

AERO INDIA 2025: INDIA'S AEROSPACE PROWESS ABOUT TO TOUCH THE SKY

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The 15th edition of Aero India, the largest and most prestigious air show in Asia, was organised at Yelahanka Air Force Station, Bengaluru, India, from February 10-14, 2025. The theme of the event was “The Runway to a Billion Opportunities” and it was a big hit that further established India’s leadership in the aerospace and defence sectors at the international level. The event gave a platform for the global participation of India’s developing aerospace and defence capacity.¹

Aero India 2025 commenced with a thrilling aerial display by the Indian Air Force (IAF) at Yelahanka Air Force Station. Defence Minister Rajnath Singh inaugurated the 15th edition of Aero India and explicitly highlighted the government’s vision: “We have made a firm resolve to manufacture the fifth-generation fighter aircraft within the country.” The Tejas aircraft is an example of how Indian

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1. Ministry of Defence, Government of India, “2025, Aero India: A Road to Billion Opportunities”, Aero India 2024, <https://www.aeroindia.gov.in/>. Accessed on February 18, 2025.

scientists and engineers can reach for the sky with the right policy and backing, and India's engineering skills.²

THE SIGNIFICANCE OF AERO INDIA 2025

Aero India has grown into an international spectacle over the years. It is not merely a venue for showcasing the latest aircraft technology, but, more importantly, a platform for domestic and global partnerships for strategic objectives. It is an event which brings together executives from the civil and military aviation fields across the world, as well as government officials, and technology and defence strategy professionals. It is an indication of India's commitment to the development of aerospace and defence related capabilities.

These high-level engagements on policy, defence collaboration and aerospace's future vision have been a part of Aero India as a forum. The event has been promoted through strategic interactions and for its importance in policy and defence collaboration. International partnerships are significantly enhanced by the involvement of global aerospace companies and defence organisations at Aero India.

A Platform for Strategic Partnerships and Innovation: One of the defining features of Aero India is its ability to foster technological collaboration and innovation. The event has registered funding commitments of more than Rs 200 crore and is expected to sign about 250 Memorandums of Understanding (MoUs), which will boost the growth of the Indian defence ecosystem. The Indian defence industrial base would be further strengthened with investment in excess of Rs 75,000 crore, according to the organisers.³ The unparalleled response to the event is summarised in Table 1.

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2. Manu Pubby, "Firmly Resolved to make 5th Gen Fighter in India: Rajnath Singh", *The Economics Times*, February 12, 2025, <https://economictimes.indiatimes.com/news/defence/firmly-resolved-to-make-5th-gen-fighter-in-india-rajnath-singh/articleshow/118096295.cms>. Accessed on February 18, 2025.
 3. Kushagra Agarwal, "Aero India 2025 to Take Centre-Stage In Bengaluru", *Economic Diplomacy.in*, December 3, 2024, <https://www.economicdiplomacy.in/post/aero-india-2025-to-take-center-stage-in-bengaluru-global-aerospace-and-defense-excellence-on-displ>. Accessed on February 18, 2025.

Table 1: Unprecedented Response

Factors	Aero India 2023	Aero India 2025
Exhibitors	809	931 (Indians: 782)
Area of Event	35,000 sq m	42,000 sq m
Static Display (Aircraft)	23	34
Countries MoD Reps	27	80
Delegates/Countries	NA / 98	500 /100
MoUs/Partnerships Finalised	250+	201 /266
Visitors	7+ Lakhs	8+ Lakhs

Source: Press Information Bureau Delhi, February 8, 2025. "Curtains Down on Aero India 2025 with Dazzling Display by Aircraft and Helicopters", *The Hindu*, February 14, 2025.

