. A number of bilateral meetings are planned at the levels of Raksha Mantri, Raksha Rajya Mantri, Chief of Defence Staff and Secretary among others on the sidelines of the event. The focus will be on bolstering the defence and aerospace ties with friendly countries by exploring newer avenues to take the partnership to the next level.

The CEOs' Round-Table is expected to provide a favourable platform to foreign Original Equipment Manufacturers (OEMs) for manufacturing in India. Global CEOs, CMDs of domestic PSUs and premier private defence & aerospace manufacturing companies from India will be participating in the event.

**VAYU:** *How do you see the evolution of IAF's air combat capabilities in the future?*

India's air combat capabilities are poised for significant advancements in the next decade, driven by indigenous production, technological modernisation, and global collaborations. The IAF is Saksham, Sashakt, Atmanirbhar – Potent, Powerful, and Self-Reliant highlighting the IAF's commitment to protecting India's airspace, modernising and becoming self-reliant. So we are looking at modernisation of our inventory with new aircraft and upgrades to existing platforms, greater use of AI and automation in combat operations, including unmanned aerial systems, enhanced air defence networks with improved missile systems and surveillance capabilities and stronger global partnerships to facilitate technology transfer and innovation.

*(To be continued in our Show Daily Day 3, 12 February 2025)*



ELECTRONICS & DEFENSE

OBSERVE, DECIDE, GUIDE

# INTELLIGENCE ONBOARD



Your strategic partner on land, at sea, in the air and in space.

[safran-electronics-defense.com](http://safran-electronics-defense.com)

✉ : @SafranElecDef





# Indian Navy with full force at Aero India'25



with P8I in the lead flanked by MiG-29K and Hawk 132 aircraft.

In pursuance to the nation's goal of 'Aatmanirbhar Bharat', India Pavilion is featuring indigenous projects developed/being developed by

**A**ero India 2025 is being used as an opportunity for the Indian Navy to showcase and acquaint the general populace with various types of naval aircraft being presently operated by Indian Navy as part of the static display. This includes MiG-29K 4th generation carrier borne fighter aircraft, Kamov-31 Airborne Early Warning helicopter, Seaking 42B and MH-60R anti-submarine and anti-ship helicopters.

In addition, the Indian Navy is also displaying the Light Combat Aircraft (Navy) in the exhibition Area. Among the aircraft formations for the fly-past is the all Navy Varuna formation in a 'V' denoting 'Victory',

the Indian Navy in partnership with industry and DRDO, such as state of the art missiles, air droppable Search And Rescue (SAR) Kit, Air Droppable Container (ADC) for logistic stores, carrier borne systems for MiG-29K and Advance Light weight torpedo (ALWT). Also on display in the India Pavilion is the scaled model of Indian Navy's future deck borne fighter – the Twin Engine Deck Based Fighter (4+ + generation, designed by ADA) mounted on a ski jump. Naval aviation being technology intensive, the Indian Navy is also infusing startups to develop futuristic naval aviation platforms and systems. Some of these will be on display in the India Pavilion.



# BEYOND HORIZONS



## BHARAT FORGE IS PROUD TO UNVEIL INDIA'S FIRST AND FULLY INTEGRATED LANDING GEAR MACHINING FACILITY

Manufacturers will benefit from a seamlessly integrated supply chain, encompassing everything from raw materials to forging, machining, and subsystems, all handled entirely in-house.

A Boost to the  
Global Aerospace  
Ecosystem

Game changer  
for Global OEM's

Collaboration with  
one of the global leaders  
in landing gear system

Advancing the  
Aerospace  
Manufacturing  
Ecosystem

Empowering  
'MAKE IN INDIA'

## SHAPING INNOVATION STRENGTHENING AEROSPACE

### | BFL Aerospace

📍 Mundhwa, Pune - 411 036, India.

✉ [aerospace@bharatforge.com](mailto:aerospace@bharatforge.com)

👤 Follow us:     

☎ +91-20-67042777

🌐 [www.bharatforge.com](http://www.bharatforge.com)



Scan to know more



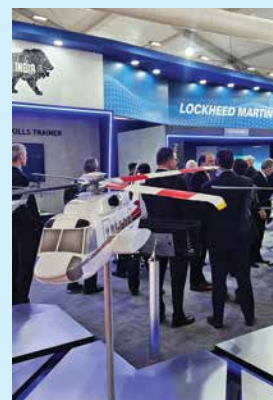


## Great displays at Alpha Design Technologies

VHF Radar 'SURYA' has been developed by Alpha Design Technologies for Indian Air Force. It is a Solid State 3D radar operating on VHF frequency band. It has detection ranges up to 360 Km and detection height up to 15km. The system is integrated with ADTL make IFF MK-XII(S) interrogator with autonomous operation capability.



## A busy Lockheed Martin stand at Yelahanka







Over  
70

countries

worldwide protect their  
populations thanks to  
Thales's technologies



[thalesgroup.com](https://www.thalesgroup.com)



**THALES**  
Building a future we can all trust

# HAL's 1st AL-31FP for Su-30MKI under new contract



**H**industan Aeronautics Limited (HAL) has handed over the first AL-31FP aero engine manufactured under the 240 engine contract to IAF at Koraput in the presence of Mr Sanjeev Kumar, Secretary (Defence Production) and Dr. D K Sunil, CMD (HAL).

Mr Saket Chaturvedi, CEO (MiG Complex) handed over the first aero engine for Sukhoi-30MKI fighter to Air Vice Marshal, K Harisankar of IAF. Mr R B Nagaraja, ADG AQA (Koraput) handed over the document to IAF. The contract for 240 AL-31FP aero engines for Su-30MKI aircraft was signed with HAL on 9 September 2024 and these engines would be delivered in eight years.

Mr Sanjeev Kumar lauded HAL's efforts in delivering the first engine within two weeks of signing the contract. "This key milestone reflects HAL's aero engine manufacturing competency and dedication to support Su-30MKI fleet of IAF. It is very heartening to see that Koraput Division has mastered cutting edge technologies of aero engine manufacturing and has set up required infrastructure to match with the global OEMs. I am confident that the Division will not only serve IAF but will also play a bigger role in exporting

to global customers", he stated. He also motivated the employees of Koraput to focus on self-reliance efforts and adopt Quality 4.0 processes.

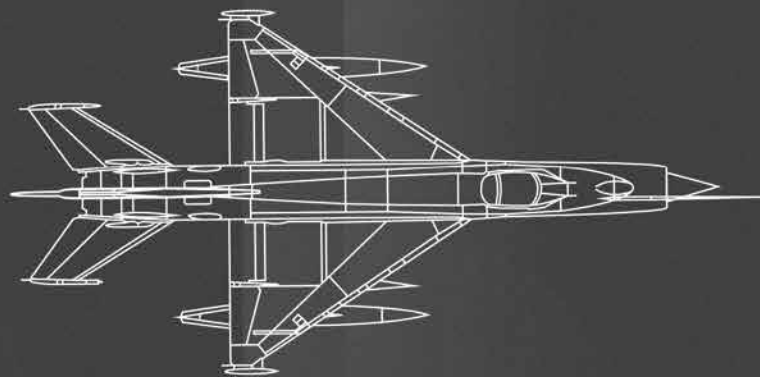
Dr. Sunil in his inaugural address stated, "HAL is committed to timely delivery of 240 engines. Koraput Division will proactively procure material as well as work towards capacity enhancement to meet IAF's expectations. The Government has envisioned Atmanirbharta to build a vibrant eco-system in Aerospace and Defence.

During this entire engine manufacturing process, we aim to engage Indian industries from present level of work share from 40% to more than 50% in next 2-3 years and help in employment generation. With the support and guidance from the Ministry of Defence, we will strive to achieve Atmanirbharta in Defence and propel HAL towards Viksit Bharat".

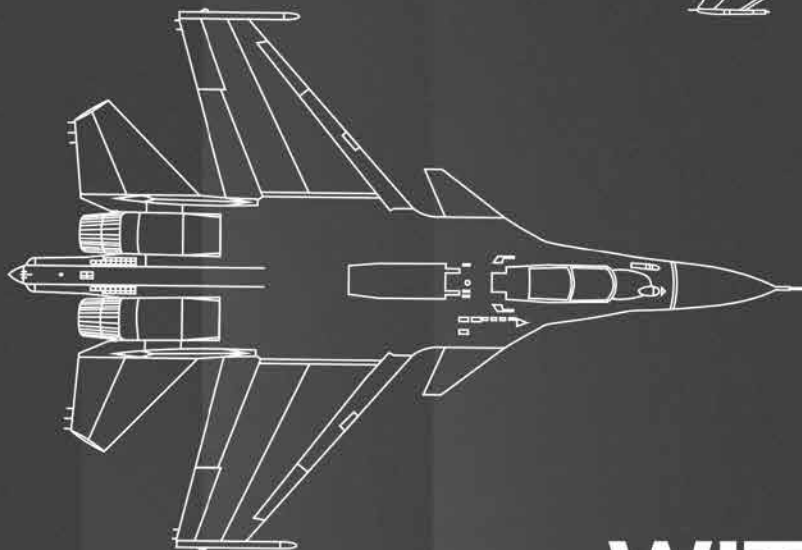
AVM Harisankar appreciated the strong commitment, significant contribution and resilience of Koraput Division and its workforce over the years in supporting the MiG-21, MiG-29 and the Su-30MKI fleet of IAF. Mr. A B Pradhan, Director (HR & Finance) said that HAL's focus was on capacity and capability building to meet the commitments of its customers.



3rd generation

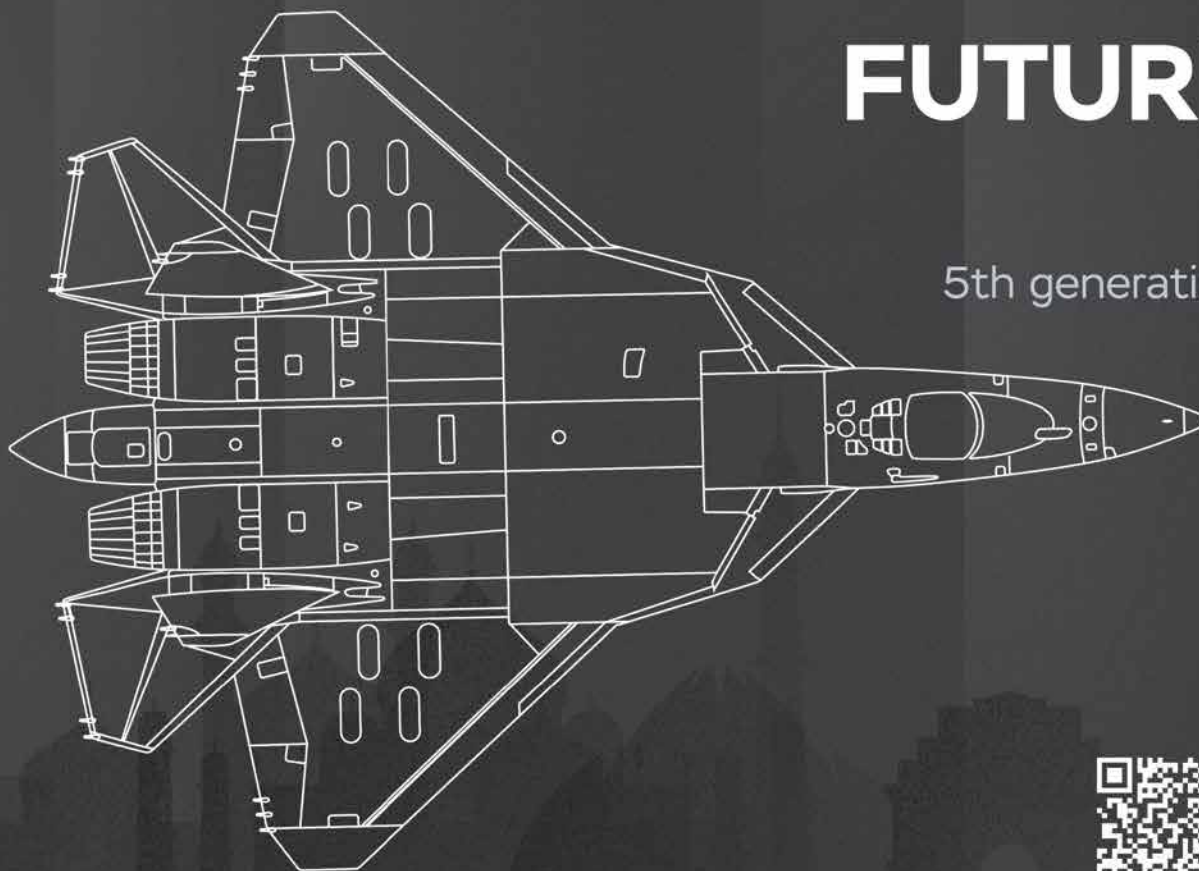


4th generation



# LONG HISTORY WITH A BRIGHT FUTURE

5th generation



# Safran over the years at Aero India





# शक्ति सैन्यबल की FORCE BEHIND THE FORCES

INNOVATE COLLABORATE LEAD

**1<sup>st</sup>**  
The first Defence  
PSU to get  
**MAHARATNA**  
status



Ranked 29<sup>th</sup> globally



Excellent MoU rating for  
22 consecutive years



Global footprint, exporting to  
30 countries with liaison offices  
in London and Moscow, and a  
marketing office in Malaysia



Manufactured over 4300 Aircraft  
& 5500 engines. Overhauled  
over 12400 Aircraft & 36650  
engines



Hindustan Turbo Trainer -40



Advanced Light Helicopter



Light Utility Helicopter



Hindustan-228

# EDGE's AL Tariq PGMs for HAL Tejas LCA



*LCA Tejas at Dubai Airshow 2023 and the PGMs on display at the EDGE stand*

**E**DGE of the UAE has announced the successful completion of the feasibility studies for the integration of the AL TARIQ long range precision guided munitions (LR-PGMs) on the Hindustan Aeronautics Limited (HAL) Tejas LCA. The announcement follows an MoU signed earlier in 2023 between AL TARIQ, a joint venture company, between EDGE and Denel (South Africa), responsible for the design and production of the uniquely modular AL TARIQ family of LR-PGMs, and HAL, an India based leader in the design, manufacturing, and maintenance of aircraft, engines, avionics, and related accessories. The aim of the MoU is to integrate the AL TARIQ LR-PGM onto the HAL Tejas LCA and other platforms as part of their campaign to offer a long-range precision weapon solution to the region.

The AL TARIQ family of modular, all weather, day/night LR-PGMs are designed to fit onto the Mark 80 series and the Indian designed High-Speed Low Drag (HSLD) series of aerial munitions. The addition of a



wing kit converts the AL TARIQ-S (Standard Range) to the AL TARIQ-LR (Long Range), extending the stand-off range from 45km to 120km. Full integration and qualification of AL TARIQ's LR-PGMs on HAL's Tejas LCA is expected to be completed in the third quarter of 2024.