DIPLOMATIC HANDSHAKES FOR DEFENCE AND AEROSPACE COLLABORATION

Raksha Mantri (RM) Rajnath Singh and Chief of Defence Staff (CDS) General Anil Chauhan held several high-level engagements at Aero India 2025 to explore productive strategic defence partnerships. Notably, RM Rajnath Singh released a landmark document on "Network-Centric Multi-Domain Operations" in the presence of key military leaders. This is a pivotal document, created by the Headquarters Integrated Defence Staff (HQ IDS) that throws light on the strategy of preparing the Indian armed forces for future warfare, i.e. in an increasingly data-centric environment and amidst rapidly evolving military technologies, to achieve decision superiority.⁴

A number of key interactions by the CDS comprised meetings with Commander Pacific Air Force (USA) General Kevin B Schneider, Minister of State (UK) Lord Vernon Coaker, and Air Vice Marshal Suraya Marshall (UK), Lieutenant General Ibrahim Nasser Al Alawi (UAE), Major General Duong Van Yen (Vietnam), Major General Ro Jone Kalouniwai Logavatu (Fiji), General Paul Velentino Phiri (Malawi), Lieutenant General Salum Haji Othman (Tanzania) and

4. Ministry of Defence, Government of India, "CDS Gen Anil Chauhan Concludes a Significant Visit to Aero India 2025, Boosting India's Strategic Defence Partnerships and Capability Development", Press Information Bureau, Delhi, February 15, 2025, <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2103572>. Accessed on February 15, 2025.

Vice Admiral Exon Oswaldo Ascencio Albeno (El Salvador). The discussions included greater military cooperation, capacity building and strategic partnerships in the defence sector.⁵

The number of impressive flying displays of military aircraft from foreign friendly countries, including the F-35 from the USA, MRTT from Germany, A400 from Spain, Su-57 from Russia and H125 from France, were the attraction for all. This underscored India's intent to promote international defence collaboration and build up its own capabilities.⁶

MANTHAN 2025

Manthan 2025 was held as the annual defence innovation event at Aero India 2025 by the Defence Research and Development Organisation (DRDO), on February 12, 2025. It was organised by Innovations for Defence Excellence (iDEX) which is funded and managed by the Defence Innovation Organisation (DIO) under the aegis of the Department of Defence Production; the event provided a platform to all the stakeholders of the defence innovation ecosystem such as innovators, industry leaders, academia, investors, analysts and senior members of the government.⁷

This was part of the event where Secretary (Defence Production), Shri Sanjeev Kumar chaired a roundtable conference. It stressed on the adoption of futuristic technologies to increase the combat readiness of India to secure a strategic advantage in defence. Discussing the recent defence strategy, he said integrating the latest technological innovations would enable the country to modernise its armed forces, enhance its capabilities to fight future conflicts and keep up with potential adversaries' technological edge.

Manthan 2025 was a testament to the scale and speed of iDEX and the incredible pace at which so much has been, and is being, created in the defence innovation space, and the importance and role that start-ups are playing in transforming the face of India's defence.

5. Ibid.

6. Ibid.

7. Ministry of Defence, Government of India, "Manthan, the Flagship Annual Defence Innovation Event, held at Aero India 2025", Press Information Bureau, Delhi, February 12, 2025, <https://pib.gov.in/PressReleasePage.aspx?PRID=2102448>. Accessed on February 15, 2025.

It has aided the Ministry of Defence in driving the mission of self-reliance for the nation towards *Viksit Bharat* by 2047.⁸

EVENT HIGHLIGHTS

This edition of the air show saw many firsts. It included the participation of the Russian Su-57, one of the world's most advanced Fifth-Generation Fighter Aircraft (FGFA); and the unveiling of a full-scale model of India's first 5.5th generation stealth aircraft, the Advanced Medium Combat Aircraft, popularly called the "AMCA", equipped with cutting-edge features.

At the Aero India 2025 in Bengaluru, Hindustan Aeronautics Limited's (HAL's) advanced unmanned wingman drone called the CATS (Combat Air Teaming System) Warrior stole the limelight. The CATS Warrior, unveiled as a full-scale prototype, is a next generation Unmanned Combat Aerial Vehicle (UCAV) to support Indian fighter pilots. The CATS involves a group of manned and unmanned aircraft linked together with sensors, mission computers, satellite links and ground control to share data as well as communication with each other in real-time, operating together as one combat group, just like aircraft having teamed up for a mission.⁹

A major highlight was the historic participation of the US F-35 and Russia's Su-57 fighter jets, that were seen together in an international air show, marking the first time both advanced fifth-generation aircraft shared a common tarmac and strip for operations anywhere in the world.

Record-Breaking Participation and Attendance: The air show witnessed remarkable participation, i.e., 931 exhibitors (amongst whom were 782 Indian exhibitors), companies, investors, start-ups, and Micro, Small and Medium Enterprises (MSMEs) presenting their capabilities. More than 53 aircraft were on static display, which showed the extent to which India's air power is expanding rapidly. The event also drew a record-high attendance of 7+ lakh visitors, many more than the previous editions. Over 500 delegates from 84

8. Ibid.

9. Ravi Shankar, "CATS Warrior Steals the Show at Aero India 2025", *Bharat Shakti*, February 12, 2025, <https://bharatshakti.in/cats-warrior-steals-the-show-at-aero-india-2025/> Accessed on February 18, 2025.

countries, including overseas guests, defence ministers and chiefs of Services attended "Aero India 2025", the biennial exhibition that has become Asia's largest event.¹⁰

DRDO'S SHINE

The DRDO displayed a full-scale model of India's first 5.5th generation stealth aircraft, the AMCA, at Aero India. Along with this, 16 other DRDO-developed products and technologies were displayed, including the Twin Engine Deck-Based Fighter (TEDBF), Light Combat Aircraft (LCA) Mk-2 model, Air Droppable Container (ADC)-150, advanced lightweight torpedo, Kaveri derivative aero-engine without an afterburner, naval anti-ship missile—medium range—and various other missile systems.¹¹

The outdoor segment of the DRDO pavilion demonstrated the application of defence technologies, featuring a full-scale model of the Quick Reaction Surface-to-Air Missile (QRSAM) mobile launcher vehicle, Akash New Generation (NG) launcher, Archer Unmanned Aerial Vehicle (UAV) 1:1 (Rustom-1), Air Droppable Survival and Rescue Kit (SARK), Emergency Escape Parachute System for Air Crew (EEPSA), Military Combat Parachute System (MCPS), Vehicle Mounted 'Jammer Anti-UAV' (JAU) entity of Project DHARASHAKTI, and Very High Fidelity (VHF) radar (stealth aircraft detection). Demonstration of the mid-life upgrade of the Dornier aircraft, with upgraded avionics, better fuel efficiency, radar system, manoeuvrability, integrated surveillance and electronic warfare capabilities, was one of the major highlights.

Landmark Deals and Partnerships: Numerous partnerships and major deals were finalised between stakeholders at the event. Over 300 MoUs and agreements of the value of more than Rs 75,000 crore were signed across the five-day event. The maiden iDEX Investor

10. "Au Revoir, Aero India: Bengaluru Bids Goodbye to Its Biennial Aero Show", *The Economic Times*, February 15, 2025, <https://economictimes.indiatimes.com/news/defence/au-revoir-aero-india-bengaluru-bids-goodbye-to-its-biennial-aero-show/articleshow/118241831.cms>. Accessed on February 18, 2025.

11. "DRDO Showcases AMCA and Advanced Defence Technologies at Aero India", *The Bangalore Mirror*, February 12, 2025, <https://bangaloremirror.indiatimes.com/bangalore/others/groundbreaking-technologies-unveiled-drdo-amca-and-advanced-defense-systems-at-aero-india-2023/articleshow/118156298.cms>. Accessed on February 15, 2025.

Hub (iIH) also successfully secured Rs 200 crore for fostering the Indian aerospace and defence start-up community.