# Gripen E

## Any Mission. Anywhere. Any Time.

With superior availability, Gripen will safeguard any airspace like no other fighter. It's in the design, in the quality and in the ways of operating on a whole system level.



Gripen E - The Game Changer  
Learn more about Gripen's unique  
features at [saab.com/gripen-e](http://saab.com/gripen-e)



# SAAB



## Rs 6.81 lakh crore allocated in Union Budget 2025-26 for MoD



The Union Budget of India has made a provision of Rs 6,81,210.27 crore for Financial Year (FY) 2025–26 for the Ministry of Defence (MoD). This allocation is 9.53% more than the Budgetary Estimate of FY 2024–25 and stands at 13.45% of Union Budget, which is highest among the Ministries.

Out of this, Rs 1,80,000 crore i.e. 26.43% of total allocation will be spent on Capital Outlay on Defence Services. On Revenue Head, allocation for the Armed Forces stands at Rs 3,11,732.30 crore which is 45.76% of total allocation. Defence Pension receives a share of Rs 1,60,795 crore i.e. 23.60% and balance Rs 28,682.97 crore i.e. 4.21% is for civil organisations under MoD. The Ministry has taken a decision to observe 2025–26 as ‘Year of Reforms’.

### Capital Outlay

In the current geopolitical scenario where the world is witnessing a changing paradigm of modern warfare, Indian Armed Forces need to be equipped with state-of-the-art weapons and have to be transformed into a technologically advanced combat ready force. Keeping this in view, Rs 1,80,000 crore has been allocated on Capital Outlay of the Defence Forces. This allocation is 4.65% higher than the Budgetary Estimate (BE) of FY 2024–25.

Out of this, Rs 1,48,722.80 crore is planned to be spent on Capital Acquisition, termed as modernisation budget of the Armed Forces and remaining Rs 31,277.20 crore is for capital expenditure on Research & Development and creation of infrastructural assets across the country.

In order to encourage the private sector for manufacturing and technological development in the defence sector, a notable percentage of domestic share is

further earmarked for acquisition from domestic private industries. Accordingly, for FY 2025–26, Rs 1,11,544.83 crore i.e. 75% of modernisation budget has been earmarked for procurement through domestic sources and 25% of domestic share i.e. Rs 27,886.21 crore has been provisioned for procurement through domestic private industries.

This allocation will take care of major acquisitions planned in the ensuing FY and bolster jointness and integration initiatives. This allocation of funds will further facilitate MoD’s plan to venture in new domains such as Cyber & Space and emerging technologies such as Artificial Intelligence (AI), Machine Learning and Robotics etc. Some major acquisitions planned in the next year such as Long Endurance Remotely Piloted Aircraft of High and Medium altitude, stage payment of Deck-based Aircraft, next generation submarines/ships/platforms will be funded out of this allocation.

The budgetary allocation to Defence Research and Development Organisation (DRDO) has been increased to Rs 26,816.82 crore in FY 2025–26 from Rs 23,855.61 crore in FY 2024–25 which is 12.41% higher than the BE of 2024–25. Out of this, a major share of Rs 14,923.82 crore has been allocated for capital expenditure and to fund the R&D projects.

Indian Coast Guard (ICG) has been allotted Rs 9,676.70 crore under Capital and Revenue Head which is 26.50% more than the allocation for FY 2024–25 at BE stage.

In order to further improve the border Infrastructure and facilitate the movement of Armed Forces personnel through tough terrains, Rs 7,146.50 crore has been allocated to Border Roads Organisation (BRO) under capital head which is 9.74% higher than the BE of 2024–25.







**FOR SILENT AND  
VERSATILE  
OPERATIONS**

**Avionics For  
Light Combat Aircraft**



- Military Communications • Radars • Naval Systems
- C4I Systems • Missile Systems • Electronic Warfare
- Avionics • Opto Electronics • Tank Electronics
- Weapon Systems & Gun Upgrades • Electronic Fuzes
- Homeland Security & Smart Cities

# Thales presents advanced defence and aerospace innovations at Aero India 2025 Reinforcing its 'Make in India' commitment

Thales is showcasing its cutting-edge technologies across the defence and aerospace sectors at the 15th edition of Aero India 2025, India's flagship air show, highlighting the Group's commitment to 'Make in India for India and for the world', aligned with the Aatmanirbhar Bharat vision.

Thales offers a comprehensive array of capabilities and services designed to support the Indian armed forces in attaining operational excellence. At Aero India 2025, Thales is showcasing its latest capabilities—across air, land and naval defence as well as space, cyber and digital—that are tailored for modern and future needs of the forces.

Thales provides state-of-the-art equipment on board fighter aircraft, including the RBE2 AESA radar, the Spectra electronic warfare suite, optronics, the communication, navigation and identification suite (CNI), key cockpit display systems and a logistics support component. The Thales stand at Aero India 2025 has a dedicated section on these capabilities.

Thales is also highlighting its combat-proven airborne optronics, including TALIOS (Targeting Long-range Identification Optronic System) pod, the 2-in-1 system that delivers unmatched image quality, and the InfraRed Search and Track (IRST) system. Also on display is Thales's air defence solutions such as the Lightweight Multi-role Missile (LMM), the STARStreak missile and ForceShield, alongside air surveillance capabilities such as the GM 200 MM/A radar and the SkyView air command and control system.



For the first time in India, Thales is showcasing its innovation in avionics through the FlytX suite for helicopters, in advanced aeronautics navigation systems such as TopAxyz, TopShield and TopStar M. Connectivity solutions such as SYNAPS-A, the airborne member of the SYNAPS software defined radio family designed to support battlespace digitisation, Modem 21 Air Compact, and the NextW@ve TRA 6030 radio, is also at Aero India this year.

As a leader in the fast-growing market of Unmanned Aircraft Systems (UAS), Thales will provide an overview of its portfolio of drone solutions, including its EagleShield drone countermeasures (an integrated nano, micro, mini and small drone countermeasures solution to protect and secure civil and military sites); the PARADE system that provides 360° protection of people, properties and activities, optimised for micro and mini UAS, ranging from 100g to 25kg; and Gamekeeper (a holographic radar that allows detection, tracking and classification of unlimited targets







# DRDO

**Transforming Defense  
for a Secure Tomorrow**



Visit us at Hall-D  
Yelahanka Air Force Station  
**10-14 Feb 2025**



DRDO\_India



DPIDRDO



dpi.drdo



@DRDO\_INDIA



www.drdo.gov.in



simultaneously including micro and mini drones), in addition to its safe and efficient UTM (Unmanned Traffic Management) system for cooperative and non-cooperative drones, being unveiled for the first time in India.

Thales is also presenting its LGR 68 and LGR 70 Laser Guided Rockets that come with laser guidance precision, are jamming proof and are extremely precise for guiding ammunition to target.

As part of its underwater solutions for efficient Maritime Security Operations, Thales is featuring its Sonoflash sonobuoy, an anti-submarine warfare system that allows the detection, classification and localisation of submarines. It is also showcasing the AirMaster C radar, the latest addition to its Air Master range of airborne surveillance radars, that is highly adaptable and can be integrated into both manned and unmanned airborne platforms.

### **“Thales presents AI systems we can trust at Aero India 2025”**

Thales is a major AI player in these complex environments. The company is Europe’s top patent applicant in the field and devotes a lot of effort to research on AI, both in-house and through academic and industry partnerships. The Group, a major player in trusted AI, provides armed forces with greater efficiency in data analysis and decision making, while taking into account the specific constraints, such as cybersecurity, embeddability and frugality, associated with critical environments. You will be able to see how Thales embarked AI on its solutions such as TALIOS or AirMaster C radar.

### **Expanding its team in India – hiring at Aero India 2025**

Thales is expanding its team in India and seeking engineers in hardware, software and systems for its engineering centres in Bengaluru and Noida. Thales HR executives will be present during the public days of the show on 13 and 14 February 2025 to meet engineers and



share various possible career opportunities available.

“As India progresses towards its Aatmanirbhar Bharat vision, Thales is proud to be a trusted partner in the nation’s ambitious journey. We remain committed to ‘Make in India’ and are advancing our roadmap by strengthening our local teams, collaborations and bringing advanced defence and aerospace technologies to the country. We look forward to continue equipping the Indian armed forces with the next generation of innovative and effective solutions to support their strategic defence ambitions. Aero India 2025 will serve as a key platform for us to present our flagship capabilities and engage with the authorities, forces and our industry partners.” stated Pascale Sourisse, President & CEO, Thales International.

Thales is a global leader in advanced technologies specialised in three business domains: Defence, Aerospace and Cyber & Digital. It develops products and solutions that help make the world safer, greener and more inclusive. The Group invests close to Euro 4 billion a year in Research & Development, particularly in key innovation areas such as AI, cybersecurity, quantum technologies, cloud technologies and 6G. Thales has close to 81,000 employees in 68 countries. In 2023, the Group generated sales of Euro 18.4bn.

Present in India since 1953, Thales is headquartered in Noida and has other operational offices and sites spread across Delhi, Bengaluru and Mumbai, among others. Over 2200 employees are working with Thales and its joint ventures in India. Since the beginning, Thales has been playing an essential role in India’s growth story by sharing its technologies and expertise in Defence, Aerospace and Cybersecurity & Digital Identity markets. Thales has two engineering competence centres in India – one in Noida focused on Cybersecurity & Digital Identity business, while the one in Bengaluru focuses on hardware, software and systems engineering capabilities for both the civil and defence sectors, serving global needs.

**Courtesy: Thales**



## Every Component Counts

In aerospace, precision matters. At BEML, we engineer high-quality spares and critical components that keep missions on track and performance at its peak.

## Aero India 2025



**10<sup>th</sup> - 14<sup>th</sup>**  
Feb 2025



Airforce Station,  
Yelahanka, Bengaluru



Indoor Hall E, Stall 3.1 (a)  
Chalet No-30



# MBDA at Aero India 2025

## “Missile Systems that Support Indian sovereignty”



MBDA is showcasing at Aero India 2025 the advanced missiles that support the Indian Armed Forces in their mission to protect Indian sovereignty. At the centrepiece of the company's presence this year in Bangalore, are the weapon systems that arm the Indian Air Force's latest Dassault Rafale combat aircraft. These highly potent set of weapons from MBDA give the IAF an air combat capability that is unrivalled by any of India's neighbours. The most famous of these weapons is the Meteor beyond visual range air-to-air missile, which is widely recognised as a game changer for air combat. The Meteor is powered by a unique rocket-ramjet motor that gives Meteor far more engine power, for much longer than any other missile. This means it can fly faster, fly longer, and manoeuvre more than any other missile – giving Meteor the ability to chase down and destroy agile hostile fighters at even the furthers of ranges. As a result, Meteor has a no-escape zone many times greater than any other air-to-air missile.

India's Rafales are also be equipped with the Scalp deep strike cruise missile from MBDA to strike hardened and protected targets deep inside hostile territory. The IAF's Rafales are also be equipped with MICA, a potent air combat missile the Indian Air Force knows very well as it is also part of the upgrade package for the IAF's Mirage 2000 aircraft. MBDA is also proposing all these potent weapons, as well as the famous Exocet AM39 air launched anti-ship missile for the Rafale M for the new Indian aircraft carrier.

MBDA has been delivering battle winning capabilities to the Indian Air Force and collaborating with Indian industry for over 50 years. Today L&T MBDA Missile

Systems Ltd, MBDA's joint venture with Larsen & Toubro, is exhibiting also at Aero India 2025 where it showcasing the work it performs in Coimbatore delivering Make in India projects in support of Atmanirbhar Bharat for the Indian Air Force. LTMMSL is working to propose new Make in India projects to support the needs of both the Indian Navy, with short range surface to air missile systems, and the Indian Army with latest generation anti-tank missiles (ATGM5).



Throughout MBDA's history of partnership with India, there have been two guiding principles: to provide the very best technologies to the Indian Armed Forces, and to work in true partnership in support of the Indian Defence Industry. The company then is fully committed to the 'Make in India' programme, which aligns with MBDA's long term strategy.

Other examples of technological edge equipping the Indian Air Force include the ASRAAM within visual range air combat missiles. ASRAAM is providing the IAF's Jaguar fleet with a step-change in air combat performance – a capability that will soon also enhance the IAF's new Tejas LCA Mk1A. Meanwhile the MBDA Mistral ATAM system has been successfully integrated on the Advanced Light Helicopter (ALH) and Light Combat Helicopter (LCH).

MBDA has an excellent track record providing both operational and industrial capabilities in partnership with the Indian Air Force and Indian Defence Industry. The strength of these two pillars make it a long term true partnership, and one that should only continue to get stronger.

**Text courtesy: MBDA**  
**Photos: Vayu**



# Safran and PTC in casting parts for LEAP engine



**I**ndia based PTC Industries and Safran Aircraft Engines, the French global leader in aero engine design, development and manufacturing, announced a multi-year contract to develop industrial cooperation for LEAP engines casting parts. Under the terms of the contract, PTC Industries will produce titanium casting parts for Safran Aircraft Engines. This agreement reflects commitment to Indian Government “Make in India” policy. Safran Aircraft Engines’ ambition is to develop a comprehensive aero engines ecosystem in India, strengthening its global supply-chain built for the LEAP production ramp-up.

Based in Lucknow (Uttar Pradesh), PTC Industries has a long standing expertise in advanced casting processes, as well as precision machining. The first titanium casting parts for LEAP engines are scheduled to be delivered early in 2024 for the LEAP engine powering single-aisle jet. “We are delighted to develop a new cooperation with one of the world leading aircraft engine manufacturer”, stated M. Sachin Agarwal, Chairman & Managing Director, PTC Industries. “Through this partnership, we are looking forward to leveraging our expertise in casting process to support the ambitious production challenges of the LEAP programme.”

“Having PTC industries expanding our global supply chain is a major step forward for our company”, stated Dominique Dupuy, Vice President Purchasing, Safran Aircraft Engines. “PTC, with its investment in its new facilities in Lucknow, pave the way to a successful cooperation over the coming years.”

Safran Aircraft Engines, alongside with other Safran companies, has a strong footprint in India with five production facilities in the country (between Hyderabad, Bangalore and Goa), which will be completed by a sixth site in Hyderabad dedicated to the LEAP MRO activities by 2025. The country is the third largest operator of the LEAP engine in the world, with 75% of Indian commercial aircraft being equipped with

CFM’s advanced turbofan. To date, more than 2,200 LEAP engines are ordered by Indian airlines.

Safran Aircraft Engines designs, produces, sells, alone or in partnership, commercial and military aircraft engines offering performance, reliability and environmental friendliness. Through CFM International, Safran Aircraft Engines is the world’s leading supplier of engines for short and medium haul commercial jets.

PTC Industries Limited is a leading Indian manufacturer of precision metal components for critical applications for over 60 years. Through its wholly owned subsidiary Aerolloy Technologies Limited, the company is manufacturing and supplying Titanium and Superalloy castings for aerospace and defence applications within India as well as for exports. The company is substantially expanding its Aerospace castings capability by making a multimillion dollar investment in a new state of the art manufacturing facility at the newly acquired 50 acres land in the Lucknow node of the Uttar Pradesh Defence Industrial Corridor. This facility will be a fully vertically integrated with a Titanium and Superalloy Mill, producing aerospace grade ingots, billets, bars, plates and sheets in these critical and strategic materials.



# News from Saab

## Gripen E debut at CRUZEX

Saab's fighter jet was a highlight at CRUZEX 2024, the largest multinational operational training exercise in Latin America, organised by the Brazilian Air Force (FAB). Over two thousand military personnel from Brazil and 15 other nations from across Latin America, Africa, Europe and the United States gathered for one of the largest operational air exercises in the Southern Hemisphere, CRUZEX 2024.

Held late last year at the Natal Air Base in Rio Grande do Norte, Brazil, the exercise featured over 100 combat aircraft. The main highlight of this edition was the debut of the F-39E Gripen in high complexity scenarios. As the most advanced fighter in service in Latin America, F-39E Gripen executed a broad range of tasks in Composite Air Operations (COMAO), where a large number of aircraft with different objectives operated simultaneously against an enemy to saturate its defences, enhancing mission efficiency.

In operation since December 2022, F-39E Gripen incorporates cutting edge technologies, some of which are unprecedented in the Brazilian Air Force, such as the Active Electronically Scanned Array (AESA) radar and the Infra-Red Search and Track (IRST) passive targeting sensor. These sensors, along with its manoeuvrability, performance, communication, navigation, and electronic warfare systems, position F-39E Gripen as a strategic capability for maintaining the sovereignty of Brazilian airspace.



## Saab's autonomous swarm technology

Saab's Autonomous Swarm technology recently featured in the ground breaking Project Convergence 2024 trials, consisting of one month in the United States. A large UK team, comprising 40 employees from Saab owned BlueBear and UK MoD Defence Science and

Technology Laboratory (Dstl) personnel, demonstrated the ability to deploy interoperable AI within Autonomous Swarms of Uncrewed Aircraft Systems (UAS).

At the core of BlueBear's AI-enabled autonomy solution is the ability to 'hot-swap' AI from any supplier in an autonomous systems-of-systems. This technology is key to unlocking the game changing potential of deployed networked sensors and effectors in an integrated multi-domain battlefield.



## Autonomous capability for naval vessels

Saab has presented Autonomous Ocean Core, a ready-to-use autonomous control system to provide autonomy capabilities to surface and subsurface naval platforms in military and civilian missions. Autonomous Ocean Core is a vessel agnostic control system with an open architecture, designed to make vessels autonomous to enhance their mission success at sea. It provides baseline autonomy, including vessel control, to platforms



on or below the ocean surface and allows operators to add additional capabilities continuously without losing built-in safety functions.

## Modernising Sweden's coastal anti-ship missile capability

Saab has signed a contract with the Swedish Defence Materiel Administration regarding the modernisation of Sweden's coastal anti-ship missile capability. The total order value is SEK 800 million and deliveries will begin in 2026. The majority of the order intake was booked in the third quarter of 2024. The contract includes Saab's RBS15 Mk3 anti-ship missile integrated on a launcher module installed on a truck.





# PROTECTING INDIA'S SKIES, SEAS AND LAND WITH THE PEOPLE OF INDIA

AERO  
INDIA  
2025



[www.rafale.co.in](http://www.rafale.co.in)

70 YEARS. 6 AIRCRAFT TYPES. 1 NATION  
TOOFANI | MYSTERE IV | ALIZE | JAGUAR | MIRAGE 2000 | RAFALE

**RAFALE**   
DASSAULT AVIATION / SAFRAN / THALES



# Saab over the years at Yelahanka





**LOCKHEED MARTIN** 



## **LOCKHEED MARTIN IS PROUD TO ONCE AGAIN SPONSOR AERO INDIA**

Lockheed Martin is committed to advancing India's indigenous defence manufacturing ecosystem through the strategic and exclusive F-21 and the proven and ready C-130J — delivering 21st Century Security® solutions to enhance India's sovereignty and air superiority.

**Come visit us at Aero India in Hall F, booth F63.**

LEARN MORE



# Dassault: UCAV programme and Rafale F5 standard

On 8 October 2024, Sebastien Lecornu, French Minister of the Armed Forces and Veterans Affairs, announced the development launch of the unmanned combat aerial vehicle (UCAV) that will complement the future Rafale F5 standard after 2030. The announcement was made at a ceremony marking the 60th anniversary of the French Strategic Air Forces (FAS) at the Saint-Dizier air base, in the presence of General Jerome Bellanger, Chief of Staff of the French Air and Space Force (AAE), and Éric Trappier, Chairman and CEO of Dassault Aviation.

“This stealth combat drone will contribute to the technological and operational superiority of the French Air Force by 2033. It is significant that it is being initiated today, as we mark the 60th anniversary of the Strategic Air Forces and the 90th anniversary of the Air and Space Force: in aeronautics — a highly complex field — the future has deep roots, and innovation is built on experience. Dassault Aviation and its partners are proud to serve the French Armed Forces and the French Defence Procurement Agency (DGA). Their renewed confidence honours and obliges us,” declared Éric Trappier.

This UAV will be complementary to the Rafale and suited to collaborative combat. It will incorporate stealth technologies, autonomous control (with man-in-the-loop), internal payload capacity, and more. It will be highly versatile and designed to evolve in line with future threats. It will benefit from the achievements of the nEUROn programme, Europe’s first stealth UCAV demonstrator. The Rafale F5 combined with the UCAV and their evolutions, like the Mirage IV in its times, will ensure France’s independence and capability superiority in the coming decades.



Initiated in 2003, the nEUROn programme brought together the aeronautics resources of six European countries, with project management by Dassault Aviation. nEUROn completed its maiden flight in December 2012. More than 170 test flights have been conducted to date. The nEUROn programme has lived up to all its promises in terms of performance levels, lead times and budget.

**Text and photos: Dassault**





# Interview with Salil Gupte

## President, Boeing India and South Asia



**VAYU:** *How is Boeing addressing India's growing aviation market across commercial, defence and services businesses?*

**SG:** Boeing's vision has always been to bring the best of Boeing to India and take the best of India to the world. With over 80 years in India, Boeing has been integral to the growth of the country's commercial aviation sector and the modernisation of its defence forces, building trust and reliability among local stakeholders. Our long-standing presence and continuous engagement have positioned us as the mainstay of India's growing commercial aviation sector. We have strong partnerships with Indian carriers such as Akasa Air, Air India and SpiceJet. Air India's historic order for up to 290 Boeing jets and the Akasa Air order of 226 737 MAX airplanes speak to Boeing's increasing presence and participation in India's aviation growth. Boeing also offers comprehensive lifecycle support services, such as pilot and technician training and digital solutions, to optimise airline operations.

Today, India operates 11 C-17s, 22 AH-64 Apaches (with six more on order), 15 CH-47 Chinooks, 12 P-8Is, 3 VVIP aircraft and two Head of State aircraft, all Boeing platforms. We are also seeing growth in our services business and, with it, growth in the value Boeing creates through product lifecycle support and training. Our team is working with the Indian Air Force and the Indian Navy to provide operational capability

and readiness for the P-8Is, C-17s, Apaches, Chinooks and Head of State aircraft through sustenance contracts. Boeing Defence India (BDI), our local establishment in India, is leading our investments in services infrastructure, building of local capabilities, workforce training and partnerships right here in India that are aimed at ensuring the Indian armed forces are always mission ready, and operate their assets at peak condition.

We are collaborating closely with Indian stakeholders across the public and private sectors to deliver advanced capabilities in aviation and defence. In 2024, Boeing executed pivotal programmes such as the Air Cargo Symposium, Pilot Roundtable, and Executive Development Programs. These initiatives involved collaboration with airline customers, regulatory bodies like the Directorate General of Civil Aviation (DGCA) and Ministry of Civil Aviation (MoCA), the Airports Authority of India (AAI), and aviation startups, aiming to enhance various facets of India's aviation sector.

In 2021, we launched the Boeing India Repair Development and Sustainment (BIRDS) Hub. It is an initiative to bring together ecosystem partners to shape India as a strategic destination for aerospace engineering, maintenance, repair and sustainment services. This is a one-of-its-kind initiative that seeks to provide customers with best-in-class solutions, efficient turnaround times, and optimal economic value, all available in-country. Partnership is Boeing's key to success and we believe it makes more sense to partner with local Maintenance, Repair, and Overhaul (MROs) that are already established and have great capabilities. Through such partnerships, Boeing is working with customers and local industry to develop MRO facilities in the region, to support India's aspiration to become an MRO hub for the region.

Our focus on transparency, innovation, and localised solutions has built enduring relationships with customers, suppliers, and policymakers. Boeing's infrastructure, skill development and research investments have further reinforced our reputation as a reliable partner contributing to India's aviation growth and defence modernisation.

**VAYU:** *How are Boeing's collaborations and investments in India fostering the development of a robust and self-reliant aerospace and defence ecosystem within the country?*

**SG:** Boeing's steadfast commitment to "Make in India" and "Aatmanirbhar Bharat" is evident in our strategic investments, partnerships, and innovations that help grow India's aerospace and defence ecosystem. Our approach goes beyond transactions—we collaborate to co-develop advanced solutions, drive innovation, and foster indigenous manufacturing and skill development.

An example that stands out is Tata Boeing Aerospace Limited (TBAL) in Hyderabad, a state-of-the-art facility

that integrates cutting edge technology with indigenous manufacturing. TBAL produces aero-structures for Boeing's AH-64 Apache helicopter, including fuselages, secondary structures, and vertical spar boxes. With now over 300 fuselages delivered globally, including to the US Army, more than 90% of the fuselage parts are manufactured in India, sourced from network of over 100 MSME suppliers. TBAL also has a more recent production line that manufactures vertical fin structures for 737.

Our supplier ecosystem in India has consistently achieved global recognition, with partners such as Cyient, Tata, Rossell, and Dynamatic Technologies Limited receiving Boeing's prestigious "Supplier of the Year" award among a competitive network of over 11,000 suppliers worldwide. This highlights the exceptional quality and capabilities of Indian suppliers, reinforcing their growing role in global aerospace manufacturing. Through initiatives like these, Boeing continues to drive India's indigenous aerospace ambitions, strengthening local manufacturing capabilities and advancing the country's vision of self-reliance in the sector.



**VAYU:** *In what ways do Boeing's partnerships in India stand out from those of other foreign OEMs in terms of their scope, depth and impact?*

**SG:** Boeing's partnerships in India are deeply collaborative and designed to drive long-term growth for both our global operations and India's aerospace ecosystem. With over \$1.25 billion in annual sourcing, 70% of this sourced from manufacturing, and collaborations with 300+ supplier partners, including over 25% being Micro, Small & Medium Enterprises (MSMEs), Boeing stands out for its commitment to integrating local expertise into our global supply chain. We also have a dedicated and fast growing supply chain team based in India that focuses on developing new suppliers, including MSMEs. This effort has been pivotal in the growth of our network, which is propelled by significant advancements in quality and capability along the value curve. Our suppliers are transitioning from simple assemblies to more complex ones, including advanced materials like composites and thermoplastics, and employing technologies such as full-size determinant assembly (FSDA) and robotics.

**VAYU:** *What factors have contributed to this growth story in supply chain in India?*

**SG:** Today, India's aerospace and defence sector is experiencing a burgeoning growth that is attracting diverse talent. The country's traditional strengths in engineering, extending beyond software to encompass broader engineering disciplines, have converged with a substantial improvement in

manufacturing quality over the past decade. This combination of engineering excellence and enhanced manufacturing capabilities presents a remarkable opportunity for industrial companies to invest in India. Additionally, initiatives like "Make in India," financial incentives, and infrastructure development, have created a conducive environment for growth. With over eight decades of presence in India, Boeing's investments over time, reflect our confidence in the country's potential. Boeing will continue to invest in local manufacturing, co-production, co-development, skill enhancement, and innovation initiatives to support the growth of the overall aerospace, defence and commercial aviation ecosystem.

**VAYU:** *What is the impact of BIETC's research and development efforts on the future trajectory of both Indian and global aerospace and defence industries?*

**SG:** As Boeing's largest engineering centre outside the US, BIETC goes beyond providing engineering support—it drives aerospace innovation and talent development, shaping the future of aerospace and defence in India, for India, and the world.

Forefront of cutting edge research and development: BIETC teams are at the forefront of pioneering work, driving advancements in next-generation airplane management, secure communication networks, and the development of innovative technologies, including the integration of AI/ML, IoT, and Cloud Computing solutions. The centre's R&D efforts focus on addressing critical industry needs, such as eco-friendly coatings for sustainability and advanced aircraft health management systems for enhanced operational efficiency. These innovations reflect Boeing's unwavering commitment to tackling the industry's greatest challenges and paving the way for a transformative future in aerospace.

Driving innovation in India, for India, and the world: The 43-acre BIETC campus in Bengaluru is a cornerstone for partnering with India on next generation products and services for the global aerospace and defence industry.

Fostering talent growth through industry-academia partnerships and incubator programmes: Boeing is committed to shaping the future of aerospace in India through partnerships and pioneering incubator programmes that propel talent development and innovation. With enduring collaborations with IISc to form Aerospace Network Research Consortium (ANRC) producing 75+ research papers, STEM education initiatives with RVCA college in Bengaluru, and IIT incubation centres fostering research driven breakthroughs, Boeing is empowering the next generation of engineering and aviation talent from India.

Through transformative initiatives such as the Boeing University Innovation Leadership Development (BUILD) programme, which fosters the growth of India's startup ecosystem, and the Boeing National Aeromodelling Competition, Boeing is cultivating a world class ecosystem to advance global aerospace excellence with strong roots in India.



# Lockheed Martin's 10th Annual Suppliers Conference with Indian industry



Following Lockheed Martin's teaming agreement with Tata Advanced Systems Limited to establish a C-130J MRO facility in India and expansion of C-130J manufacturing and assembly in India for the Indian Air Force's Medium Transport Aircraft acquisition, Lockheed Martin held its 10th edition of India Suppliers Conference in Bengaluru on 25 September 2024.

The two day conference saw representatives from almost 50 Indian companies across all sizes, large, MSMEs and start-ups, participating in the conference. Throughout the event Indian companies showcased capabilities to Lockheed Martin and international partners like GE Aerospace, Honeywell, Pratt & Whitney, Martin Baker and Northrop Grumman, among others. More than 120 delegates attended the event and more than 70 business to business meetings were organised to explore partnership opportunities.