Bharat Forge Ltd (BFL) and VEDA Aeronautics (P) Ltd announced on February 13, 2025, that they have signed an MoU to develop state-of-the-art Unmanned Aerial Vehicles (UAVs) and other high-speed aerial weapon systems for battlefield use. While VEDA has been involved in developing unmanned system technology for defence purposes, BFL will provide the microjet engines for these unmanned systems. As per the contract, BFL will concentrate on the indigenous development of jet engines, with maximum thrust of 400 kgf (kilogram force) to power unmanned systems intended for the Indian defence operations. Engines with 40 kgf and 45 kgf produced by BFL are now in serial production and will be deployed by VEDA for all defence projects.¹²

The Hindustan Turbo-Trainer (HTT)-40, a fully indigenously sourced basic trainer aircraft of India, was ceremonially inaugurated for the first time by Bengaluru's Bharatiya Janata Party (BJP) Member of Parliament (MP) Tejasvi Surya. HAL's fully aerobatic HTT-40 designed for the IAF is powered by a four-bladed turbo-prop engine, has a state-of-the-art glass cockpit and the most advanced safety features, like a zero-zero negative ejection seat. This is another big step towards self-reliance in the domain of defence and aviation, and towards abolition of foreign Basic Trainer Aircraft (BTA) for pilot training.¹³

Showcasing Indigenous Capabilities: The robust Indian defence systems are being displayed for their technology prowess which marks a significant shift from the earlier reliance on foreign industry. Aero India 2025 was an important platform for the display of India's indigenous defence technology. The technological advancement was demonstrated in the display platforms like the light utility helicopter,

12. "Bharat Forge, VEDA Aeronautics Ink Pact to Develop Advanced UAVs and Aerial Weapons", *The Economic Times*, February 13, 2025, <https://economictimes.indiatimes.com/news/defence/bharat-forge-veda-aeronautics-ink-pact-to-develop-advanced-uavs-and-aerial-weapons/articleshow/118219030.cms>. Accessed on February 18, 2025.

13. "Bengaluru South MP Takes a Sortie in India's Fully Indigenous Trainer Jet at Aero India", *The Economic Times*, February 13, 2025, <https://economictimes.indiatimes.com/news/defence/bengaluru-south-mp-takes-a-sortie-in-indias-fully-indigenous-trainer-jet-at-aero-india/articleshow/118206979.cms>. Accessed on February 15, 2025.

Intermediate Jet Trainer (IJT) and Light Combat Aircraft (LCA) Mk-1A.

Drones Development to Next Level: Indian private sector companies are developing drones and counter-drone systems. The unmanned systems which were highlights of Aero India 2025 are appended below:

- (a) **The Akshi 7 UAS:** This is a Medium Altitude Long Endurance (MALE) Unmanned Aerial System (UAS) which is designed for maritime and surveillance missions. Bilingual avionics, multi-series payloads, and autonomous taxi functions add up to create the Akshi 7 as a game-changer in UAV capabilities that can seamlessly take off and land on ships and small airstrips. The work envelope of the Akshi 7 is 300 km, the service ceiling is up to 22,000 ft, loiter is up to 24 hours, and maximum T/O (take-off) weight is 650 kg. This is developed by 'Adani Defence'.¹⁴
- (b) **Anti-Drone System—Vyom Kavach:** This anti-drone system has been created by Zen Technologies, the company which is beginning to establish itself as a serious contender in counter-drone defence. The Vyom Kavach is a multi-directional protection shield against airborne attacks in the backdrop of the fast-growing threat of drone warfare.