The conference was inaugurated by Mr. Priyank Mallikarjun Kharge, Minister for Information Technology and Biotechnology, Government of Karnataka, who spoke about how Karnataka has always championed "local for global" thereby driving self-reliance through manufacturing. Highlighting the state's repository of talent and resources and the fact that 40% of India's startups in aerospace reside there, the minister outlined Karnataka's ambition to lead the world in aerospace and defence. Also, gracing the inauguration ceremony was Christopher W. Hodges, Consul General of the United States of America in Chennai who outlined his thoughts



on how a partnership driven approach would be the way forward for deeper India-US strategic ties.

"We are committed to strengthening the Indian defence industrial ecosystem through partnerships that not only build innovative solutions but also help Indian partners access global markets. Aligned with the Government of India's vision of "Make in India, Make for the World," our focus is on identifying industrial partners that can meet the needs of not just the Indian armed forces but also Lockheed Martin's global supply chain," stated Michael Fernandez, India country head, Lockheed Martin.

Rossell India Limited was recognised as an Outstanding Supplier by the Lockheed Martin Rotary and Mission Systems (RMS) Global Supply Chain Organisation for on-time support and customer-first focus to support countless engineering changes due to design modifications critical to the success of the MH-60R programme.



The Lockheed Martin Rotary and Mission Systems (RMS) Global Supply Chain Organisation recognised another Indian manufacturer, Veer-O-Metals, for demonstrating outstanding customer focused approach through their exceptional responsiveness and eagerly working to understand requirements significantly contributing to the success of the MH-60R programme.

Post the conference, Lockheed Martin Supply chain teams visited almost 20 suppliers across India to assess their capabilities and establish alliances.

# Lockheed Martin's C-130 Hercules 70 Years Strong and Growing!



Left: KC-130J Super Hercules of the USMC and Right: The "Fat Albert" C-130J of the US Navy.

The ever enduring C-130 Hercules celebrated 70 years of unwavering service last year. Since its inception in 1954, the Hercules continues to be used in over 70 countries with more than a million flight hours and growing.

Seven decades ago, the C-130 had an original usage as a medium cargo plane able to land in short, confined runways. As the mission and needs of the fleet changed, the aircraft moved into providing tactical airlift, humanitarian aid, air support and various mission support across the globe.

The C-130 has had over 70 variants, 15 of which are actively being produced by Lockheed Martin today, and is distinguished by having the longest continuous military aircraft production run in history. From aerial command centres to weather observation and, occasionally, an aerial drone carrier, the Hercules meets the needs of the fleet. The C-130 has lent its services to nearly every mission capability needed for military or civilian application.

The US Navy and Marine Corps employ multiple variants to provide assault and logistics support, including the KC-130J "Super" Hercules. This "super" plane includes the troops and cargo transport capabilities of other C-130 variants and adds air-to-air refueling capability for helicopter, fixed wing and tiltrotor receiver aircraft to its mission.

One standout variant is the C-130J assigned to the US Navy Flight Demonstration Squadron. Affectionally named Fat Albert, the C-130 made its Blue Angels debut in 1970 and continues to fly alongside F/A-18E Super Hornets in airshows around the world.

The C-130 is responsible for supplying mission critical troops and materials in every American military conflict since the mid-20th century. This stellar aircraft can deliver a variety of airlift support, including parachute or ground delivered combat troops or cargo, such as vehicles, supplies and evacuation support.



Indian Air Force C-130J-30

"There is no more versatile aircraft than the C-130," stated Col. Steven Puckett, programme manager Tactical Airlift Programme Office (PMA-207). "As a C-130 pilot and now the programme manager for Navy and Marine Corps variants of the platform, maintaining the combat relevance and reliability of this critical logistics support aircraft is my organisation's highest priority."

Tactical Airlift Programme Office manages the cradle to grave procurement, development, support, fielding and disposal of the Navy's tactical airlift platforms, including the C-130.

**Text courtesy: Lockheed Martin**





TECHNOLOGY AND CAPABILITY  
CO-CREATED IN INDIA, FOR THE WORLD



# GE Aerospace's LM2500 to power Indian Navy's NGMV

**G**E Aerospace's LM2500 has been chosen to power the Indian Navy's Next Generation Missile Vessels (NGMV) built by Cochin Shipyard Limited in Kochi, India. Six LM2500 marine gas turbine engine kits will be delivered by GE Aerospace for assembly and test by Hindustan Aeronautics Limited (HAL) Industrial and Marine Gas Turbine Division in Bangalore, India. Additionally, GE Aerospace will be supplying its composite base and enclosure, and full complement of gas turbine auxiliary systems.

These engines will power the newest addition to the Indian Navy's fleet, described as a force multiplier for naval capability. This selection "further reinforces the LM2500's status as the unmatched leader in its class, a position earned through unwavering performance and an extensive global support network. The LM2500 isn't just powering the Indian Navy; it's the engine of choice for navies worldwide that demand the best. Over 714 vessels globally rely on GE Aerospace's marine gas turbines for their reliability and availability", stated the company.

The Next Generation Missile Vessel is a new design for the Indian Navy that will reach a max speed of 35 knots and carry an impressive array of anti-surface weapons. The core of the NGMV propulsion system is the LM2500, a marine gas turbine "engineered to unleash superior power while meeting stealth requirements".

"The LM2500 gas turbine's proven power and reliability make it the ideal choice for the NGMV mission. We are proud to continue our collaboration with HAL to deliver this critical technology for India's maritime defence," stated Amy Gowder, GE Aerospace Defence & Systems President and CEO.

GE Aerospace and HAL, India's premier public-sector aerospace company, have ties in both marine and aerospace defence dating back to 1986. HAL has assembled and tested all LM2500 gas turbines that currently power the Indian Navy's P17 and P17A frigates, as well as the IAC-1 Vikrant aircraft carrier. In 2023, GE Aerospace and HAL signed an MoU to explore expanding their capabilities to include assembly, inspection, and testing (AIT) of the LM500 marine gas turbine. To date, GE Aerospace has delivered 24 marine gas turbine kits to HAL for the Indian Navy, demonstrating strong support for Make-In-India initiatives.



*Render of a P17A frigate.*

"GE Aerospace has been our valued partner for several decades in the marine applications and aerospace. For various programmes of Indian Navy, HAL has partnered with GE Aerospace on the LM2500 Gas Turbine Engine. With addition of NGMV programme, our partnership will further strengthen to greater heights," stated Dr. D Sunil, Chairman and Managing Director, HAL.

GE Aerospace's LM2500 gas turbine engines are poised to propel the Indian Navy into the future. This contract award further solidifies 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".



*Left to right: GE Aerospace's LM2500 marine gas turbine, GE Aerospace's composite gas turbine enclosure.*



# Thales Compact 2D AESA Airborne Surveillance Radar AirMaster C



they do. Should the radar experience a failure during a mission it is designed to continue functioning with a minor performance reduction thanks to a graceful degradation mechanism.

Thales has built on the successfully proven experience of the AirMaster Series radar

**I**ncreasing complex environments in which armed forces carry out their operations, combined with the growing challenge to train qualified personnel, have put significant strains on airborne surveillance crew. Demand across the world, for multi-role helicopters, light ISR aircraft and unmanned platforms, has increased and broadened the workload among crews.

AirMaster C is designed to minimise its footprint onboard platforms. A true single unit design, AirMaster C is 30% lower in size, weight and power requirements compared to other market offers today. The fixed panel design includes both the antenna and data processing to deliver a simple to integrate, simple to install radar. When connecting multiple panels to achieve surveillance capability beyond 120°, standard optical cabling is used to simplify routing. Optical cabling contributes to minimising weight and simplify maintenance.

AirMaster C is developed as a smart radar to take the burden away from the crew. “4P Polarisation” automatically delivers improved clarity of image and “Dual-Range” allows the operator to see targets at long range and very close, simultaneously. Sensor autonomy, self-learning and the capability to analyse and classify large volumes of data, all work to increase the radar ability to perform a high number of detection, identification and surveillance tasks. Operators can focus on the outcomes for faster, more accurate decision making.

Predictive maintenance, combined with AESA technology, ensures high mean time between failure and critical failure. The health and usage monitoring system supports maintainers in determining where the next issues are likely to occur and fix them before

I-Master and Searchmaster to deliver a more compact 2D AESA fixed-panel radar with state-of-the-art enhancements.

## Thales in India

Thales has been present in India since 1953. Headquartered in Noida, the company has other operational offices and sites in Bengaluru, Hyderabad, Mumbai and Pune among others. 2200 employees are working with Thales and its joint ventures in India.

India’s “Make in India” policy is fully supported by Thales. The company’s strategy of developing industrial footprint in India is in line with the government’s aim to develop the defence base of the country. With this as the backdrop, Thales has formed various co-operative partnerships with public and private sector industries, bringing in its expertise in delivering high end technology solutions.

Hindustan Aeronautics Limited (HAL): Thales has been working closely with HAL for over 50 years and provide high end avionics to equip the platforms that HAL designs.

Bharat Electronics Limited (BEL): Incorporated in August 2014 as BEL-Thales Systems Limited (BTSL), this JV is dedicated to civilian and select ground based military radars.

Reliance Aerostructure Limited: Created in 2017, this JV with Reliance Aerostructure leverages Thales’ offset commitment as part of the Rafale contract, developing Indian capabilities to integrate and maintain radar and electronic warfare sensors. Other co-operations include Bharat Dynamics Limited, Kalyani Group and MKU among others.

# Airbus and TASL formalise contract for H125 helicopter FAL in India



Tata Advanced Systems Limited (TASL), India's leading private sector player for aerospace and defence solutions, and Airbus Helicopters have formalised the contract to establish the H125 Final Assembly Line (FAL) in India. The FAL will be the first instance of the private sector setting up a helicopter assembly facility in India, which will produce Airbus's "best-selling H125 helicopter from its civil range" for India and the neighbouring countries.

"India is a country with great potential for helicopters and we believe that there is no better way to unlock this promising market than with a 'Made in India' H125 helicopter. We are confident that a locally assembled helicopter will open new civil and parapublic markets such as the Helicopter Emergency Medical Services and other public services, making helicopters a critical component of nation building.

We are delighted that we are embarking on this pioneering journey with our trusted partner the Tata Group, with whom Airbus already has a multi-faceted partnership," stated Bruno Even, CEO of Airbus Helicopters.

The FAL will undertake the integration of the major component assemblies, avionics and mission systems, installation of electrical harnesses, hydraulic circuits, flight controls, dynamic components, fuel system and the engine. It will also do testing and qualification of the helicopters.

Helicopters assembled at this FAL will be delivered to customers in India and its neighbouring countries. The deliveries of the first 'Made in India' H125s are expected to commence in 2026. Tata Advanced Systems and Airbus Helicopters are well advanced in their joint selection of the location of the FAL, which will be communicated soon.

"The H125 is the world's best selling single engine helicopter that outclasses other helicopters in its category. This high performing versatile helicopter is a member of Airbus' Ecureuil family, which has accumulated more than 40 million flight hours worldwide. It can operate in high and hot and extreme environments and can be easily reconfigured for various missions, including aerial work, firefighting, law enforcement, rescue, air ambulance, passenger transport, and many others. The H125 is the only helicopter to have landed on Mount Everest, demonstrating its agility in operating in high altitude, extreme environments" stated Airbus Helicopters.





# A TRULY RELIABLE ADVANTAGE

Of all the things that can go wrong on a mission,  
your ammunition shouldn't be one of them.

From special forces to regular army, navy and air crews, Nammo provides the reliable advantage to those doing an important job, where and when they need it most. Our relentless focus on real-world operator challenges and constant drive to advance performance and reliability makes Nammo a trusted partner. We provide the tools that get the job done, without fail.

- Ammunition
- Rocket Motors
- M72 Shoulder Fired Systems
- Demilitarization



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

[www.nammo.com](http://www.nammo.com)

**Nammo**  
SECURING THE FUTURE



## UAC's Su-57 Felon is making a comeback (Part-2)



### Technological advancements and sub-system upgrades

Sukhoi has introduced major upgrades to the Su-57, featuring its new engine design and advanced technologies. These developments were highlighted for the very first time in a December 2024 documentary by Russia 1 media, celebrating 85 years of the Sukhoi and MiG Design Bureaus, showcasing the fighter's progress and innovation.

Firstly, introduction of flat nozzles on the T-50-2, the second Su-57 prototype and testbed for the AL-51 (Izdeliye-30) engines. The flat nozzles enable a reduced radar signature while maintaining highly agile (or super-maneuvrable) flight characteristics. Unlike the vertical movement of flat nozzles on the Lockheed Martin F-22's P&W F119 engines, the Su-57's diagonal movement offers superior agility, potentially outmanoeuvring its US counterpart. The development also heavily relied on additive manufacturing like 3D printing, with reportedly 90% of its components being created using this technique. Interestingly, this nozzle configuration would be equipped on other fighter aircraft in the future as well, potentially including platforms like the Su-35 and Su-30. The flat nozzles, a long anticipated feature of the Su-57, will be fitted to Saturn's AL-51F turbofan engines.

Currently undergoing flight testing, these engines will power next-generation Russian aircraft, starting with the Su-57M upon certification.

Next is the Helmet-Mounted Display (HMD), another much anticipated system. Referred to as the "helmet of the future," is also under tests, both on the ground and in the air. The HMD is designed to function like its Western counterparts, projecting all flight and combat-related details such as airspeed, altitude, target location, weapon information and more—directly onto the pilot's visor. This system allows pilots to make quicker, better decisions in minimal time.





The Su-57's advanced AI integration supports flight and combat operations by assisting the pilot with decision making. It provides visual and vocal alerts for system failures, suggesting safe resolutions. In combat, AI prioritises targets and advises the pilot for suitable positioning for effective weapon deployment, enhancing situational awareness and combat effectiveness as a "second pilot."

## Future prospects in India

The announcement of the Su-57's participation in Aero India took the analysts by storm. While it used to be showcased as scaled down models by UAC and Rosoboronexport, this marks the first time an actual airframe has been brought to Yelahanka for the airshow. This event opens a new window of opportunity for Russia to further market the Felon to India and other potential buyers.

In 2001, the Indian Air Force (IAF) planned to acquire 126 Multi-Role Combat Aircraft (MRCA), later replaced by a 2016 deal for 36 Rafales, which didn't fulfil requirements. A new plan for 114 aircraft awaits the government's Acceptance of Necessity (AoN), allowing manufacturers additional time to present refined options, such as the Su-57, to meet evolving requirements.

In 2010, India partnered with Russia and Sukhoi to jointly develop the Fifth Generation Fighter Aircraft (FGFA)/Perspective Multirole Fighter (PMF), based on the PAK FA (Su-57/T-50), and oriented for the Indian and export market. However, after eight years of design reviews, cost overruns and sustainability concerns, it was decided to call off the programme.

Despite this, in 2019, the then CAS Air Chief Marshal BS Dhanoa stated that the Su-57 could be reconsidered once it enters service. Now that it is operational with the VVS and has even seen success in combat, this presents a favourable opportunity for Moscow to reignite Indian interest in the aircraft. However, critical factors such as production timelines, after-sales support, and alignment with India's indigenous AMCA programme will play a key role in evaluating the Su-57's suitability for the MRCA competition. Balancing the acquisition of advanced



foreign platforms with the ongoing development of a domestic fighter in the same class will be essential for shaping India's strategic and technological trajectory.

## Conclusion

The Su-57, from the overall technical aspect, is a cutting edge fifth generation fighter. It is equipped with an array of six radar systems including a primary AESA radar mounted in the nose, side-facing radars on the wings and a rearward looking radar. This enables a comprehensive 360 degree coverage, ensuring superior situational awareness. The aircraft leverages Manned-UnManned Teaming (MUM-T) and boasts an extensive array of precision guided munitions for both air-to-air and air-to-ground engagements. Additionally, its integration of a Directed Infrared Countermeasure (DIRCM) system enhances survivability by neutralising incoming missile threats. These capabilities collectively elevate the Su-57's stealth, agility, and combat effectiveness, positioning it as a formidable force in modern aerial warfare.



Whether at a personal or industry level, excellence is never achieved overnight. It requires a steady and consistent approach, with each step contributing toward the ultimate goal. Russia, Sukhoi, and their engineering divisions exemplify this philosophy. Despite initial setbacks, the progress made on the Su-57 is nothing short of remarkable.

With further advancements on the horizon, this platform is poised to become the cornerstone of Russia's aerospace capabilities, showcasing its engineering prowess and determination to remain at the forefront of aviation technology.



**By: Rishav Gupta**  
 (Twitter/X: @connect\_rishav)  
**Photos: UAC/MAKS/Russian MoD)**

# Rostec/Rosoboronexport and India developments

## Indo-Russian JV delivers 35,000 AK-203s to Indian Army



Indo-Russian Rifles Private Limited, registered and located in India, has produced and transferred 35,000 Kalashnikov AK-203 assault rifles to the Indian Ministry of Defence. The founders of the enterprise from the Russian side are Rosoboronexport JSC and the Kalashnikov Group (both are subsidiaries of the Rostec State Corporation).

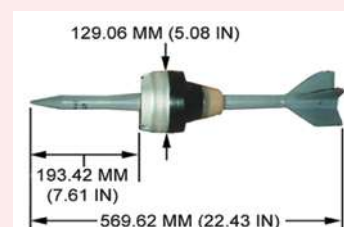
The Kalashnikov AK-203 assault rifle is a version of the AK-200 rifle chambered for the 7.62×39mm cartridge used in the Indian Army. The weapon has the traditional advantages of Kalashnikov assault rifles: reliability and ease of maintenance. The AK-203s are manufactured in India in compliance with exclusive Russian technologies on certified equipment. This ensures high product quality and compliance with the stated characteristics.

“The Indo-Russian Rifles Private Limited joint venture, co-founded by Rosoboronexport on the Russian side, has completed the first phase of the project to produce AK-203 Kalashnikov assault rifles in India. To increase the degree of localisation, all necessary equipment has been shipped to the Korwa Ordnance Factory in Amethi, Uttar Pradesh state, and production facilities are now fully equipped. This made it possible to produce and deliver a batch of 35,000 Kalashnikov assault rifles to the Indian Army within the timeframe agreed with the Ministry of Defence of India,” stated Alexander Mikheev, Director General of Rosoboronexport. “The Indo-Russian joint venture is a vivid example of fruitful

cooperation between our countries in the defence sector.”

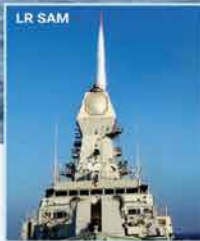
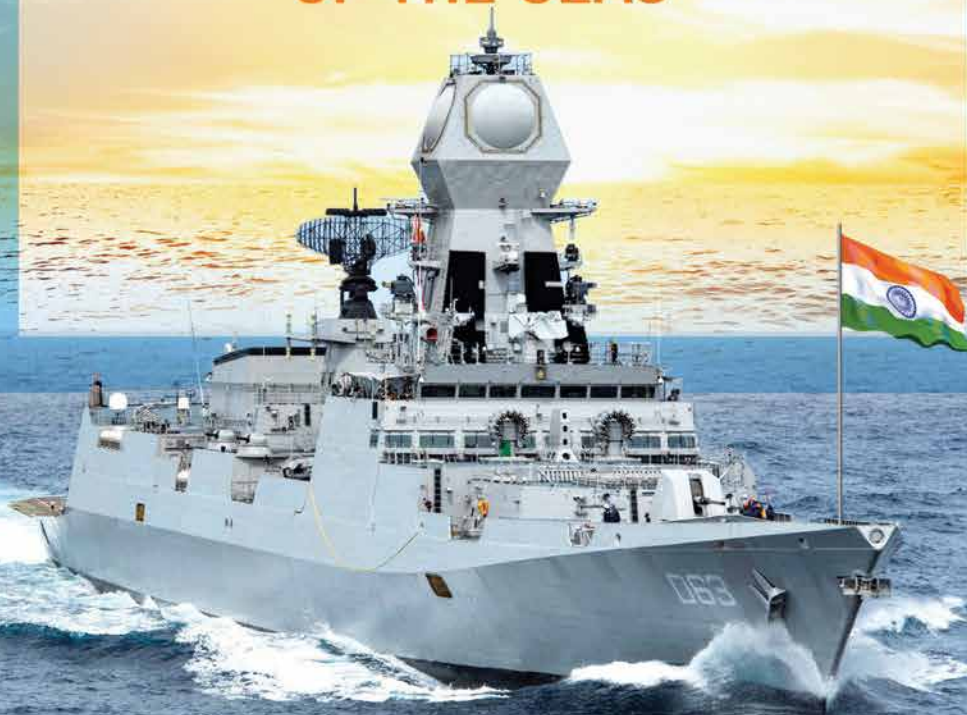
## Rostec launches manufacturing of 125mm Mango APFSDS rounds in India

Rosoboronexport JSC (part of Rostec State Corporation) has established manufacturing of 3VBM17 Mango armour piercing fin stabilised discarding sabot (APFSDS) rounds in India. The ammunition is designed to defeat armoured vehicles fitted with composite armour. The project is being implemented under the Make in India programme. The 125mm Mango round is designed to be fired from the guns of T-72 and T-90 MBTs. Various versions of these combat vehicles are in service with the Indian Army.





# CUSTODIAN OF THE SEAS



- BEL is the lead integrator of LR SAM Systems
- Jointly developed by IAI, Israel and DRDO to defend against any type of airborne threat
- The system is capable of simultaneously tracking multiple seaborne targets

- Military Communications • Radars • Naval Systems • C4I Systems • Missile Systems
- Electronic Warfare • Avionics • Opto Electronics • Tank Electronics
- Weapon Systems & Gun Upgrades • Electronic Fuzes • Homeland Security & Smart Cities



# 16 DRDO highlights in 2024

1. DRDO conducted a successful test of New Generation AKASH (AKASH-NG) missile.
2. Four flight trials of High-speed Expendable Aerial Target (HEAT)-ABHYAS were carried out.
3. Two successful tests of Very Short-Range Air Defence System (VSHORADS) missile.
4. First successful test of Agni-5 missile with MIRV technology.
5. Strategic Forces Command, along with DRDO, conducted test of New Generation Ballistic Missile Agni-Prime.
6. Man Portable Anti-tank Guided Missile (MPATGM) field evaluated in different flight configurations.
7. DRDO/IIT Delhi developed Light Weight Bullet Proof Jackets named ABHED (Advanced Ballistics for High Energy Defeat).
8. Supersonic Missile-Assisted Release of Torpedo (SMART) system successfully tested.
9. Successful test of RudraM-II air-to-surface missile from Su-30MKI.
10. DRDO handed over the Medium Range-Microwave Obscurant Chaff Rocket to Indian Navy.
11. Successful flight test of Phase-II Ballistic Missile Defence System.
12. Maiden flight test of Long Range Glide Bomb, GAURAV from Su-30MKI.
13. DRDO/Indian Navy conducted flight tests of Vertical Launch Short Range Surface to Air Missile.
14. Maiden flight test of Long Range Land Attack Cruise Missile.
15. DRDO successfully completed tests of Guided Pinaka Weapon System.
16. DRDO conducted a successful flight trial of India's first long range hypersonic missile.





## BEML in Rs.136 Crore MoD contract for HMV 8x8

**B**EML Limited has achieved a significant milestone by securing a Rs. 136 crore contract for the supply of indigenously designed High Mobility Vehicles (HMV) 8x8. These vehicles will play a pivotal role in the Battle Field Surveillance System (BFSS) Project, reinforcing India's defence capabilities and advancing the Government's vision of Atmanirbhar Bharat. Key features of these vehicles include an independent suspension system, a high-power air cooled engine, a central tyre inflation system, an anti-lock braking system and a backbone tube chassis design. These features ensure superior mobility, stability and operational safety. The vehicles are capable of operating in extreme climates, from -20°C to +55°C, and at altitudes of up to 5,000 meters above sea level.

With a legacy dating back to the 1980s, BEML has been at the forefront of India's defence manufacturing sector, delivering advanced solutions such as rocket



and missile launchers, Armoured Recovery and Repair Vehicles (ARRV), High Mobility All-Terrain Vehicles for radar and communication systems, and tactical Unmanned Aerial Vehicles (UAVs). The company has achieved 100% indigenisation across several critical platforms, including the Pontoon Bridge System, Aircraft Towing Tractor, Aircraft Weapon Loader, 50T Trailer, Wagons, BMP Transmission and Ejector Air Cleaner Assembly.

## Ananth Technologies part of ISRO's SPADEX mission

**A**nanth Technologies Ltd has extended its heartfelt congratulations to the Indian Space Research Organisation (ISRO) on the remarkable achievement of a successful docking mission in January 2025. Dr. Subba Rao Pavuluri, Chairman & Managing Director of Ananth Technologies, stated, "We are proud to be major contributor in another landmark programme in India's space journey. ISRO's success inspires all of us in the space ecosystem to continue striving for excellence and innovation."

ATL's contributions to SPADEX and PSLV-C60 include:

**Satellite Subsystems:** Delivered critical components, including Rendezvous Processing Units (RPU) and DC-DC converters for SDX01 and SDX02.

**Satellite Integration:** Undertook the Assembly, Integration, and Testing (AIT) of the satellites at its private sector satellite manufacturing facilities.

PSLV-C60 contributions: ATL undertook the Assembly, Integration and testing of various PSLV-C60 subassemblies. ATL supplied 29 key subsystems, including Data Acquisition Units, Transmitters, Power Modules, NAVIC processor and control modules.

Headquartered in Hyderabad, ATL operates advanced facilities in Thiruvananthapuram for the fabrication, assembly, and testing of launch vehicle subsystems and satellites. To date, ATL has contributed to the success of 102 satellites and 82 launch vehicles for India's space programmes.



## DRDO news

### DRDO & IIT Delhi's ABHED Light Weight BPJs



Defence Research & Development Organisation (DRDO), along with researchers of Indian Institute of Technology (IIT) Delhi has developed Light Weight Bullet Proof Jackets named ABHED (Advanced Ballistics for High Energy Defeat). The jackets have been developed at the DRDO Industry Academia

Centre of Excellence (DIA-CoE) at IIT, Delhi. These jackets have been created from polymers and indigenous boron carbide ceramic material.

### DRDO tests Phase-II BMDS

Defence Research & Development Organisation (DRDO) successfully flight tested Phase-II Ballistic



Missile Defence System on 24 July 2024. The target missile was launched from LC-IV Dhamra at 1620 hrs mimicking adversary ballistic missile, which was detected by weapon system radars deployed on land and sea and activated the AD interceptor system. The test has demonstrated Nation's indigenous capability to defend against the ballistic missiles of 5000 km class.

### DRDO tests LRGB 'Gaurav'

Defence Research and Development Organisation (DRDO) carried out a successful maiden flight test of Long Range Glide Bomb (LRGB), Gaurav from a Su-30MKI platform of the Indian Air Force (IAF). Gaurav is an air launched 1,000 kg class glide bomb capable of hitting targets at long distance.



### DRDO sanctions 7 new projects

Defence Research & Development Organisation (DRDO) has awarded seven new projects to industries under the Technology Development Fund scheme for various requirements of the Armed Forces and aerospace and defence sectors. These project sanctions are a testimony to the continuing endeavour of DRDO in nurturing industries, especially MSMEs and start-ups, in defence and aerospace domains. The seven projects include indigenous scenario and sensor simulation toolkit; underwater launched unmanned aerial vehicle; long range remotely operated vehicles for detection and neutralisation; development of ice detection sensor for aircraft; development of radar signal processor with active antenna array simulator; development of Indian regional navigation satellite system based timing acquisition and dissemination system etc.

### DRDO and 30mm HEPF shells

Defence Research and Development Organisation (DRDO) has handed over the production document of 30mm High Explosive Preformed Fragmentation (HEPF) Shell to Director General of Naval Armament Inspection (DGNAI) during a ceremony organised at



Armament Research and Development Establishment (ARDE), Pashan in Pune.

## RudraM-II ASM tested

Defence Research & Development Organisation (DRDO) successfully flight tested the RudraM-II air to surface missile from the Su-30MKI platform of the Indian Air Force (IAF) off the coast of Odisha on 29 May 2024. RudraM-II is an indigenously developed solid propelled air launched missile system meant for air to surface role to neutralise many types of enemy assets.



## ‘Abhyas’ completes developmental trials

Defence Research and Development Organisation (DRDO) successfully completed six consecutive developmental trials of High Speed Expendable Aerial Target (HEAT) ‘Abhyas’ with improved booster configuration from the Integrated Test Range (ITR), Chandipur, Odisha. With this, Abhyas has successfully completed 10 developmental trials demonstrating the reliability of the system.



## DRDO’s MR-MOCR

Defence Research and Development Organisation handed over the Medium Range Microwave Obscurant Chaff Rocket (MR-MOCR) to the Indian Navy at a ceremony. Microwave Obscurant Chaff (MOC), a niche technology developed by DRDO’s Defence Laboratory, Jodhpur, obscures radar signals and creates a microwave shield around platforms and assets, thus reducing radar detection.

## Ramjet fuel tested

DRDO’s DMSRDE made a landmark achievement by developing liquid ramjet fuel for advanced air

breathing engine. This fuel has been tested successfully at Ramjet Test bed at DRDL on 8 May 2024. BPCL and Mineral Oil Corporation Pvt Ltd are industry partners in this development.



## DRDO launches Agni-5 with MIRV’s

Defence Research and Development Organisation (DRDO) conducted first successful flight test of indigenously developed Agni-5 missile with Multiple Independently Targetable Re-Entry Vehicle (MIRV) technology on 11 March 2024. The flight test named Mission Divyastra was carried out from Dr APJ Abdul Kalam Island in Odisha. Various Telemetry and radar stations tracked and monitored multiple re-entry vehicles. The Mission accomplished the designed parameters.