Many new products have been released by Zen Tech, emphasising India's self-reliance in defence technology. An Artificial Intelligence (AI)-based combat simulator was launched for hyper realistic combat training for defence and security practitioners called the Infantry Weapons Training Simulator (IWTS). A modular, hybrid, and fuel optimised indigenous propulsion system for drones (Remotely Piloted Aircraft—RPAs), was launched that improves the endurance, and, hence, the operational efficiency of the platform. The other attraction was the airborne killer drone system, a high-speed drone with autonomous target detection, and precision strike capabilities, range of over 100 km, and swarm capabilities. A high-tech

14. "Aero India 2025: India's Drone Arsenal is Locked, Loaded and Ready", *The Economic Times*, February 12, 2025, https://economictimes.indiatimes.com/news/defence/aero-india-2025-indias-drone-arsenal-is-locked-loaded-and-eady/articleshow/118125422.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst. Accessed on February 13, 2025.

platform, the ‘Tactical Engagement Simulator (TacSim) for training of forces, with drone shooting options, was also keenly observed by visitors.¹⁵

- (c) Garuda Aerospace created a widespread sensation with its new set of eight military grade unmanned air vehicles capable of rocket launching and landmine detection as well as UAV-based grenade counter/deployment.

Fostering Innovation and Collaboration: The air show acted as a point of fluidity between innovation, collaboration, and knowledge exchange. It was an opportunity to discuss the future path of the aerospace and defence industry through important events such as Defence Ministers’ Conclave, CEOs Roundtable, iDEX Pavilion, Samarthya Indigenisation and Manthan iDEX competition. Indian start-ups’ promotion and their products were showcased by these and comprised a prestigious area of focus.

Global Participation and Partnerships: Aero India 2025 was a platform for global participation. Globally renowned cutting-edge platforms like the F-35 and Su-57 fighter jets showcased their capabilities. The event was an opportunity to strengthen the defence relationship between India and the UK that have jointly worked on the development of counter-drone systems. Additionally, Defence Secretary RK Singh had a bilateral meeting with the UK Minister for the House of Lords, Lord Vernon Coaker, for enhancing defence cooperation, in particular, industrial cooperation and cooperation in the maritime domain.¹⁶

One of the major successes of Aero India was GE supporting the Indian Air Force Apache. GE Aerospace has signed, and announced the issuance of a five-year Performance Based Logistics (PBL) contract

15. Kusum Kumari, “Zen Technologies Unveils Advanced Defence Solutions at Aero India 2025”, *Angel One*, February 13, 2025, <https://www.angelone.in/news/zen-technologies-unveils-advanced-defence-solutions-at-aero-india-2025>. Accessed on February 13, 2025.

16. “Aero India 2025 Day 2 Highlights: India-UK Strengthen Defence Ties; Adani-DRDO Launch Counter-Drone System, GE to Support IAF Apaches, Scandron Unveils Cargo Drone”, *The Hindu Business Line*, February 11, 2025, <https://www.thehindubusinessline.com/news/national/aero-india-2025-air-show-bangalore-updates-indian-air-force-shows-bengaluru-latest-news/article69201791.ece>. Accessed on February 11, 2025.

to the IAF to provide an integrated engine as a sustainable solution for the T700-GE-701D engines that power the IAF's fleet of Apache AH-64E-I helicopter. Herewith, GE Aerospace will be responsible for the Maintenance, Repair, and Overhaul (MRO) of the T700 engines and flight line components to maintain the requirement of the flight engines for the IAF.¹⁷

The T700/CT7 design has been successfully applied in the most demanding environments where it has accumulated hundreds of millions of flight hours in the most extreme combat scenarios (e.g., Iraq and Afghanistan).

HJT IS NOW YASHAS

Extensive upgrades to HAL's jet trainer, the HJT-36, were made to improve departure characteristics and spin resistance. The aircraft was renamed as the 'Yashas'. In addition to these improvements, Defence Production Secretary Sanjeev Kumar said that a new identity of the company is justifiable as it is playing an important role in modern military training.¹⁸ Advanced avionics, an ultra-modern cockpit and Indian made Line Replacement Units (LRUs) provide for massive upgrading of efficiency, with a resultant reduction in weight and obsolescence being the hallmarks of the Yashas. It is designed for Stage II pilot training, counter-insurgency, armament training and aerobatics. It is powered by a Full Authority Digital Engine Control (FADEC) controlled AL55I engine. Use of a redesigned cockpit reduces pilot workload, enhances visibility and situational awareness, and can perform a wide range manoeuvres, including stalls and spins. It can carry 1,000 kg of armament, and receive single point refuelling at airports around the world.¹⁹

17. "GE Aerospace Signs Contract with IAF for T700 Engine Sustainment", *The Economic Times*, February 11, 2025, <https://economictimes.indiatimes.com/news/defence/ge-aerospace-signs-contract-with-iaf-for-t700-engine-sustainment/articleshow/118142626.cms> . Accessed on February 11, 2025.

18. "HAL Renames HJT-36 Jet Trainer as 'Yashas' Following Significant Upgrades", *The Hindu Business Line*, February 10, 2025, <https://www.thehindubusinessline.com/economy/logistics/hal-renames-hjt-36-jet-trainer-as-yashas-following-significant-upgrades/article69202905.ece>. Accessed on February 14, 2025.

19. *Ibid.*

VISITORS WITH HIGH SPRIT

Besides opportunities to learn, budding aviation photographers and students also saw the event as an opportunity to build their portfolios, and witness the magnificence of their favourite aircraft.

The enthusiasm was such that a few visitors had collected passes from their friends to witness the Aero India spectacle for an opportunity to learn and update themselves about the aviation sector. The Aero India show hosts a long list of countries that display their aircraft and other aviation related masterpieces during the event. Additionally, with the display of new and existing technologies, it is a perfect place to gain knowledge.

Large crowds thronged the Air Force Station, Yelahanka, for Aero India 2025, braving the afternoon heat and dust to get at least one good glance of the metallic winged aerial beasts up close.

INDIAN PERFORMANCE

On the final day of Aero India 2025, a large crowd was present at the Yelahanka Air Force Station, where they watched thrilling aerial displays. The proceedings concluded with the pilots performing precision manoeuvres, launching up quickly and abruptly, then rolling mid-air, just as quickly down, and pulling up sharply.

The visitors, especially the children, had a barrage of questions for the pilots, including about their uniforms, the Velcro patches worn on their chests, torsos and arms, and their nicknames, among many others.

Aero India 2025, the biennial aerial display that concluded on February 14, revealed majestic aircraft and their manoeuvres, salifying the curiosity of the spectators about the air force, as the pilots, who donned their uniforms, calmly answered thousands of questions.

Aero India 2025 has become a landmark event of India's defence ecosystem wherein India has proved to be a key market and, more significantly, an emerging power in the production of defence technology. Highlighting India's key role in international defence partnerships, the unprecedented participation of military leaders from different nations and the interactions with global defence industry giants reflects the significance of the latter's participation. With the

exhibition's success, India has not only proved its major commitment to self-reliance in defence manufacturing capabilities, but has also earned respect as a genuine partner in defence manufacturing, joint development and production of state-of-the-art military systems, which is in line with 'Make in India, Make for the World'.²⁰

CONCLUSION

Aero India 2025 was a big success in proving India's capability in aerospace and defence technologies. India has also strengthened its leadership in the world of the aviation industry by manifesting indigenous knowhow, with the record number of attendees, record number of agreements, and so on. The event was focussed on building new ideas, team work and growth of start-ups. Explicitly, it shows that India is committed to build a strong and independent aerospace industry.

Aero India 2025 was not only a display of futuristic military technology, but a historic event for India's defence sector. Using AI-based systems, state-of-the-art anti-drone warfare and next generation UAVs, companies such as Zen Technologies, Adani Defence and Garuda Aerospace have demonstrated that India is no longer a passive importer of military technology, but a creator and engineer. Also, it explicitly established that the private sector is capable and innovative in design and production to significantly contribute in the Indian defence production ecosystem.

20. n. 4.