*Video capture of the launch*

## New gen Agni-Prime tested

Strategic Forces Command (SFC), along with Defence Research and Development Organisation (DRDO), conducted the successful flight test of New Generation Ballistic Missile Agni-Prime from Dr APJ Abdul Kalam Island off the coast of Odisha at around 1900 hrs on 3 April 2024.



# MoD: Major acquisitions/ contracts/ inductions for 2024



To provide substantial boost to the Indian defence industry and reduce foreign spending significantly, Defence Acquisition Council (DAC) and Defence Procurement Board (DPB), during 2024, accorded Acceptance of Necessity (AoN) for 40 Capital Acquisition proposals amounting to Rs 4,22,129.55 crore. Out of these, AoNs for Rs 3,97,584.34 Crore (i.e. 94.19 %) have been accorded to be procured from indigenous sources. These include:

DAC, in September 2024, accorded AoN for 10 capital acquisition proposals amounting to Rs 1,44,716 crore. These include procurement of Future Ready Combat Vehicles, Air Defence Fire Control Radars, Dornier-228 aircraft, Next Generation Fast Patrol and Offshore Patrol Vessels.

DAC, in February 2024, accorded approval for AoN for various capital acquisition proposals amounting to Rs 84,560 crore. The proposals include new generation anti-tank mines, Air Defence Tactical Control Radar, Heavy Weight Torpedoes, Medium Range Maritime Reconnaissance & Multi-Mission Maritime Aircraft, Flight Refueller Aircraft and Software Defined Radios.

In July 2024, DAC approved capital acquisition proposals including procurement of Advanced Land Navigation System for Armoured Fighting Vehicles of the Indian Army and 22 Interceptor Boats with latest state-of-art system for the Indian Coast Guard.

DAC, in December 2024, accorded AoN for five capital acquisition proposals amounting to over Rs. 21,772 crore. These include procurement of Water Jet Fast Attack Crafts, Fast Interceptor Craft, Electronic Warfare Suite, Next

Generation Radar Warning Receiver, Advanced Light Helicopters for surveillance in coastal areas.

MoD inked a contract with the US Government for Tri-Service procurement of 31 MQ-9B Sky/Sea Guardian High Altitude Long Endurance Remotely Piloted Aircraft System (RPAS) in October 2024. Another contract was signed with General Atomics Global India Pvt Ltd for Performance Based Logistics for these RPAS through Depot Level Maintenance, Repair & Overhaul in India.

A contract was signed in February 2024 with Advanced Weapon Equipment India Limited for manufacturing and supply of a total of 463 indigenously manufactured 12.7 mm Stabilised Remote Control Guns for the Indian Navy and Indian Coast Guard at a total cost of Rs 1,752.13 crore, with indigenous content of more than 85%.

In March 2024, a contract was signed with Armoured Vehicles Nigam Limited for the procurement of 693 Armament Upgrades of Infantry Combat Vehicle BMP2 to BMP2M. This upgrade includes Night Enablement, Gunner Main Sight, Commander Panoramic Sight and Fire Control System (FCS) with Automatic Target Tracker under Buy (Indian-IDDm) category.

Two contracts were inked with BrahMos Aerospace Private Limited in March 2024 for procurement of BrahMos missiles at a cost of Rs 19,518 crore and procurement of shipborne BrahMos system at a cost of Rs 988 crore.

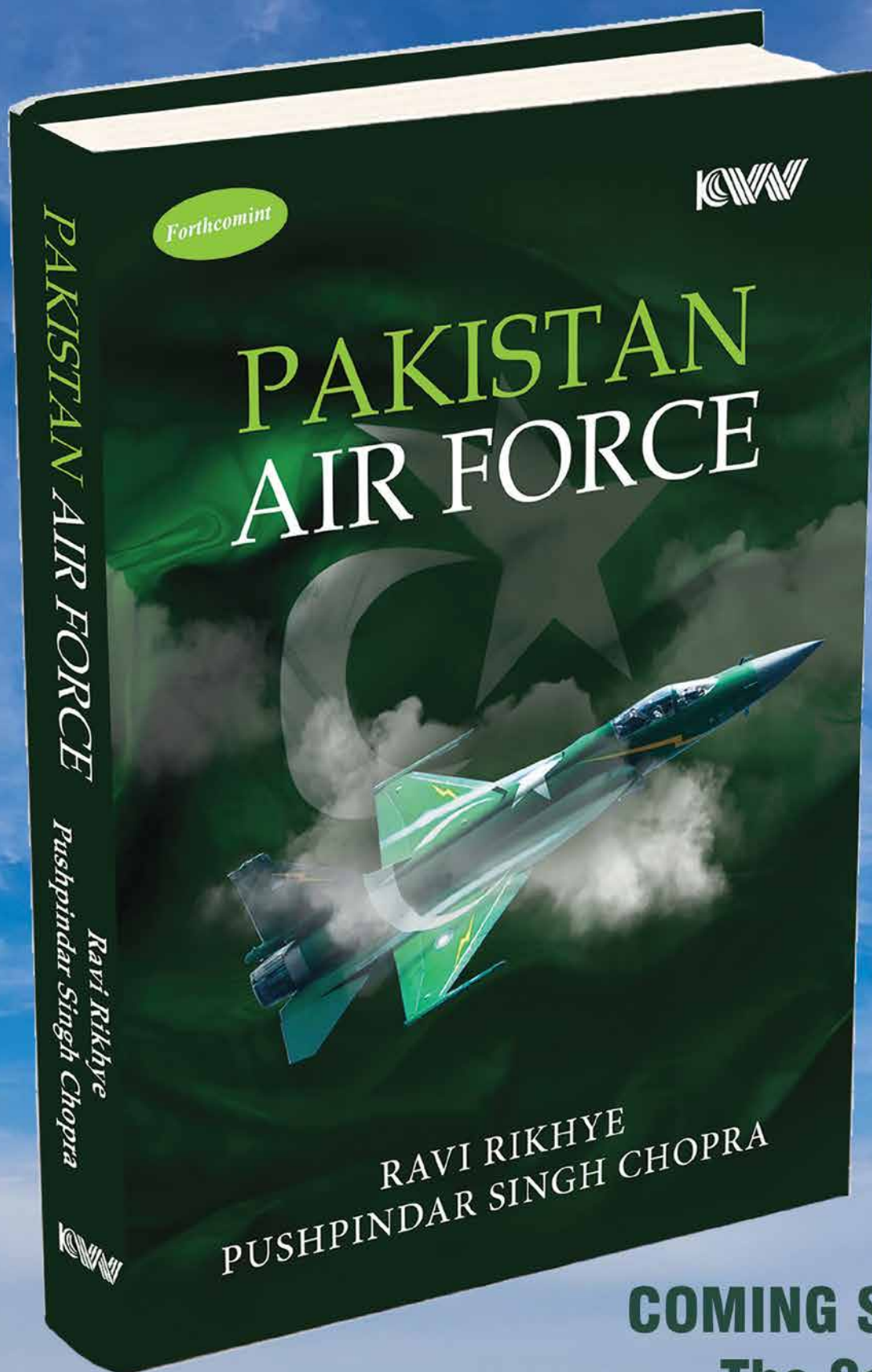
Induction of Drishti-10 MALE RPAs marks an important addition to the Indian Navy's RPA inventory. This technologically advanced aircraft would significantly bolster Indian Navy's surveillance capabilities and augment Maritime Domain Awareness efforts.

Rotary Naval Shipborne Unmanned Aerial Systems have been inducted in the IN in early 2024. Four systems comprising two aerial vehicles have been integrated on Fleet ships and are being effectively utilised for surveillance.

First nine of the 24 MH-60Rs helicopters being procured by IN have been operationalised onboard Fleet ships.







**COMING SOON!**  
**The Sequel.**  
**(In Mar/Apr 2025)**

# Interview with Admiral Dinesh K Tripathi, Chief of the Naval Staff, Indian Navy



**VAYU:** We know the Indian Navy currently leases the Predator UAS and the MQ-9B variant has been ordered. However, could you update us on UAVs manufactured in India like the Drishti/Hermes 900 and other possible domestically produced UAVs that the IN currently uses or plans to operate with?

**CNS:** The indigenous version of the Hermes 900 MALE RPA has been named as Drishti 10. Presently two systems of Drishti 10 have been procured by Indian Navy. Since induction they have been seamlessly integrated into our surveillance set-up. With extended reach, satellite controls and endurance exceeding 12 hours, they have bolstered our persistent surveillance capabilities.

We are making efforts on multiple fronts to ensure indigenous manufacturing and procurement of UAVs. We are supporting the DRDO Technology Demonstrator (TD) project by progressing case for procurement of four Indian Unmanned Aerial System (IUAS). This RPA system is an indigenously developed MALE RPA (TAPAS in pre-operational role) developed by DRDO/ADE.

We are also supporting Indian Start-Ups by progressing Multi Utility Long Endurance (MULE) RPA and Monorotor Drone (iDEX Project). The Rotary wing RPAs are being developed to operate from our ships for undertaking ISR missions and build maritime domain awareness. These platforms will be equipped with EO/IR, COMINT and various other surveillance payloads.

Another iDEX project, High Altitude Pseudo-Satellite (HAPS) Mk.I, which is a first of its kind project, is being progressed by Indian Start-Up. HAPS are completely solar powered unmanned airplanes positioned as pseudo satellites 18–20 km above the Earth in the stratosphere with capability to maintain station for days and emulate satellite performance at a local scale.



Hermes 900 MALE RPA/Drishti 10.



High Altitude Pseudo-Satellite (HAPS) Mk.I

**VAYU:** What is the status on helicopter upgrades for the Ka-28 and 31 AEW and when do you expect all 24 MH-60Rs to be with the IN?

**CNS:** Overhaul and Mid-Life Upgrade (MLU) of IN's Kamov-28 helicopters are in progress. As regards MH-60R, first nine of these helicopters have been inducted and operationalised into IN ships. In fact, these helicopters are now actively participating in various exercises, weapon firings and training of IN personnel. We are on track to receive the remaining helicopters as per envisaged timeline. These multi-role helicopters have significantly enhanced the combat capability of our fleet units.





Ka-28

Helicopter-Maritime (UH-M) as part of our future IN fleets. While the DBMRH proposal is being actively pursued along with other Services, the UH-M has



ALH Mk.III



Ka-31 AEW

already been accorded AoN in March last year. UH-M is being pursued with HAL IAW Chapter IV of DAP 2020, and the first prototype flight is tentatively scheduled in 2025.

**VAYU:** *What sort of close co-operation does the IN have with HAL for the DBMRH?*

**CNS:** A joint case is being progressed by services for D&D of Medium Lift Helicopters for services (IMRH for IAF, DBMRH for IN) by HAL. Since this is the first time that HAL would be undertaking D&D for the Naval Medium Lift category of helicopter in India, IN has positioned a dedicated

team of aircrew and technical officers at HAL to associate from the design phase itself.

This team has been supporting HAL with exposure to Indian Navy operational environment for dovetailing into the D&D process from nascent stage itself. As we reach closer to the fructification of the prototype, an additional team of experimental test pilots, flight test NAOs and flight test engineers will also be positioned at HAL to start with the integrated testing and flight trials towards fulfilling the project in a time bound manner.



MH-60R

**VAYU:** *How many ALHs do you currently operate and how many more are on order? That leads us to ask the status of the LUH for the Indian Navy?*

**CNS:** Indian Navy is operating eight ALH Mk.I and 16 ALH Mk.III. We are progressing cases for Deck-Based Multi-Role Helicopters (DBMRH) and the Utility



IMRH for IAF/DBMRH for IN

## Interview with Mr Manoj Jain, CMD, BEL



**VAYU:** *Can you tell us how BEL is helping the Government realise the dream of an Atmanirbhar Bharat?*

BEL, since inception, has been working towards achieving self-reliance. Responding to the clarion call by the Hon'ble Prime Minister of India, BEL has recalibrated its efforts and is strongly promoting the Government's Make in India initiative by laying strong thrust on in-house R&D and indigenisation, Public-Private Partnerships, Joint Ventures, capacity expansion and modernisation.

The Akash Air Defence Weapon System of BEL is a great success story and shining example of BEL's indigenous design, development and manufacturing drive. The Coastal Surveillance System developed by BEL for the Indian Coast Guard is now being offered to other friendly countries as well as for generating export

business. The Weapon Locating Radar, developed indigenously by BEL and DRDO lab LRDE, and its lighter version designed for surveillance in mountainous and high-altitude terrains are proving to be game-changers for India's military.

To ensure that we stay at the forefront of innovation, we invested 6.24% of our turnover in R&D last year and, as a result, achieved 77% of our turnover in FY 2023-24 from indigenous products. Increasing the level of indigenisation of its products and systems has not only given BEL long-term competitive advantage but also helped in aligning itself with the country's dream of achieving Atmanirbharta (self-reliance) in Defence.

**VAYU:** *How do you see BEL making an impact in the domestic Defence and non-defence markets in coming years and what are your strategies to retain leadership position in these sectors?*

BEL has maintained a decent mix of Defence and Non-Defence business in its overall business portfolio. In the Indian Defence Electronics segment, we continue to hold a significant market share based on our deep understanding of customer's needs and our ability to fulfil it. As the technology landscape continues to evolve in Defence sector, our concerted efforts in building state-of-the-art, innovative products and solutions have helped us in being the preferred partner of our Armed Forces.

BEL is actively participating in the MoD's Make-I, Make-II and Make-III projects involving indigenous solution development with emphasis on Sub-Systems, Systems and Services for which capabilities and





competencies already exist. Further, BEL is also actively investing to develop new capabilities as needed. Opportunities are being explored to build long-term relationships with defence industry participants.

Diversification across products, segments, customers, industries and geographies remains an important focus area to unlock new opportunities and scale growth. This includes growing the Non-Defence business where we see significant prospects, especially in metro, civil aviation and cyber security areas. We will continue to build on our existing competencies and diversify to newer areas. Additionally, we are pursuing opportunities to expand our customer base in the existing and new geographies.

Though competition continues to intensify in our major business segments, our laser sharp focus in delivering our brand promise of Quality, Technology & Innovation to our customers gives us a distinct competitive advantage. This will continue to remain our guiding business mantra for retaining leadership in our core business segments.

**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. Headed into FY 2024–25, we expect order acquisition in the range of Rs. 25,000 Crores. The company's order book position as on January 1, 2025, stands at around Rs. 71,000 Crore, giving it stable revenue visibility. While we participate in new orders, we will be sharply focussed on the timely execution of the existing order book. Our near-term aim is to get an entry into the Maharatna club of PSUs. Towards this, we are targeting a healthy revenue growth of double digits driven by the expansion of both Defence and Non-Defence businesses.

BEL won many noteworthy awards and recognitions for its multidimensional excellence, including the prestigious 'CII EXIM Bank Award for Business Excellence (2023)' for Hyderabad Unit, 'Karnataka State Export Excellence Award', Economic Times 'Iconic Brand of the Year Award – 2023', 'Employee

Excellence Award' from Times Group, Institution of Engineers (India) 'Industry Excellence (Gold) Award for Business Excellence', 'Project of the Year – Large Category (Runner Up) Award' from Project Management Institute, Indian Chamber of Commerce 'PSE Excellence Awards', Governance Now PSU Awards, National Export Excellence Award, etc.

**VAYU:** *What is your vision for taking BEL on a fast track growth path in coming years?*

It's well acknowledged that fast track growth is basically the outcome of super synchronised functioning of various key business functions including R&D, Marketing, Operations, HR, Finance, etc. Our concerted focus has been towards streamlining each of these business functions to set a strong foundation for BEL to deliver fast track growth. Alongside our existing business segments, various high growth areas (like Arms & Ammunitions, AI, Cyber Security, Unmanned Systems, Rail & Metro) have been identified and a resilient business model is being worked upon to deliver sustained growth in these emerging segments.

Innovation has been the cornerstone of our success and our customers can rest assured that BEL will continue to develop innovative and quality products for them through collaborations with DRDO labs, research & premier academic institutions, and niche technology players. We will continue to build on our existing competencies and diversify into newer areas. Opportunities abound, we also remain watchful of the challenges brought by geopolitical situations, emerging technologies, regulatory changes and evolving customer expectations. We will remain agile to effectively navigate them and ensure steady growth path.

Roadmaps have been created for the development of future products and technologies, creation of IPRs and acquisition of key technologies. This will enable us to stay at the cutting-edge of technology and meet our customer's evolving requirements with cost-effective and innovative solutions.





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 SOFs. 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



Indian Air Force Special Operations Force (SOF) Badge

MARCOs Badge

SFF Badge

SGs Badge

(Worn by both the SGs)

Specialized roles, these organizations are under the umbrella of the Indian Air Force and have a wide spectrum of roles which define their nature and function. The Indian SFs and conduct only a certain type of missions.

1. PARA SF 2. GARUD SF 3. MARCOS. 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):



Indian Air Force Special Operations Force (SOF) Badge



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.

# Israel Aerospace Industries launches HELA Systems

Israel Aerospace Industries opened HELA Systems, its latest cutting edge facility in Hyderabad on 28 November 2024. This strategic hub marks an additional significant milestone in IAI's commitment to reinforcing India's defence infrastructure under its Make in India initiative. The new subsidiary further demonstrates IAI's dedication to fostering local capabilities and advancing self-reliance within the critical domain of radar technologies.

Founded in 2004, HELA Systems has established itself as a premier provider of high end systems. Over the past two decades, the company has delivered comprehensive support for radar systems, including top tier field services and advanced D-level repair capabilities for various radar units.

The Hyderabad facility, staffed by over 45 highly trained professionals and supported by more than 80 field engineers, specialises in maintaining and repairing radar modules and sub-systems, such as power systems, cooling systems, IT integration, radar testing and calibration. The facility's staff are Indian nationals, showcasing HELA's commitment to nurturing local talent and enhancing their expertise. The facility will serve over 100 local talents in the radio frequency and microelectronics areas, supporting India's TRI services



**HELA Opening**  
(Photo credit - Israel Aerospace Industries)

most advanced radar system on land, in the air and at sea.

Dror Bar, CEO of ELTA Systems, Vice President of IAI: "As HELA Systems continues to expand its footprint in India, this new Hyderabad facility exemplifies our commitment to providing exceptional in-country support for advanced radar systems across India's defence sectors. By enabling full product support, maintenance, and repair services locally, HELA offers unmatched efficiency in turnaround time, quality, and cost-effectiveness directly in Indian rupees. Our skilled teams and sophisticated control systems ensure rapid response and top-tier service for the Indian defence forces, aligning with India's vision of self-reliance in critical defence technology."

Yaniv Mizrahi, CEO of HELA Systems: "This facility represents a major milestone in India's journey towards self-reliance in defence technology. With this launch, we demonstrate our dedication to supporting India's strategic needs through world class radar solutions, empowering local professionals and fostering innovation."

**Text and photos: IAI**



(Photo credit - Israel Aerospace Industries)



# Embraer and Mahindra MoU on C-390 Millennium MTA in India



aviation and executive aviation. In August 2023, Embraer held a C-390 Millennium Day in New Delhi, India to deepen engagement with the local aerospace industry which was very well attended by the Indian ecosystem.

The C-390 Millennium multi-mission tactical transport aircraft offers unmatched mobility, combining high productivity and operating flexibility with low operating costs, which is an unbeatable combination.

Since entering operation with the Brazilian Air Force in 2019 and most recently with the Portuguese Air Force in 2023, the C-390 has proven its capacity, reliability and performance. The current fleet of aircraft in operation has accumulated more than 11,500 flight hours, with operational availability of around 80% and mission completion rates above 99%, demonstrating exceptional productivity in the category. The C-390 Millennium attained its Full Operational Capability status by the Brazilian Air Force in 2023, which endorses the platform's capability to carry out all missions it was designed to undertake.

The collaboration around the C-390 Millennium will bring the latest technology in terms of aerospace and military transport aircraft to India. Both Embraer and Mahindra will explore the potential to turn India into a future hub of the C-390 aircraft for the region.

**Text: Embraer**

**All photos: Vayu Aerospace Review**

**E**mbraer Defense & Security and Mahindra have announced that they had signed a Memorandum of Understanding (MoU) with the objective of jointly fulfilling the acquisition of the C-390 Millennium multi-mission aircraft by the Indian Air Force in its upcoming Medium Transport Aircraft (MTA) procurement project. The MoU was signed at the Embassy of Brazil in New Delhi.

"We are honoured to announce this MoU with Mahindra. India has a diverse and strong defence and aerospace industry and we have chosen Mahindra as our partner to jointly pursue the MTA programme," stated Mr Bosco da Costa Junior, President & CEO, Embraer Defense & Security. "India is a key market for Embraer and we fully support India's ambitions for 'Atmanirbhar Bharat'. We see this partnership as a symbol of strengthening relations between Brazil and India and a way to foster Global South cooperation."

Embraer and Mahindra will engage with the Indian Air Force to identify the next steps of the MTA programme, as well as contact the local aerospace industry in India to start developing the industrialisation plan for the project.

The MoU was signed by Embraer Defense & Security and Mahindra Defence Systems, a 100% owned subsidiary of Mahindra, that focuses on armoured transport and security related products including electronics.

Embraer has an established presence in India across the fields of defence, commercial



## Tata Elxsi and NAL in partnership

**T**ata Elxsi and CSIR–National Aerospace Laboratories (CSIR–NAL) have signed a Memorandum of Understanding (MoU) to establish a Strategic Partnership for Advanced Air Mobility. This collaboration is focused on driving innovation in emerging areas such as Unmanned Aerial Vehicles (UAVs), Urban Air Mobility (UAM), and electric vertical take-off and landing (eVTOL) aircraft. The partnership combines NAL's expertise and Tata Elxsi's

technological capabilities in electrification, AI/ML, sensor fusion, and certification processes to support global and Indian markets.



## TASL Tactical Access Switch for Indian Army

**T**ata Advanced Systems Limited (TASL) announced the successful delivery of the first batch of 40 Tactical Access Switch (TAS) systems to the Indian Army. This significant milestone is part of a larger contract for 100 systems, aimed at enhancing the Army's communication network and modernising its defence capabilities under the Buy (India) initiative.



## JSW Defence and Shield AI in partnership



**J**SW Defence Pvt Ltd, part of the \$24 billion JSW Group and Shield AI, Inc, a leading US defence technology company, announced a strategic partnership to indigenise and manufacture Shield AI's "V-BAT," a Group 3 Unmanned Aerial System (UAS). The V-BAT is a fixed wing, vertical take-off and landing (VTOL), long endurance intelligence, surveillance, reconnaissance (ISR) platform.



# MKU Ltd: Pioneering excellence in defence manufacturing and global reach-Part 1



**E**merging as M Kumar Udyog in 1985, it did not take long for the company to establish itself in the defence manufacturing industry. By 1989, it was already supplying critical protection systems, such as fibreglass helmets, to the Indian Army. In 2003, MKU secured its first international order for body armour from the Spanish Army. By 2005, the company rebranded as MKU Ltd and has since catered to nearly 250 clients across more than 100 nations. MKU also operates two international production facilities, one in Germany and another in the UAE, and collaborates with approximately 3000 channel partners to ensure smooth operations globally.

Vayu visited the MKU key facilities based in Kanpur, which serve dedicated roles in production, finishing and testing of MKU products. We were introduced with the complex machinery and meticulous human oversight. MKU's products are not only cost-effective compared to leading industry entities but also meet high-quality standards, evidenced by international certifications like NATO AQAP and ISO 9001:2015. The company's Research & Development (R&D) division focuses on testing new designs and enhancing existing products. We observed several products in the final stages of testing, like Aviation Night Vision Goggles (ANVGs) for helicopter pilots and SCH-111T helmets for Sikh soldiers.



MKU product range is divided into two main categories: KAVRO for self-protection and NETRO for Electro-Optical (Optronics) systems, with both categories further sub-divided to serve individual and platform demands separately. There exists more than 25+ products in the Netro (optronics) segment itself and for the other segment i.e Kavro (self-protection), they have 4 different verticals (Body armour, Armour insert, Ballistic shield, Ballistic helmet).

## KAVRO Armour solutions

The KAVRO armour lineup for individual and vehicle self-protection is a primary highlight of the MKU portfolio. Firstly, the individual body vests come in various ranges, like soft body armour, hard body armour, tactical vests and more. The plate carriers, are made compatible to offer both protection and comfort to the user, dealing with threats like direct bullet hits, shrapnel or trauma. The Strike Face armour plates are designed to withstand Level III to Level IV protection, which covers pistols, rifles and most of the small arms (depending on the level).

Speaking of vehicle protection, MKU Ltd offers high-grade protection provisions for both aerial and ground





acclaimed due to its success in both domestic and foreign markets, empowering and strengthening the personnel belonging to military and law enforcement. The ballistic helmet lineup has are Advanced Combat Helmet (ACH), High Cut Helmet (HCH), Mid Cut Helmet (MCH) and Personnel Armour System for Ground Troop (PASGT). The helmets also come with an optional add-on kit called Modular Accessory Connector System (MACS) that is a patented product of the firm itself. It offers seamless, on-the-go, compatibility with nearly all kinds of head mounted sensors and modern combat equipment like communication systems, night vision goggles, cameras, torches, etc.

## MKU Sikh helmets: Modern protection for modern warriors

From the outset, Sikh warriors have worn their customary turbans on the frontlines, while their comrades had modern protective headgear. Now, the SCH 111T is the world's first advanced combat helmet designed specifically for Sikh soldiers. The Kavro SCH 111T accommodates the traditional 'cloth patka' worn by Sikh soldiers, providing comprehensive ballistic protection, a lightweight design, and a 40% reduction in behind-helmet blunt trauma. It supports attachments like night vision goggles, flashlights, and cameras, ensuring no limitations during operations.

vehicles belonging to military and law enforcement units. Their modular armour solutions use cutting-edge materials like composite laminates, advanced ceramics, High-Performance PolyEthylene (HPPE), and aramid fibres. These materials provide high protection levels while keeping the vehicles lightweight and manoeuvrable. The add-on armour kits are easy to install and maintain, allowing quick field upgrades.

MKU also provides mine protection and IED defence systems, including blast-resistant seats, floor protection, and underbelly armour made from high energy absorbing materials. These systems absorb and dissipate explosive energy, reducing the impact on vehicles and occupants. By advancing their technology and materials, MKU ensures top tier vehicle protection against evolving threats.

## Head protection

The ballistic helmet range of MKU is globally

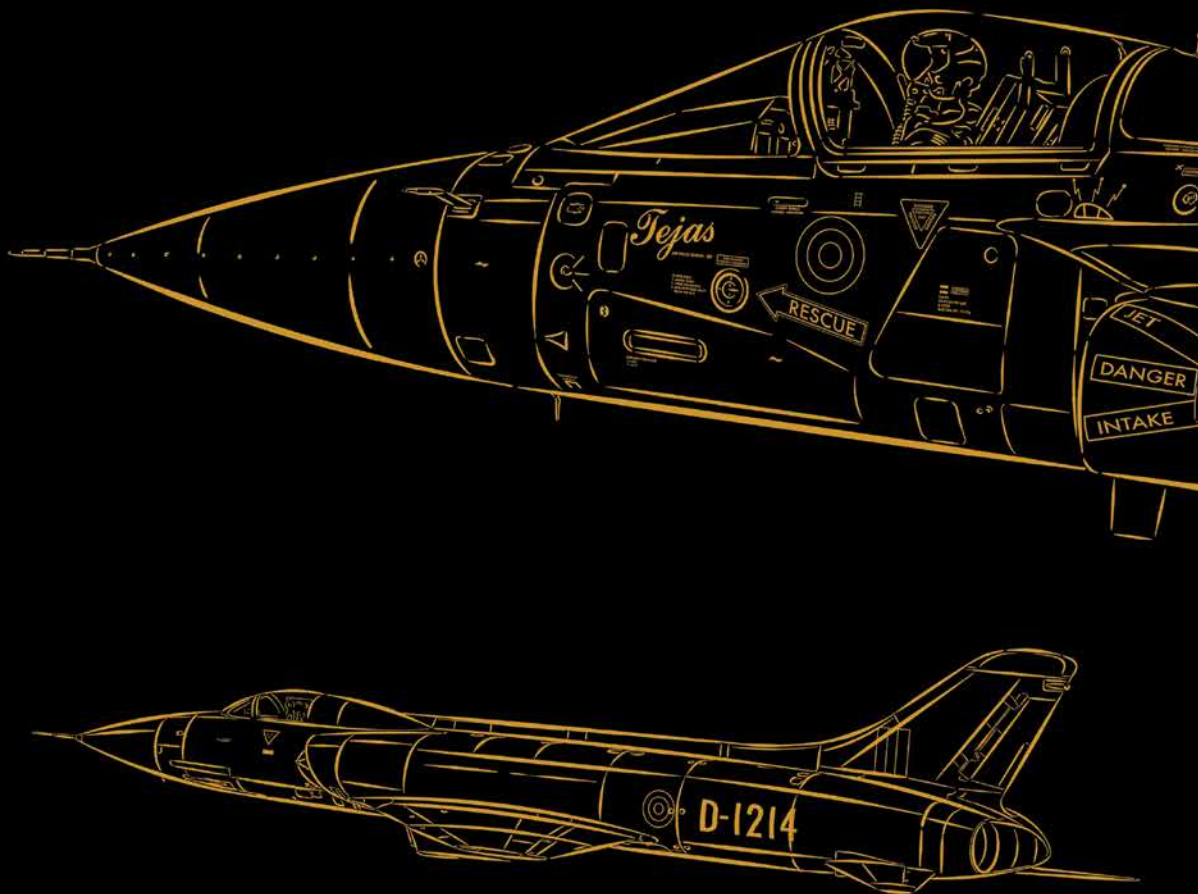


Kavro SCH 111T (Image: MKU)



# VAYU

## *Aerospace & Defence Review*



**THE GOLDEN ANNIVERSARY ISSUE  
50 YEARS: OCT 1974–OCT 2024**

To buy your copy, do email us at [vayuaerospace@lycos.com](mailto:vayuaerospace@lycos.com) and we will send you the payment details. Just to let everyone know, the cost inclusive of postage is Rs. 1500 but after our introductory discount, the total price will be Rs. 1000. Cheers!

# Samtel's indigenous defence avionics and military displays



**S**amtel Avionics (SA), a key player in India's defence technology sector and part of the 50 year old Samtel Group, is showcasing its indigenous manufacturing capabilities at Aero India 2025. With a strong legacy of supporting India's self-reliance goals, Samtel Avionics has been at the forefront of developing high tech rugged military systems, aligning with the Government of India's Atmanirbhar Bharat and Make in India initiatives.

For over 15 years, Samtel Avionics has played a critical role in the evolution of India's defence avionics landscape. The company has collaborated extensively with Hindustan Aeronautics Limited (HAL), Bharat Electronics Limited (BEL), Indian Air Force (IAF), and Defence Research and Development Organisation (DRDO) to develop indigenous displays and military electronics. Samtel's proprietary Ruggedisation technology, developed under the guidance of DRDO, has enabled the design, development, and manufacturing of advanced multifunction displays for platforms such as the Su-30MKI, Light Combat Helicopter (LCH), Advanced Light Helicopter (ALH) and HTT-40 trainer aircraft.

Further strengthening India's defence manufacturing ecosystem, Samtel Avionics, through its joint venture with HAL, has successfully contributed to the indigenisation journey of the Indian Armed Forces.

Products manufactured by the JV are already operational and proving their capabilities in active service.

Simultaneously, the company has been forging strong partnerships with global aerospace and defence companies to establish India as a leader in high-tech design and manufacturing under the Make in India vision.

"At AeroIndia 2025, we look forward to showcasing Samtel Avionics' latest advancements in defence avionics and military displays. Our unwavering commitment to indigenous innovation has positioned us as a trusted partner for the Indian Armed Forces and global OEMs. We continue to push the boundaries of technology, reinforcing India's role

as a global leader in high-tech defence manufacturing," stated Puneet Kaura, Managing Director & CEO, Samtel Avionics.

At its Chalet 43B, Samtel is presenting its latest product innovations and demonstrate how its cutting edge solutions contribute to India's strategic autonomy in aerospace and defence technologies. The company remains committed to fostering global collaborations that place India on the world's high-tech manufacturing map.

Samtel Avionics, a part of the Samtel Group, is a leading Indian defence manufacturing company specialising in high-end avionics and rugged military electronics for aerial and ground-based platforms.





# Tata Boeing Aerospace delivers 300 AH-64 Apache Fuselages, Manufactured in India

**T**ata Boeing Aerospace Limited (TBAL) has delivered the 300th fuselage for the AH-64 Apache attack helicopter from its state-of-the-art facility in Hyderabad. These fuselages are manufactured for customers around the world, including the US Army, including the six on order with the Indian Army. The Indian Air Force operates a fleet of 22 AH-64E Apache attack helicopters. This milestone reflects TBAL's continuous dedication to bolstering India's defence capabilities and advancing the nation's indigenous manufacturing prowess.

The joint venture between Boeing and Tata Advanced Systems Limited (TASL) employs over 900 engineers and technicians, leveraging cutting-edge robotics, automation, and advanced aerospace concepts in its manufacturing processes.

TBAL's 14,000 sqm facility serves as a global sole source supplier for Apache fuselages, with over 90 percent of the parts used in the Apache aerostructure assemblies manufactured in India through more than 100 Micro, Small, and Medium Enterprises (MSME) suppliers.



## Aero A2Z for manifesting 'Make in India' radar systems

**A**ero A2Z Services Private Limited, an Indian aerospace and defence company, has introduced a range of tactical and medium range radar systems at Aero India 2025. These software based radars are battle proven flexible, developed in collaboration with DRS RADA Technologies.

The radar applications introduced include very short to medium range detect and track systems, Counter-Unmanned Aerial Systems (C-UAS), Fire Control (FC) systems, Counter Rocket, Artillery & Mortar (C-RAM), including Automatic Sense & Warn (AS&W), Active Protection Systems (APS) and Force Protection.

Vikas Batra, Director, Aero A2Z, while sharing his vision stated, "Bringing in the best of global expertise from giants like DRS Rada who have established their efficacy in Israel and US markets, Aero A2Z is committed to local manufacturing of advanced solution that address modern warfare and new age security threats. Over the past four years, we have a robust supply chain and are now setting up a state-of-the-art facility near Gurugram that will be operational within the next few months and will cater to the burgeoning demand for our valiant services."



*Vikas Batra, Director (on the right) chats with Vayush Rishav Gupta*

## HAL's upgraded Hindustan Jet Trainer (HJT) 36 unveiled as 'Yashas'

The flagship jet training aircraft of HAL, Hindustan Jet Trainer, HJT-36, is now renamed as 'Yashas' after extensive modifications to resolve departure characteristics and spin resistance throughout the aircraft envelope. Mr. Sanjeev Kumar, Secretary (DP) unveiled the new name in the presence of Dr D K Sunil, CMD, HAL and senior officers at the ongoing Aero India 2025 on 10 February 2025.

For induction into service, the aircraft was recently upgraded with state-of-the-art avionics and an ultra-modern cockpit. These will enhance training effectiveness and operational efficiency, whilst providing weight reduction and overcoming obsolescence of imported equipment with Indian LRUs.

Yashas is capable of Stage II pilot training, counter insurgency and counter surface force operations, armament training, aerobatics etc. It

is powered by a FADEC controlled AL55I Jet engine, providing best in class thrust to weight ratio, optimised thrust management and reliability. Stepped up Rear cockpit with Drooped Nose provides excellent all-around Vision and Enhanced situational awareness with State-of-the-Art Glass Cockpit with MFDs and HUD. The capabilities of HJT-36 are stall and spin, aerobatics, armament carriage up to 1000kg, single point ground refuelling and defuelling.



## Rolls-Royce intends to double its sourcing in India by 2030

Rolls-Royce is reinforcing its commitment to India, signalling its intent to double its supply chain sourcing from the country over the next five years. As a strong proponent of the 'Make in India' programme, Rolls-Royce sources a wide range of high-precision parts and engine components for its Civil Aerospace, Defence and Power Systems businesses from numerous Indian partners, and has long-term plans to grow India's participation in its global supply chain.

With plans to grow its presence and participation in India's defence sector, Rolls-Royce will now seek to increase its sourcing of complex parts for advanced aerospace engines, naval propulsion systems, diesel engines and gas turbine engines. This strategic move also aligns with Indian Defence Minister Mr. Rajnath Singh's call for greater integration of Indian companies into global supply chains (during his recent visit to the

United Kingdom).

Following a legacy of successful technology transfer for licensed production of various engines in the defence domain, Rolls-Royce has established an ecosystem of strategic partnerships, skilled talent, engineering and digital capabilities, service delivery, supply chain and manufacturing in India.

The company has strong joint ventures with Hindustan Aeronautics Limited and Force Motors, as well as long-standing relationships with Tata, Bharat Forge, Godrej & Boyce and others, for manufacturing and sourcing complex parts for its businesses.

More than 2000 high-skilled engineers work in-house and through outsourced agreements, contributing to global development programmes. Today, Rolls-Royce is well-positioned to pursue growth opportunities across all the sectors in which it operates.

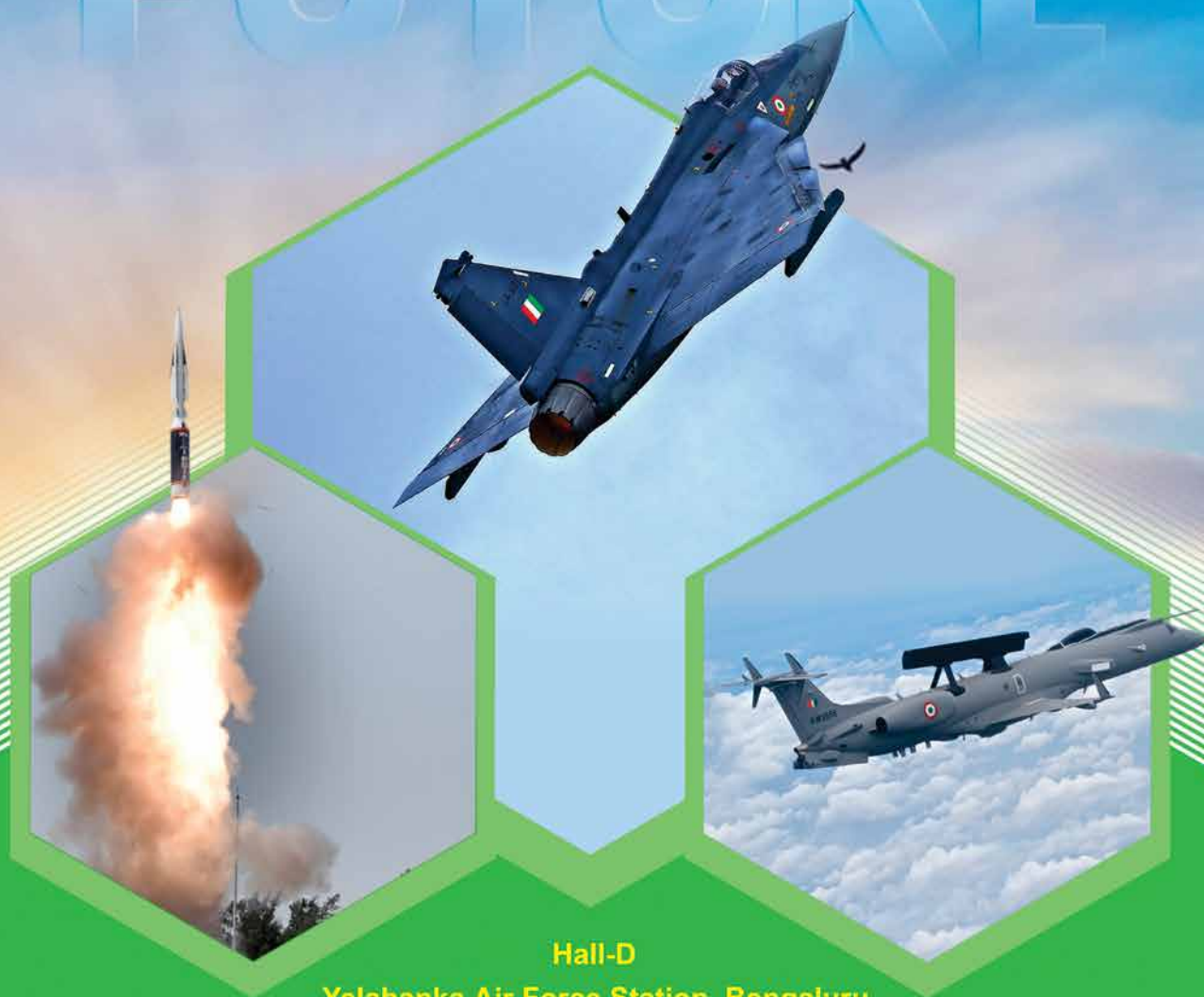




# DRDO

Innovating Technologies for the

# FUTURE



Hall-D

Yelahanka, Air Force Station, Bengaluru

**10 - 14 Feb 2025**



# NewSpace doing a stellar job as always!





## RTX (Collins Aerospace, Pratt & Whitney and Raytheon) at Aero India 2025.



**R**TX's three business units – Collins Aerospace, Pratt & Whitney and Raytheon – have partnered with India for over seven decades across commercial, defence, regional, and general aviation sectors. With nearly 7,000 employees and one of the largest sourcing of services and components from India, RTX is one of the largest multinational aerospace and defense OEMs in India.

RTX has produced a wide range of propulsion systems and products for global warfighters and aircraft programmes for decades, including systems for the latest 6th Gen aircraft in development. RTX products and solutions are found on the Indian Air Force, Indian Navy and Indian Army's most modern platforms.

As India embarks on its next phase of modernisation and indigenisation, RTX's advanced products and solutions will provide the technological edge and mission-readiness required for the Indian Armed Forces' various next-generation programmes, such as the Advanced Medium Combat Aircraft (AMCA), the Indian Multi Role Helicopter (IMRH) and the Medium Transport Aircraft (MTA). These include propulsion (with the F100 and V2500), power systems, avionics, aerostructures, systems, and more – across Collins Aerospace, Pratt & Whitney and Raytheon.

**Good  
to  
see  
Leonardo  
here!**



## EDITORIAL PANEL

### EDITOR

Vikramjit Singh Chopra

### EDITORIAL ADVISOR

Admiral Arun Prakash

### FOUNDER EDITOR

Pushpinder Singh

### EDITORIAL PANEL

Air Marshal Brijesh Jayal

Dr. Manoj Joshi

Lt. Gen. Kamal Davar

Air Marshal M. Matheswaran

Nitin Konde

Sayan Majumdar

Richard Gardner (UK)

Reuben Johnson (USA)

Bertrand de Boisset (France)

Dr Nick Evesenkin (Russia)

Tamir Eshel (Israel)

### ADVERTISING & MARKETING MANAGER

Husnal Kaur

### BUSINESS DEVELOPMENT MANAGER

Premjit Singh



*The Indian Army Chief passes by our hall in a fancy retro style buggy here at Yelahanka. We want!!*

**Love is in the air  
and so is the flying**



*Love is truly in the air at Aero India'25. For once, the weather is rather pleasant, food stalls are located in convenient spots and we're lovin' it!*

**Virtual Simulator of  
the UAC Su-57E**



*Vayu's good friend Maxim Syssoev of UAC (in a cap): One of the funniest, good natured and nicest people we know!*

## PUBLISHED BY

Vayu Aerospace Pvt. Ltd.

E-52, Sujan Singh Park,

New Delhi 110 003 India

Tel: +91 11 24617234

Fax: +91 11 24628615

e-mail: [vayuaerospace@lycos.com](mailto:vayuaerospace@lycos.com)

e-mail: [vayu@vayuaerospace.in](mailto:vayu@vayuaerospace.in)

Printed by Advantage Offset, New Delhi

The opinions expressed in the articles published in the Vayu Aerospace & Defence Review do not necessarily reflect the views or policies of the Publishers.

Follow us on **Twitter**  **@ReviewVayu**

**Visit us at: [www.vayuaerospace.in](http://www.vayuaerospace.in)**



# Reaching for the skies together



We remain dedicated to the inspiring progress of India and proudly support the nation's focus toward becoming Aatmanirbhar in aerospace and defence.

Join us and help shape aerospace innovation:  
[boeing.com/indiacareers](https://boeing.com/indiacareers)



You bring the courage.  
We bring the power.



GE Aerospace

Proud to partner with India  
today and into the future.